

Introduction to DataCAD Plus vis

DataCAD Plus vis helps you to visualize and present drawing projects you created using 3D models or ZAC.

You can furnish your project, select different surface treatments and colors, and experiment with different materials. Using drag-and-drop, you can take items from an extensive catalog, reposition and resize them, and put them into your project. You can even install landscaping features to complete your project.

DataCAD Plus vis allows you to see how your project will look during different hours of the day or night. You can also control interior light fixtures.

You can walk through your project, videotape the tour, and play it back later.

In this chapter:

- ⊕ Start vis
- ⊕ ArCon+ and ArCon-Explorer windows
- ⊕ Icons
- ⊕ Sounds
- ⊕ Preview window

Starting DataCAD Plus vis

The DataCAD Plus vis program is a scaled-down version of ArCon. It allows you to see your project come to life on the screen. However, since DataCAD Plus vis does not use the complete ArCon program, some icons do not function and appear as inactive or gray on your screen. To work with DataCAD Plus vis, you need to display a 3D model or ZAC project.

DataCAD Plus vis can only be started from within DataCAD Plus. You cannot run DataCAD Plus vis as a stand-alone program. To access an existing (saved) DataCAD Plus vis project, start a new (or existing) drawing and launch DataCAD Plus vis from within DataCAD Plus.

Before leaving DataCAD Plus and entering vis, it is a good idea to place a large slab beneath your structure. For convenience, you may want to put the slab in a separate layer in DataCAD Plus. In the vis program, the slab will serve as the ground level for your project. This ground slab will be useful for shadow studies and serve as a base for landscape objects (such as fences, trees, and swings).

➔ To start DataCAD Plus vis:

1. Display a 3D model or ZAC project.
2. Select DataCAD-plus vis from the View pull-down menu.
3. Choose Start. DataCAD Plus vis is loaded and prepares the 3D view of your drawing. This may take more than a minute if you are working on a complex project. The project appears in an ArCon+ Visual Architecture screen.

You can treat each active layer as an independent component or you can see the entire project as a group. This allows you to experiment with the entire project or individual components and make changes (such as selecting different colors or textures or relocating things) without altering your actual DataCAD Plus drawing.

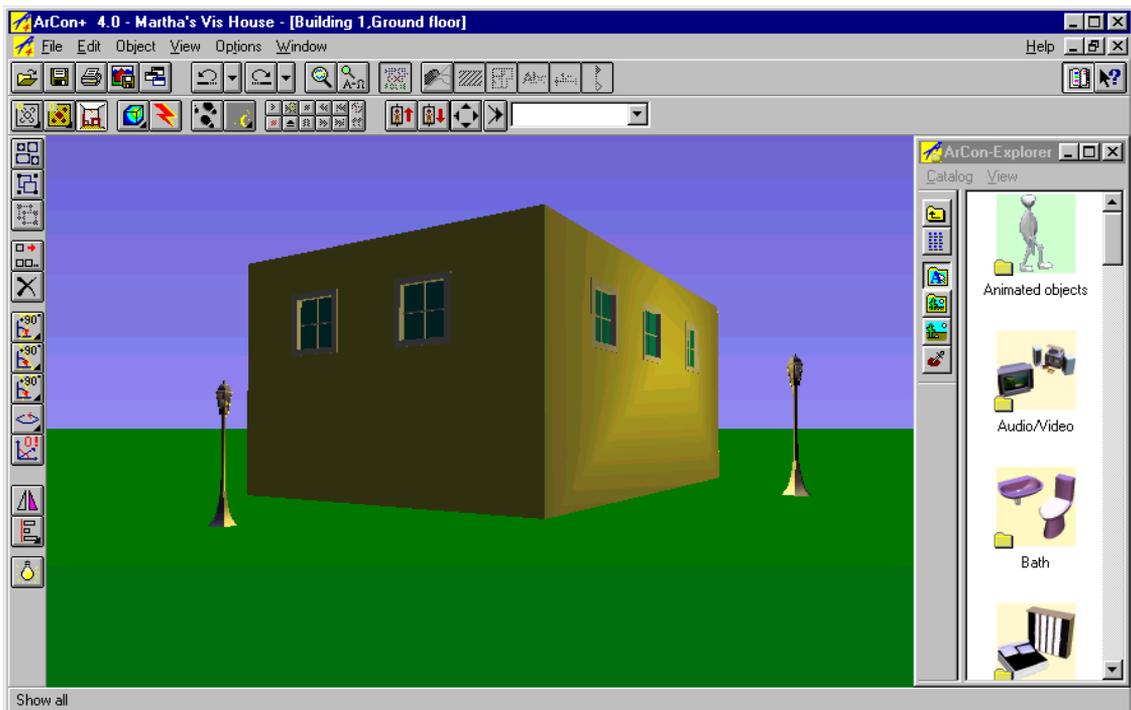
The ArCon+ and ArCon-Explorer Windows

Two ArCon+ windows appear when you start DataCAD Plus vis. The main ArCon+ window lets you view the project; the ArCon-Explorer window displays a catalog of objects, textures, and materials.

The main ArCon+ window includes a pull-down menu bar and three icon bars that let you control the views. The icons in the top horizontal bar pertain to the entire project. Those in the lower horizontal bar can be used to adjust the settings for the window; change viewpoints, directions, and daylight; and control animation and sounds. The icons on the vertical bar let you work with your furnishings and lights.

You can access the context-sensitive, on-line help by selecting topics from the pull-down menu bar or by clicking on  in the upper horizontal icon bar. The icon adds a question mark to your cursor and gives you a detailed description of any menu item, icon, or window area you select.

You can separate the ArCon-Explorer window from the ArCon+ window and place it anywhere on your screen. To show or hide the ArCon-Explorer window, click on the  icon.



The DataCAD Plus vis ArCon+ Window

Message Display

At the bottom of your ArCon+ window, there is a message bar. It displays information about the icon or menu option your cursor is over.

Icons

By clicking on the icons, you can perform various operations. As you pass your cursor over each icon, the Message window at the bottom of the ArCon+ window explains how that icon will perform. You can only click on active icons; inactive icons appear gray and cannot be used.

There is a small black triangle in the lower right corner of some icons. When you click on the triangle or rest your cursor on these special icons, several more icons appear. These extra icons give you more options. Simply click on the icon that performs the operation you want.

When you right-click on some icons, a dialog box appears. You can fine-tune your display by making selections or adjustments in these dialog boxes and clicking on OK to implement them.

If the resolution of your screen doesn't allow you to display all the icons, you can relocate them by positioning your cursor between two icons. When the cursor changes to a hand, you can reposition those icons with your mouse. DataCAD Plus vis offers this option only when the complete icon bar cannot be seen.

Upper Horizontal Icon Bar

The icons in this bar never change. However, some of the functions they initiate are not available if an icon is gray. The functions the icons in the upper horizontal menu bar initiate include:

- working with files – this includes opening , saving , printing to paper  or file , and changing the view 
- using undo/redo   – this takes you backward or forward step by step
- zooming – this lets you enlarge  or shrink items or display everything 

- showing/hiding things – this applies only to the landscape  in DataCAD Plus vis. The grayed icons (including transparencies from other file types , wall shadings , the interior arrangement , inscriptions , dimensions , and cuts ) are not available in the DataCAD Plus vis version of ArCon.

Showing the landscape  is helpful when you are placing objects. When you use a 3D plan elevation view, you can easily check the relative height and position of objects.

Lower Horizontal Icon Bar

The icons in this bar let you work with and experience your project. If an icon has a black triangle in the lower right corner, you can select from the pull-down options offered. The functions these icons initiate include:

- working with views – 2D , colored 3D , or perspective  view
- displaying several versions of wire frame viewing modes or colored textures 

The various display options affect not only the quality of your viewing mode, but also the processing speed. The wire frame mode is the quickest and most abstract display, while the high-quality colored version takes the longest.

- raytracing  – simulates lighting conditions, including shadows, reflections, and refractions
- walking through  a project
- adjusting for time of day 
- playing and recording the show or creating still images 
- going up  or down  one floor
- changing the observer's viewpoint  - you can click and release (slow motion) or continue to hold down (rapid movement) each arrow to move your drawing in a certain direction
- defining the viewpoint   - this lets you save a viewpoint with a particular name so that you can use it again later

Vertical Icon Bar

The icons in this menu give you access to editing functions:

- selecting , grouping , or ungrouping  items
- copying 
- deleting 
- rotating around the X axis 
- rotating around the Y axis 
- rotating around the Z axis 
- rotating freely around the Z axis 
- restoring selected objects and/or groups to their original position 
- reflecting or mirroring objects 
- aligning objects 
- turning the lamp on or off 
- calculating an optimal color palette for a colored view  - this icon only appears if your computer is set up to handle 256 or fewer colors to save processing time and memory

When you run Windows in 256-color mode (indexed color), DataCAD Plus vis reduces the colors for the rendered pictures in the view. This technique (called dithering) produces something like a newspaper picture. It calculates images very quickly; however, the appearance is seriously degraded. If you're running Windows in High Color or True Color mode, this icon doesn't appear.

If this icon appears on your vertical bar, you can calculate an optimal color palette for a specific colored view. This affects only the current view in the window. All other views and Windows applications may appear with distorted colors. You can find out more about upgrading your color display in the reference material that came with your Windows software or your video card.

Pull-down Menu Bar

DataCAD Plus vis supplies pull-down menus that you can use instead of clicking on icons. Some options are available only from the pull-down menus. Many of the dialog boxes you see when you right-click on an icon are available from the Program pull-out menu under Options.

Keyboard Shortcuts

Many DataCAD Plus vis capabilities are just a keystroke away for those who are most comfortable using their keyboards. Throughout this manual, we refer to keyboard shortcuts you may use to accomplish certain tasks. For your convenience, a list of the keyboard shortcuts appears in the Appendix.

Toggle Switches

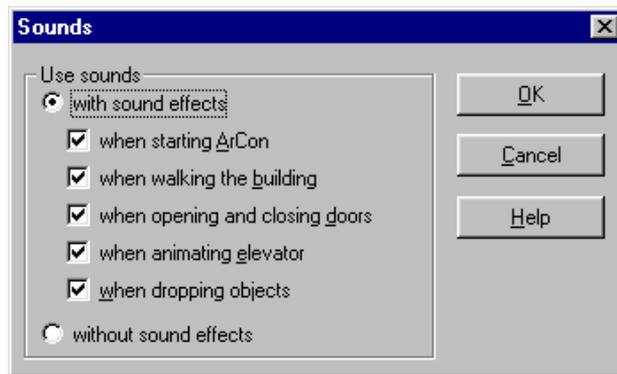
Some icons act as on/off toggle switches. This is particularly true for the show/hide icons located on the upper horizontal bar, the recording/playback options on the lower horizontal bar, and the light on/off switch at the bottom of the vertical bar. If a toggle option is unavailable or inactive, its icon will be gray.

Sounds

DataCAD Plus vis can make sounds if your PC has a sound card. For example, you can hear doors open and close or footsteps during walk-through. But you can disable these sounds if you don't have a sound card, if they are distracting, or if you want to increase speed during walk-through. Generating sounds requires CPU cycles and can slow down the graphics; turning off the sounds assures the fastest possible display and rendering speed.

→ To turn sounds off:

1. Select Options from the menu bar.
2. Slide your cursor to display the Program options.
3. Choose Sounds to display a dialog box.



4. Click in the circle beside "without sound effects" to turn all sounds off; select "with sound effects" and click in the appropriate check box to turn off some sounds but still hear others.
5. Click OK or press **Enter**. The choices you made are now in effect.

Working with Files

DataCAD Plus vis allows you to use icons, selections from the menu bar, or keyboard shortcuts to manage your project files.

→ To open a file:

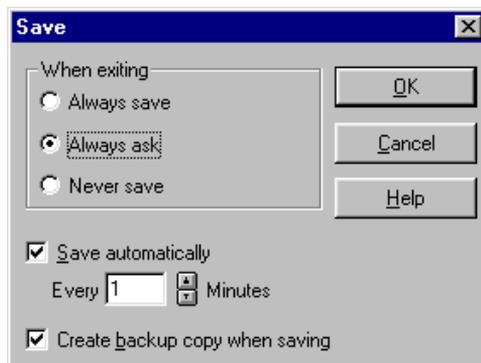
1. Click on the  icon, select Open from the File menu, or use the keyboard shortcut **[Ctrl] + [O]**. The Project load dialog box appears.
2. Double-click on the file with an .acp extension that you want to open. If necessary, you can look in other folders or use an extension other than .acp.

→ To save a project file:

1. Click on the  icon, select Save from the File menu, or use the keyboard shortcut **[Ctrl] + [S]**. The Project save dialog box appears.
2. Select the folder where you want to store this project.
3. Supply a file name. DataCAD Plus automatically adds the .acp extension. You can use long (up to 256 characters) file names.

→ To change save options:

1. Right-click on the  icon. Alternatively, from the Options menu, select Program, then choose Save. The Save dialog box appears.



2. Select the exit option that suits your needs. DataCAD Plus recommends that you select the *Always ask* option.

3. Change the automatic save time by using one of the increase/decrease arrows. To remove the automatic save feature, click in the box until the checkmark disappears. DataCAD Plus recommends that you use the automatic save feature since it is very fast and will not interrupt your work. This feature gives you added security in case of a power outage.

If you didn't exit the DataCAD Plus vis program properly (for example, because of a power outage), you are given the option to restore your project and rename it. Saving your project with a new name is recommended just in case you experience another power outage and the vis program ends abruptly once more.

4. Check or uncheck the Create backup copy (with the .bak extension) when saving box.

This lets you revert to a previous copy of your project if you have done something drastically wrong. Of course, you should immediately rename the *.bak file.

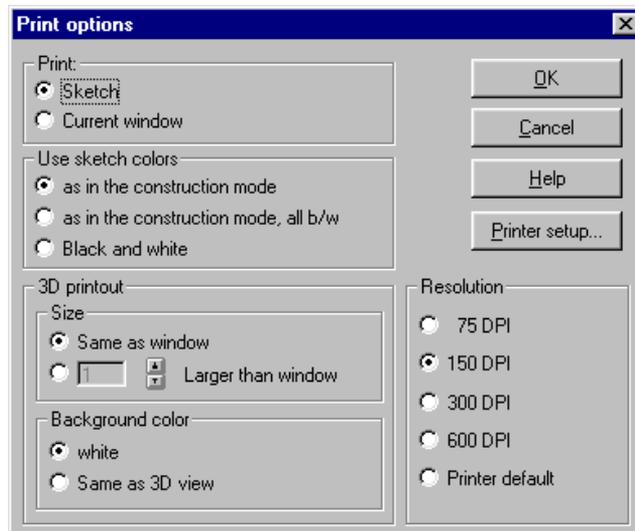
5. Click OK or press when you are finished.

→ To automatically print a paper copy of a file:

1. Click on the  icon. This sends your project directly to the printer.

→ To control print options:

1. Right-click on the  icon. The Print options dialog box appears.



2. Click in the circle in front of print options you want.
3. Choose Printer setup to change your Windows printer/plotter, control paper size and source, and select the correct orientation. If further fine-tuning is necessary, click on the Properties button. For detailed instructions on setting up your printer, refer to the manual that came with your machine.
4. Click OK to accept the decisions you made for each dialog box.

This changes your print options and/or printer setup; however it does not send a copy of your project to the printer. To print your project using the new settings, left-click on the  icon.

➔ To print your project using two other methods:

1. Select Print from the File menu or use the keyboard shortcut **[Ctrl] + [P]**. These options bring the standard Windows Print dialog box to your screen.
2. Make appropriate selections in the Print dialog box. If necessary, make further changes by clicking on the Properties button and working with the options presented in the printer's tabs.
3. Click OK to accept changes you made on each dialog box and print the file.

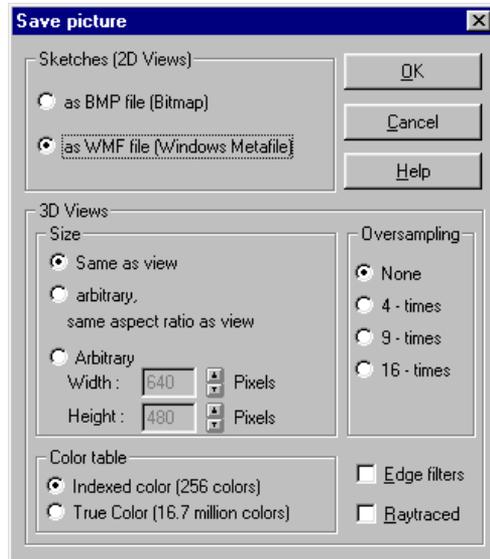
➔ To save a picture to a bitmap file:

1. Click on the  icon. The Picture save dialog box appears.
2. Select the folder or computer/network drive where you want to store your picture.
3. Give the picture a file name.
4. Select Save or press **[Enter]**.

➔ To change the Save picture options:

1. Right-click on the  icon or select the Options pull-down menu, then Program, and Save picture. The Save picture dialog box appears.

The options in the Sketches (2D Views) box are not available in DataCAD Plus vis.



2. Select the appropriate 3D Views size options. (“Same as view” is self-explanatory; “arbitrary, same aspect ratio as view” means that if you change the width, the height will adjust automatically to the maintain the correct proportions; “Arbitrary” lets you control both the pixel width and height).
3. Change the Color table options if necessary. (The “Indexed color” option is good if you want to send your picture to a client via the internet or www.)
4. Change the Oversampling options if necessary. For the best results, DataCAD Plus vis recommends that you use oversampling and click to enable Edge filters.

Oversampling internally measures each pixel against its neighbors, adapting the display and colors accordingly. This improves the quality of your picture and intensifies colors.

Enabling Edge filters tries to smooth out jagged edges in your picture. It takes little computer time to do this. You get the best results by using both Edge filters and Oversampling.

5. Enable Raytraced if necessary. This lets you render the saved picture using raytracing.

Enabling Raytraced can significantly increase processing time since it simulates shadows, reflections, and refractions. For example, if the normal display is so fast that you can walk through your dwelling in a "real-time" manner, calculating a raytraced picture will require several minutes or even hours. The very realistic view of the scene makes up for the time disadvantage.

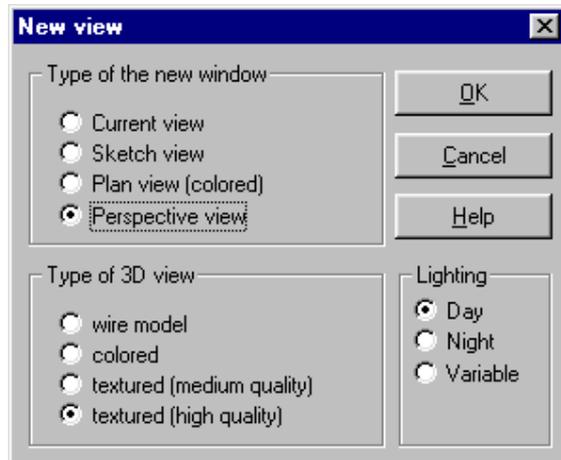
6. Click OK or press **Enter** to accept and activate these options.

→ To open a new view:

1. Click on the  icon. The new view appears immediately.

→ To control the New view options:

1. Right-click on the  icon. The New view dialog box appears.



2. Select the appropriate options by clicking in the circles or boxes to control the type of window, view, and lighting.

3. Click on OK or press **Enter** to accept and implement these changes.

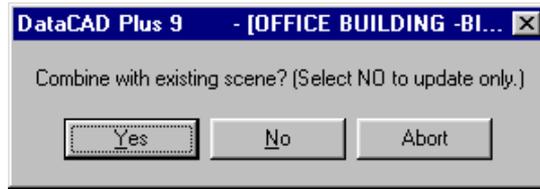
→ To update your project in vis based on changes you made in DataCAD Plus:

1. Start with a project that you want to change in your DataCAD Plus vis window.

2. Switch to DataCAD Plus.

3. Make changes (deletions, additions, etc.) in the project.

4. Select DataCAD Plus vis from the View pull-down menu and click on Start. The following dialog box appears:



5. Click "No" to incorporate the changes you made in DataCAD Plus to your vis project. These changes or updates will be visible when you return to the vis program.
6. Make additional changes or updates by repeating steps 2 through 5 until you are satisfied with the way your project looks in the vis program.

Undo/Redo Options

The Undo/Redo   depth (how many changes you can reverse and restore) is limited only by available memory (RAM). Fortunately, each Undo/Redo step requires very little memory and the amount reserved for these operations is large. So you may be able to cancel all operations up to and including the first.

The Undo/Redo buttons are gray (inactive) if you made no additions or deletions.

- To undo or redo your previous operation, you have several options:
 - click on the appropriate curved arrow   icon
 - use a keyboard shortcut for undo: **Ctrl** + **Y** or **Backspace** or **Delete**
 - use a keyboard shortcut for redo: **Ctrl** + **Z** or **Alt** + **Backspace** or **Alt** + **Delete**
- To undo or redo several operations at once:
 1. Use the pull-down list to the right of the curved arrows to reveal your undo/redo history.
 2. Mark as many steps as you want to cancel or reinstate.

Zoom

There are several ways to get a closer look at an area:

- use the Zoom  icon
- select ZoomIn from the View menu
- press **Ctrl** + **+** keys

There are several ways to shrink the item:

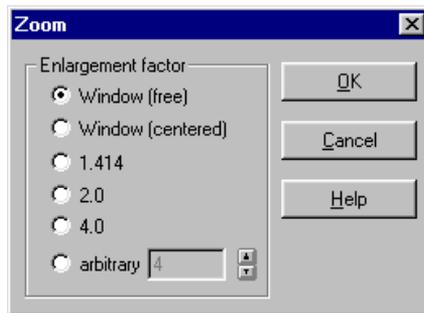
- use the icon Zoom  + **Ctrl**
- select ZoomOut from the View menu
- press **Ctrl** + **-** keys

There are several ways to display the entire project:

- use the icon Show-all 
- select ShowAll from the View menu
- click the **Home** key

➔ To increase or decrease the zoom increment:

1. Right-click on the icon Zoom  or select from the pull-down menu Options, Program, and Zoom factor. The Zoom dialog box appears.



2. Select the Enlargement factor option you prefer.

- | | |
|-------------------|--|
| Window (free) | Varies, depending on the size of the box you draw. Select  ; move your cursor to the area you want to enlarge; press and hold down the left mouse button and drag to draw a box around the area you want to zoom in on; release the mouse button. |
| Window (centered) | Similar to Window (free), except the box is drawn outward from the focal (center) point where you press the left mouse button and hold it to drag the box until it encloses the area you want to enlarge; release the mouse button. |

1.414, 2.0, or 4.0	Fixed zoom factors. Select  ; click the left mouse button on the area you want to enlarge. To zoom out, press Ctrl as you click.
Arbitrary	Type a value between 1.00 and 20.00 or use the arrows next to the input field to designate the zoom factor you prefer.

3. Click OK or press **Enter**. The enlargement factor you selected in step 2 affects both zoom-in and zoom-out operations. This factor stays in effect until you change it.

You can also use the numeric keypad to adjust zoom levels and move windows. The following keys have certain effects:

0	Show everything
1	Move the window downward and to the left
2	Move the window downward
3	Move the window downward and to the right
4	Move the window to the left
6	Move the window to the right
7	Move the window upward and to the left
8	Move the window upward
9	Move the window upward and to the right
+	View window is zoomed in, around the center
-	View window is zoomed out, around the center
*	View window is zoomed in, centered around the mouse cursor
/	View window is zoomed out, centered around the mouse cursor

You may find these keys useful for navigating around your DataCAD Plus vis project. Laptop users who don't have a numeric keypad can hold down the **Ctrl** key in conjunction with the numbers and symbols shown above.

The DataCAD Plus vis ArCon-Explorer Window

In this window, DataCAD Plus vis allows you to keep a catalog of the objects, textures, and materials used in your project. You can detach this window from the ArCon+ window to leave more room for your drawing project.

You can toggle off the icons on the left margin of this window by using the View pull-down menu and selecting the Toolbar option. When the Toolbar option is checked, the icons appear in the left margin; when it is not checked, only the pull-down menu is visible. Similarly, you can toggle on and off the detailed information about your objects and textures by selecting Details from the View pull-down menu.

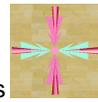
You can move the icon bar and reposition it above the catalog list as in this illustration. The icons stand for Folder (go up one level), Details (display or hide), Objects, Textures, Loaded Textures, and Materials.

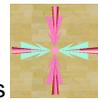


There are over 1,000 objects, including furniture for baths, kitchens, and living rooms. To successfully work with all these objects, they are grouped and organized into folders of related objects in the object and texture catalog. These folders can contain additional subfolders or individual objects.

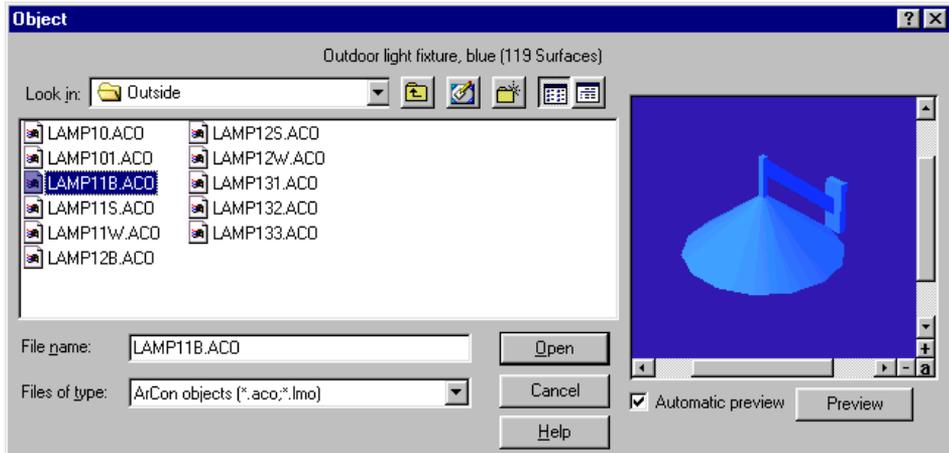
In either the plan view or perspective view, you can drag and drop items from the catalog into your drawing. At the same time, you can resize items.

- To move something from the catalog into your drawing using drag-and-drop:
1. Click on the item you want in the ArCon-Explorer window.
 2. Keep your finger on the left mouse button while you drag the item into your main ArCon+ window. The cursor changes to let you regulate the size of the item.
 3. Release the left mouse button when you are satisfied with the size of the item and its position in your drawing.



In perspective view, the cursor changes to ; in plan view, it becomes .

- To place an object or group of objects from the catalog into your drawing with the menu:
1. Select Object from the menu bar in the ArCon+ window.
 2. Choose Load Group or Load Object. The Object dialog appears.



3. Select the group and/or object you want. You may need to browse through several folders until you find the group or object you need. The object may appear in a preview window (see details about the preview window in this chapter) so that you can look at it from all angles.
4. Click on Open or press **Enter** to place that group and/or object into your drawing. The cursor changes to let you regulate the size of the item.
5. Release the left mouse button when you are satisfied with the size of the item and its position in your drawing.

Further details about controlling the objects, dimensions, location, and relative placement (for example, furniture falls to the floor, but light fixtures may move toward the ceiling) are included in the chapter Working with Catalog Items.

Once an object is in your ArCon+ window, you can click on it, drag it to a new position, and/or resize it.

You can select an object by quickly clicking on it and releasing the left mouse button. This puts a frame around the object. You can select several objects (using **Shift**-click) to form a group that DataCAD Plus vis puts in a frame. You can then delete, mirror, rotate, and/or realign them using the icons in the vertical bar.

Preview Window

Sometimes, dialog boxes contain preview windows to show you an object from any viewpoint before you insert it in your project. Any changes (such as dimensions or textures) you make in the dialog box fields are immediately shown in the preview window. If a dialog box contains a Preview option, clicking on the icon in the lower right corner lets you make mathematical changes that affect an object's appearance in the preview window. For most objects, the preview window appears automatically when you input changes. When you click OK, the image moves from the preview window to your current project file.

When you work in the preview window, the cursor changes to .

→ To turn an object in the preview window:

1. Put your cursor in the preview window. The cursor changes to .
2. Keep the left mouse button depressed.
3. Move your mouse to view the object from all angles.

→ To zoom in or out in the preview window:

1. Move your cursor to the lower right corner of the preview window.
2. Click on the "+" to zoom in (enlarge) or the "-" to zoom out (shrink).

→ Here's another way to zoom in or out in the preview window:

1. Position your cursor in the preview window.
2. Press the right mouse button and continue to hold it down.
3. Move the mouse downward to enlarge the object; move the mouse upward to shrink it.

→ To reposition the object in the preview window:

1. Find the scroll bars on the right and bottom sides of the preview window.
2. Click on the arrow at either end of the scroll bars until you are satisfied with the object's position in your preview window.
3. Click on the "a" in the bottom right corner of the preview window to display the complete object.

Animated Objects

Some objects that appear in a preview window can be animated. For example, an animated cabinet can have doors and drawers that open and close.

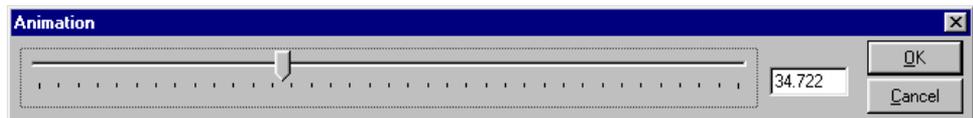
- ➔ To move an animated object in the preview window:
 1. Click the Play button to show the animation in sequence.
 2. Click the Stop button to halt animation.
 3. Move the slider to control the pace and position of the object that is being animated.

If there is an animated object in your project, the cursor changes to  when you move the mouse over it.

- ➔ To move an animated object in your project:
 1. Position the cursor on the object.
 2. Right-click to display a menu that controls the object's movements.
 3. Select the animation options you want from the menu.
 - Arbitrary time Object changes based on selected time
 - Restore initial position Object returns to original state
 4. Right-click again to display a slightly different menu that offers further animation options. Select the one you want.

Some independent movements of animated objects can last quite a while. If you want to abort the animation, simply press **[Esc]**. The object will immediately stop moving and will assume the position it would be in at the end of the animation.

- ➔ To control arbitrary time (the last item in the pop-up menu when you right-click on an animated object):
 1. Select arbitrary time. The Animation dialog box appears.



2. Move the slider to position the object where you want it and click OK.