



INTRODUCTION

Welcome to EA SPORTS *Course Architect™ 2000*. For years, this tool has been used by EA SPORTS™ to design, build, and export golf courses for our golf games. For the first time, you can use these professional design tools to build the golf course of your dreams. And, you can import your dream course into *Tiger Woods PGA TOUR® 2000* or *Tiger Woods 99 PGA TOUR® Golf* to challenge the pros to a round or tournament on your custom course.

Course Architect 2000 is a 3D development tool that shares features and methods with 3D graphics programs like *3D Studio Max®*. When developing a course, your base unit is the hole. Each course has eighteen holes that you configure, load, and design one at a time. When you are working with a course, you're presented with a 2D, top-down view of the layout of your course in one window. Then you can position the 3D camera anywhere in the window, and by pressing a button, you can render the camera's view into the 3D View window.

Additional camera modes allow you to watch your design come to life on your PC. In Locked Cam mode, you can move the 3D camera across the surface of the course, which automatically updates in the 3D View window from the point of view of a golfer strolling across the course. In Free Cam mode, you can move the camera up and down to get the best bird's eye view of your work area. In both windows, you can use the powerful suite of selection, positioning, and shaping tools from the desktop. In this manner, you can develop your course from any vantage point to get the right size, shape, and positioning of its features.

When you have completed your course, a menu item prepares and saves the course to seamlessly include it in your suite of courses in *Tiger Woods 99 PGA TOUR Golf* or *Tiger Woods PGA TOUR 2000*.

KEY FEATURES

- ☐ Used for years to build courses for EA SPORTS golf games, this professional tool has been tuned and updated for easy customer use.
- ☐ Course creation tools fully integrated into one application for WYSIWYG (What You See Is What You Get) development.
- ☐ Automatic 2D and 3D Views lets you switch in real-time from strategic planning to detailed implementation.
- ☐ 3-plane camera positioning and movement puts the camera right where you need it.
- ☐ Excellent movement and selection tools give you total command over the course and its terrain features.
- ☐ Visual tool palettes with keyboard and menu equivalents let you tailor the controls to your personal preferences.

- ☐ Get an idea, make the idea: Create holes in any sequence.
- ☐ Build a course, send it to your friends, and play over the net.
- ☐ Game time! One-button course exporter pumps your course from the *Architect* directly into the game for easy menu access.
- ☐ Content Library of hundreds of objects, textures, and horizons speed the development process.
- ☐ Export courses in development to *Tiger Woods 99* or *Tiger Woods PGA TOUR 2000* games for test-play. Build it and test it, and then perfect it to challenge the TOUR pros.

WHAT'S NEXT?

The remainder of this Introduction describes some of the terms and conventions of the help guide.

FOR MORE INFO about this and other titles, check out EA SPORTS on the web at www.easports.com.

SYSTEM REQUIREMENTS

MINIMUM

CPU	200MHz Intel® Pentium® Processor
Operating System	Windows® 95/98 (Windows NT not supported)
RAM	64MB
Hard Drive Space	210MB for installation 30MB per course Additional space for Windows swap file
CD-ROM	4x
Display	1MB PCI video card high-color (16-bit) capable
Other	Keyboard, mouse, DirectX 7.0 compatible sound card with DirectSound™ support

RECOMMENDED

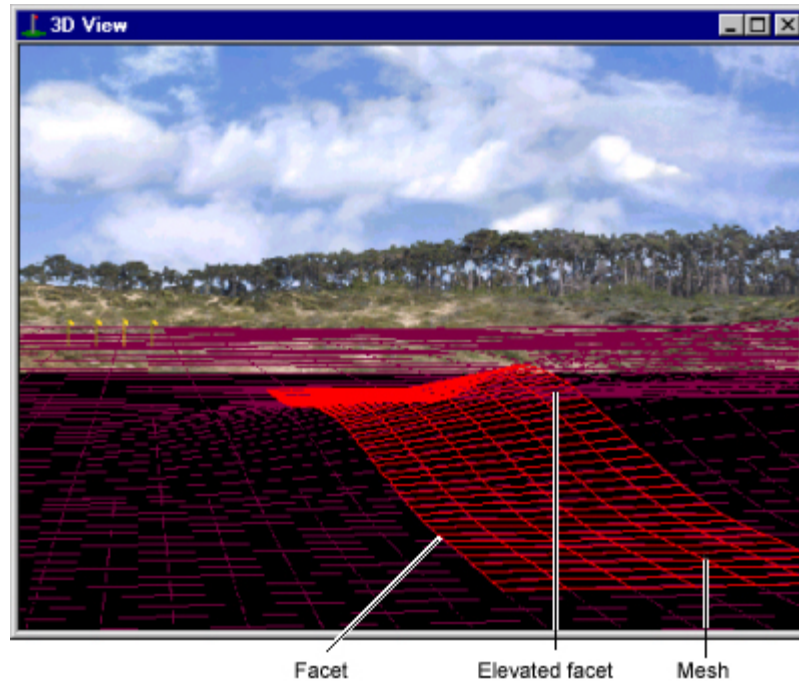
CPU	450MHz Intel Pentium III Processor
RAM	128MB
Hard Drive Space	600MB for installation 30MB per course Additional space for Windows swap

CD-ROM	file 4x or faster 32-bit Windows 95/98 CD-ROM driver
Display	16MB AGP video card

COURSE ARCHITECT CONCEPTS

Course Architect 2000 has a number of terms that apply to its special brand of 3D modeling. While the terms seem easy to understand, they do have special application inside the tool.

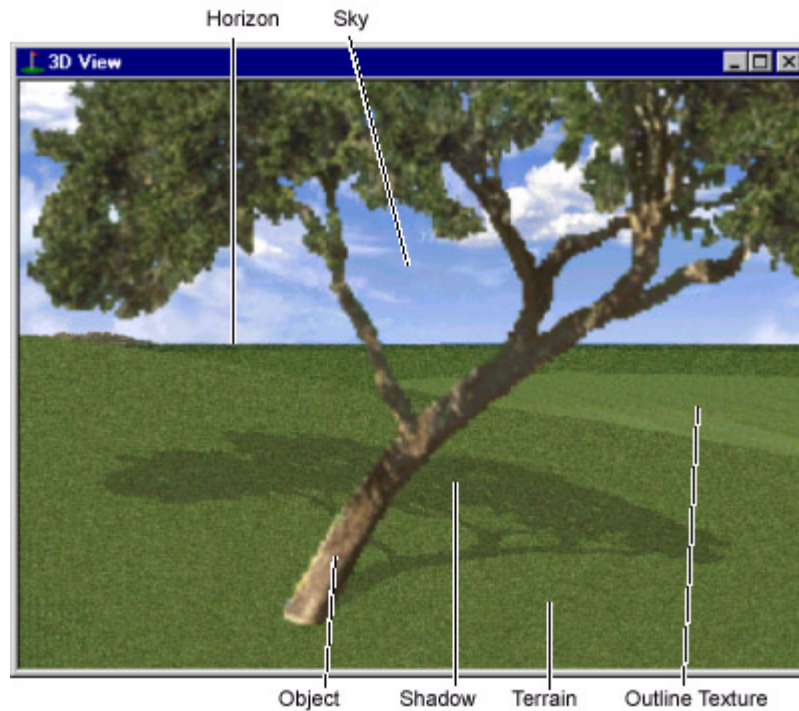
- FACETS** A facet is any four-sided shape. Squares and rectangles are facets with special characteristics. A facet represents one square yard in the editor.
- The world of computer course design can be described with facets. By raising and lowering them, the editor can describe a 3-dimensional surface. If you stretch surface of the terrain, the side facets stretch to retain the integrity of the 3-dimensional shape.
- When you increase the terrain size of the holes, the computer adds facets to the environment to give you more room to build terrain shapes.
- HOLES** In both life and *Course Architect 2000*, a full golf course is composed of eighteen holes. In *Course Architect 2000*, the hole is the basic unit of development; to build a course, you build eighteen separate holes.
- On your hard drive, each hole is stored inside your course folder as a separate folder named "Hole01", "Hole02", and so on. The unique files for each hole are stored inside of this folder. In turn, the hole is saved within a folder bearing the name of your course.



MESH Mesh refers to the collection of facets that are linked together to describe a 3-dimensional shape. By shaping and placing facets flush against other facets, the computer defines a seamless mesh that, in total, describes the outer shell of a 3D shape.

When you manipulate a 3D shape, the computer changes the shape of the mesh to seal it.

In *Course Architect 2000*, facets and their mesh are used to describe the elevation and terrain features of the course. Facets link together to form a mesh, and the mesh, as a whole, describes the surface of a hole. For more info on terrain, ➤ [Terrain](#).



- TERRAIN** Terrain refers to the 3D mesh of facets that describe the surface of a hole. With a click and a drag, you can raise terrain or lower it. You can push, pull, tilt, bump, and depress terrain. No matter how you manipulate pieces of terrain in *Course Architect 2000*, the tool automatically reshapes the component facets to fill the holes and seams in it.
- You can manipulate terrain pieces of any size and shape.
- TEXTURES** *Course Architect 2000* comes with a large library of textures that have been specially tailored for use in designing golf courses. To learn more about how to incorporate textures into your golf course, ➤ [Textures](#).
- SHADOWS** Shadows, we know, are created by the sun. In *Course Architect 2000*, the terrain is always outside, so the “sun” should cause the appearance of shadows. On the computer, shadows are created by computation. You can add shadows for interesting and realistic effects. You position the sun and set some other parameters, and the tool automatically computes the sun's shadows over objects like trees, rocks, and other terrain features. You can position the height and intensity of the sun to simulate time-of-day and climate effects.
- For more information, ➤ [Sun and Shadows](#).
- HORIZONS** There are several kinds of specialized textures in the tool. **Horizons** give the appearance of terrain features in

photographic detail. Similarly, **skies** give the appearance of the sky overhead. The horizons and skies of *Course Architect 2000* have been designed to seamlessly blend together.

- OUTLINES** To describe the surface of the course, the tool uses a specialized shape called an **outline**. An outline is a malleable 2-dimensional shape that describes the surface of course features such as greens, tees, sand traps, and fairways.
- Outlines sit on top of the hole's terrain. To use an outline, you apply a texture to describe the various kinds of play surfaces that can appear on a golf course—fairway, green, tee, sand, and so forth.
- With the Outline tools of *Course Architect 2000*, you can build outlines of any size and shape. When you reshape the underlying terrain, the outline automatically stretches to cover the new terrain features.
- POINTS** The shape of an outline is described with **points**. To manipulate outlines, you use three kinds of points: boundary, control, and tangent.
- Boundary points** are eight in number and sit at the corners and midpoints of the rectangle that surrounds the outline. To change the overall size of the outline, click and drag the boundary points.
- Control points** determine the basic shape of the outline. You click and drag control points to change the shape of your outlines.
- A pair of **tangent points** are associated with each control point. You can use the tangent points to change the curvature of the outline in the vicinity of the control point.
- OBJECTS** **Objects** like trees, rocks, and houses can be added to give authentic flavor and interesting variation to your golf course. These objects have the appearance and play characteristics of their real-world counterparts. For more, ➤ [Objects](#).

CONVENTIONS OF THE TOOL

- ☐ Length and width distances are measured in yards, while measurements in the vertical plane are typically measured in feet.
- ☐ Tab bars group commonly used tools and items. However, you can access all of the Tab tools through the menu system, and the most common tools can be selected with hot keys.
- ☐ When an item is selected, you can often open a menu of relevant commands by clicking the right mouse button. One of the more important

means of defining a course feature is through its Properties window, which, if available, can be accessed through the right-click menu.

COURSE ARCHITECT 2000 DOWNLOADS

On a regular basis, *Course Architect 2000* team posts upgrades to the tool and new terrain data files on the EA SPORTS web site. You can download free software patches plus new textures, terrain maps, objects, horizons and much more.

FOR THE LATEST INFORMATION ON *COURSE ARCHITECT 2000*:

<http://www.coursearchitect.com>

BEGINNING COURSE DESIGNERS

Beginning designers should read the Introduction and Installation instructions. After installing *Course Architect 2000*, read the Overview chapter and follow the step-by-step tutorial to start your first course hole. After you have completed the basic tutorial, you can use the rudimentary hole as a reference for further development and exploration.

ADVANCED COURSE DESIGNERS

Course Architect 2000 is a graphical tool that allows you both top-down and 3D views of your work. If you are familiar with tools such as *3D Studio*, learning to use *Course Architect 2000* is straightforward. If you are familiar with 3D graphics tools, you may want to read the rest of the Introduction and then begin digging into the tool. As you learn, you may find the Quick Start, Reference, and Index sections helpful.

CONTENTS OF THE CD

When you install *Course Architect 2000*, you can choose to install the program with or without the Object Library. This library contains hundreds of images. It features trees, buildings, rocks, unique textures and more to help build any course you can imagine.

Tiger Woods PGA TOUR 2000 ships on two CDs. The first CD contains the game. The second CD contains *Course Architect 2000* and its libraries. On *Course Architect 2000* CD, you can access the library inside the \LIBRARY directory. It includes the following types of objects and materials.

- ☐ Animals
- ☐ Buildings
- ☐ Bushes
- ☐ Cacti
- ☐ Grass
- ☐ Horizons

- ☐ Rocks
- ☐ Trees
- ☐ Textures
- ☐ Ambient objects (benches, fountains, yardage markers, etc)

TECHNICAL SUPPORT

NEED TECHNICAL SUPPORT? Please see the enclosed Reference Card for technical support information.

QUICK COMMANDS

Use the following Quick Commands to access the most commonly used functions of *Course Architect 2000*. The Locked/Free Cam keys let you move the camera in all directions while you continue to work. The other keys are shortcuts to menu commands.

LOCKED/FREE CAM

ACTION	KEYS
Move Camera Forward	↑
Move Camera Backward	↓
Move Camera Left	←
Move Camera Right	→
Move Camera Up (Free Cam only)	[CTRL] + ↑
Move Camera Down (Free Cam only)	[CTRL] + ↓

FILES

ACTION	KEYS
Open Project	[CTRL] + [O]
Save Project	[CTRL] + [S]

EDIT

ACTION	KEYS
Undo last action	[CTRL] + [Z]
Redo last action	[CTRL] + [Y]
Cut selection	[CTRL] + [X]
Copy selection	[CTRL] + [C]
Paste selection	[CTRL] + [V]
Delete selected object or outline	[DEL]
Find Objects	[CTRL] + [F]
Edit Settings	[CTRL] + [ENTER]

CAMERA

ACTION	KEYS
Camera Settings	[CTRL] + [ALT] + [C]

Focus on Terrain Selection	[CTRL] + [L]
Render Textures	[CTRL] + [T]
Render Flat	[CTRL] + [B]
Render Wire	[CTRL] + [W]
Toggle Display Camera	[K]
Display Objects	[CTRL] + [J]
Display Outlines	[CTRL] + [U]

SELECT

ACTION	KEYS
Clear All	[C]
New	[N]
Subtract	[S]
Add	[A]
Tool Lock	[P]
Constrain Texture	[X]
Grid	[G]
Rectangle	[R]
Freehand	[F]
Corral	[I]
Pick Texture	[.]
Object	[O]
Outline	[U]
Grid Size	[ALT] + [G]

OUTLINES

ACTION	KEYS
Update Masks	[F2]

TERRAIN

ACTION	KEYS
Mesa	[M]
Tilt	[T]
Bump	[B]
Linear	[L]

Smooth	[H]
Flatten	[W]

SHADOWS

ACTION	KEYS
Update Terrain Shadows	[F3]
Update Object Shadows	[F4]

VIEW

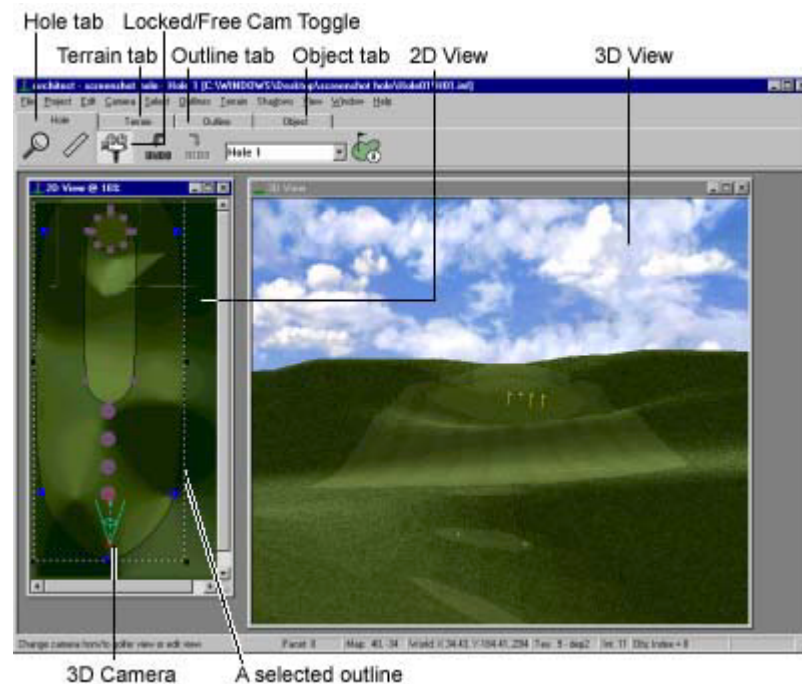
ACTION	KEYS
100%	[CTRL] + [0] (zero)
Fit	[ALT] + [0] (zero)
Grid Display	[CTRL] + [G]
2D Grid Settings	[ALT] + [CTRL] + [G]

QUICK START

This Quick Start guide is intended to get you up and working with the *Course Architect 2000* in a short period of time.

NEED INSTALLATION HELP? Please see the enclosed Reference Card for installation instructions.

SOME TERMS



The desktop of *Course Architect 2000* supports two different views on your golf course: 2D and 3D. A **2D View** window gives you a top-down perspective on the hole under construction. You can position the **camera icon** inside the 2D View to move the **3D View** of the hole in a second window. The **Locked/Free Cam modes** allow you to toggle two placement styles for the 3D Camera.

Above the two Views, you can see a toolbar and four tabs. Each tab has its own toolbar.

Hole tab – Use the Hole tab to add or open a different hole on the course. In *Course Architect 2000*, you work with one hole at a time. For more, ➤ [Hole Tab](#).

Terrain tab – The Terrain tab contains the tools to manipulate the terrain geometry of the hole. For more, ➤ [Terrain Tab](#).

Outline tab – The Outline tab holds the tools to manipulate outlines. In *Course Architect 2000*, outlines cover the surface geometry of a hole. To each outline, you apply a texture that defines its appearance and play characteristics. For more, ➤ [Outline Tab](#).

Object tab – With the tools in the Object tab, you can load and place objects from the library of *Course Architect 2000*. The library contains varieties of rocks and trees, combinations of which can be populated over a selected area. For more, ➤ [Object Tab](#).

In the menu system, you can access tools to load **textures** (➤ [Textures](#)) and manipulate **shadows** (➤ [Sun and Shadows](#)).

To get started:

- ☐ Prior to starting *Course Architect 2000*, you should set your display to 800 x 600 or higher in the Display control panel. For information on how to set it, see your Windows® documentation.
- 1. Double-click the *Course Architect 2000* icon. The program opens.
- ☐ You cannot open *Course Architect 2000* by double-clicking a project (.JPJ) file.
- 2. From the Project menu, select NEW. The New Course Wizard starts.
- 3. Click NEXT, then enter the name of your course in the provided box.
- ⇒ To place your course in a different location than the directory listed onscreen, click BROWSE. Navigate to a new location.
- ⇒ To select the current folder in the Browse window, click SELECT.
- ⇒ To cancel the New Course Wizard, click CANCEL.
- 4. Once you are satisfied with your new course name and folder location, click NEXT.
- 5. The last screen allows you to confirm the name of your course and its location.
- ⇒ To change any of the information, click BACK.
- ⇒ To cancel the New Course Wizard, click CANCEL.
- ⇒ To finish creating your course, click FINISH.
- 6. Your course is now created. *Course Architect 2000* copies the default data directories into sub-directories inside your course folder.
- ☐ The default data files are about 12MB.
- 7. When the New Course Wizard finishes, the New Hole Wizard begins for Hole 1.
- ☐ Although you may complete your hole designs in any order, you must build Hole #1 first. We recommend that you work in progression from Hole 1 to 18.
- 8. Select the par and playable area of the hole. Holes are oriented south to north. Click NEXT.
- 9. Click and drag to describe the rough shape of the hole. When finished, click FINISH. Depending on the hardware in your computer, it may take up to thirty seconds to generate the new hole.
- 10. When the New Hole Wizard is finished, you can see a 2D view of the hole through the 2D View window. To see the 3D View window from the camera's perspective, select 3D VIEW from the Camera menu. You are now ready to begin designing.

For detailed instructions on creating a hole, ➤ [Tutorial: Creating Hole 1](#).

OVERVIEW OF COURSE ARCHITECT 2000

The following sections detail the tools and features of *Course Architect 2000*.

Each designer discovers his or her own strategy for designing in *Course Architect 2000*. Because it is a flexible tool, you can develop each hole in an order that is most comfortable for you. However, it may not be comfortable for your computer. The *Course Architect 2000* application generates a high number of computations and can use large amounts of memory. When the application is performing a high number of computations, your computer can slow down which, in turn, slows down your designing process. Throughout this help guide, there are notations to inform you when features may slow down your computer. It is recommended that you add these features toward the end of the development of each hole.

A generalized strategy for designing starts with an idea for the hole. What is the basic shape and play for the hole? Does it start high and end low? Is the green protected? Are there subtleties to each shot? How challenging is the hole? Can aggressive golfers eagle the hole? How does the hole fit into the overall design of the course? These questions affect the concept for the hole and should be kept in mind during the design.

When you have a conceptual idea for the hole, you lay down the floorplan for the hole with the New Hole Wizard, which sets pars, distances and the basic top-down shape of the hole.

Most features of the hole are started in the 2D View window. This top-down view of your course lets you lay the major shapes, called outlines, and apply textures to them to build course features such as fairways, greens, bunkers, water hazards, and tees. With the Ruler tool, you can judge distances between these areas to establish basic shots on the course. For example, you can measure the distance between the tee and the first turn to calculate the club that is needed to reach it.

When you have laid one or more course outlines, you want to see their appearance in 3D View. Position the camera in 2D View to point at the area in question. When you display and update 3D View, your changes are reflected in the 3D View window.

You can change the hole features in 3D View, too. Using the Selection tools, you can grab areas of the course and apply terrain changes to them—raise, lower, flatten, smooth, add undulations, and more. Changes in the 3D View window are likely to ripple through the other hole features. So, you return to 2D View to change a few things. You update the 3D View screen and check your new changes in the 3D View.

This iterative process continues until you complete the hole. When you have completed a hole, you may want to test it in the game. For more, ► [Exporting Courses](#).

GOLF COURSE LAYERS

Like a regular golf course, a computer golf course is structured in layers. Both have underlying terrain, surface characteristics (which is composed of two

layers), and hazards such as trees and rocks to add challenge to a hole. However, the order in which they are built is somewhat different. Unlike a regular golf course, you do not have to build the underlying terrain before adding in surface features and objects.

In a computer course, there are four main development layers: terrain, outlines, textures, and objects.

Terrain refers to the underlying shape of the land. Below all of the other features on the course lurks the terrain.

Terrain greatly influences the play characteristics and appearance of a hole. Is the land raised or lowered? Are there depressions and hillocks on the hole? Does the land have features that are consistent through the entire course? For example, is there a stream running through your golf course? In a regular golf course, terrain decisions are a major component of the development effort and are expensive to undo.

In a computer course, adding and undoing terrain features is a matter of point and click. The terrain of a computer course is described by a mesh of touching quadrilaterals, called facets. Think of a wire mesh. You can change the shape of the mesh, and the underlying loops adjust their size to accommodate.

In the next layer on top of the terrain are the surface shapes. In *Course Architect 2000*, these shapes are called **outlines**. An outline is an area of the hole where the surface is of a consistent appearance and play characteristic. In 2D View, these course features appear as outlines with different colored interiors.

You can change the size, shape, and smoothness of the outline through its points. There are three kinds of points: boundary, control, and tangent.

Boundary points are eight in number and sit at the corners and midpoints of the rectangle that surrounds the outline. To change the size of the outline, click and drag the boundary points.

Control points are major turns in the shape of the outline. You can click and drag control points to change the shape of your outline.

A pair of **tangent points** are associated with each control point. You can use the tangent points to change the curvature of the outline in the vicinity of the control point.

Sitting on top of each outline is a texture layer. You assign play characteristics to outlines with specialized **textures**. In general 3D graphic tools, a texture is a graphic image that is applied to the exterior of a 3D mesh. In *Course Architect 2000*, you apply specialized textures to outlines to assign a playing surface to it. For example, when you apply a water texture to an outline, you produce a water hazard. In the game, when a golfer hits a ball into the water, the specialized texture informs the game to play a splashing sound and to proceed with the code that manages the occasion when a shot is hit into the water.

The top layer consists of objects that you place on top of the terrain and outlines. **Objects** like trees, rocks, and houses can be added to give authentic flavor and interesting variation to your golf course. These objects have the appearance and play characteristics of their real-world counterparts.

Other features that can be included are horizons and skies. **Horizons** give the appearance of terrain features in photographic detail. Similarly, **skies** give the appearance of the sky overhead. The horizons and skies of *Course Architect 2000* have been designed to seamlessly blend together.

That covers the four layers of computer golf courses. On the bottom is the terrain. Above the terrain are the outlines, to which you shape and apply a texture layer to define hole features such as fairways, tees, and greens. On top of the outlines sit objects such as trees and rocks. To add authenticity to your course, you can add horizons, skies, and shadows.

For more on all of these course features, ► [Course Architect Concepts](#).

DESKTOP ELEMENTS

- ❑ Prior to starting *Course Architect 2000*, you should set your display to 800 x 600 or higher in the Display control panel. For information on how to set it, see your Windows documentation.

Click on any of the following links to learn more about a type of element found on the desktop of *Course Architect 2000*. You can browse the information here to get a better understanding of the structure of the tool. Or you can use it as a reference.

- ⇒ To find a menu, tool, or other feature, click on the appropriate link below. Then, use the Find feature on your browser to search for the desired information.

2D VIEW	Tools and functions of 2D View window.
HOLE INFORMATION POP-UP	Change basic size of hole terrain.
3D VIEW	Tools and functions of 3D View window.
CAMERA ICON	Placement and settings for the Camera Icon.
MENUS	All menu items and functions, sorted by menu.
TABS	Descriptions of each of the four Tabs and their tools.
EDIT SETTINGS	Edit Settings screen.
IMPORT TERRAIN	Import terrain files into your course.
COPY TO GAME	Compile and copy your course for use in the golf game.

QUITTING THE PROGRAM

- ⇒ To safely exit the program, select EXIT from the File menu.

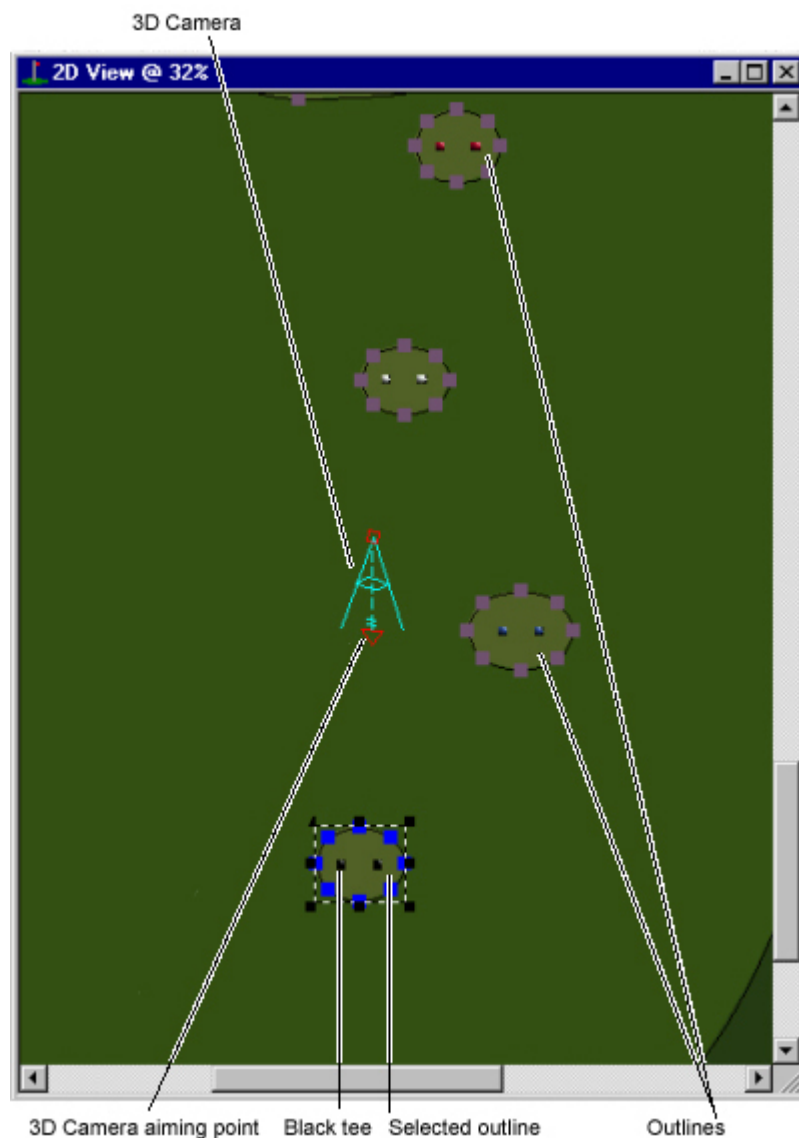
- ☐ If prompted, save your work, or unsaved data changes will be lost.

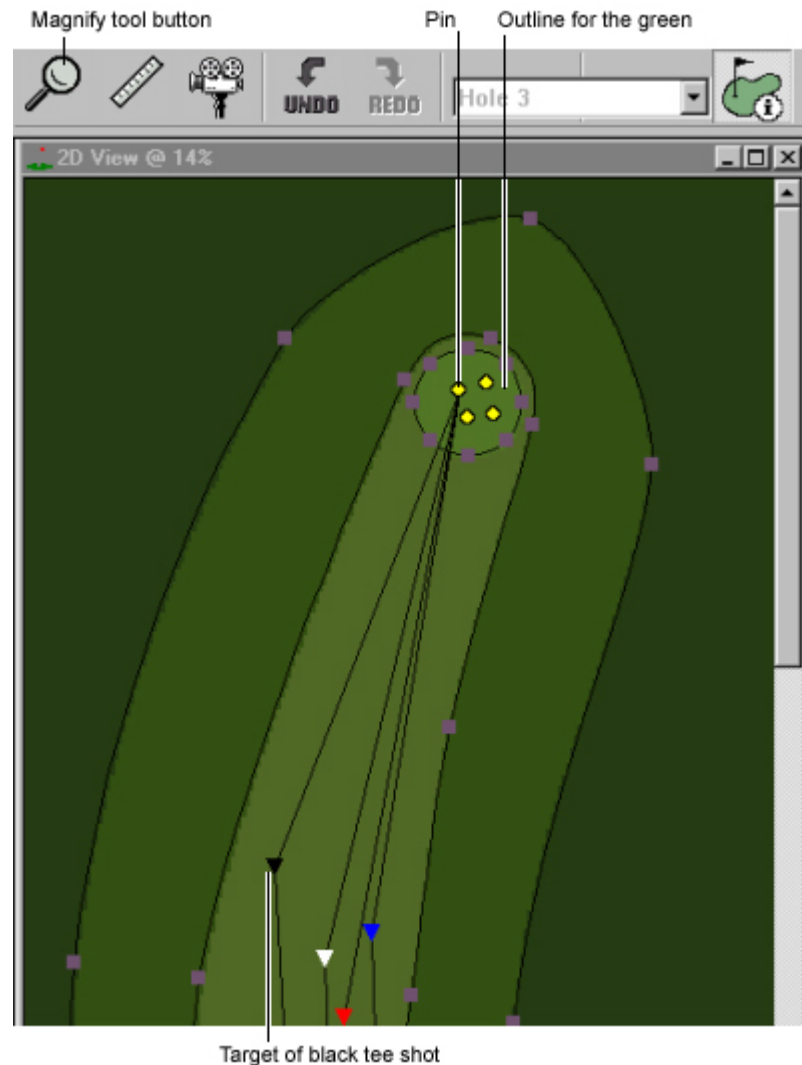
2D VIEW

2D View gives you the best perspective on the entire hole. From this top-down angle, you can see the outlines and objects that populate the hole. And you can change the basic shape of your hole.

In 2D View, you place the 3D Camera, which aims the 3-dimensional view of the hole from its lens in the 3D View window.

- To edit the size of the hole's terrain area after you have defined it in the New Hole Wizard, click the HOLE INFORMATION button and use the REGENERATE OUTLINES option. ➤ [Hole Information pop-up](#).





2D VIEW DISPLAY

Often, a hole is too large to display entirely in 2D View at an acceptable level of detail. The tool chooses to display the details, so you have to scroll the window or resize it to view other parts of the hole. Or, you can zoom in on a specific area.

- ⇒ To zoom in and out on your hole, click the Magnify tool. To zoom in, left-click. To zoom out, right-click. You can zoom in and out multiple times.
- ⇒ To scroll the 2D View window, use the scroll bars on the right and bottom edge of the window.
- ⇒ To resize the 2D View window, select FIT from View. The window is resized to fit into the available space.
- ⇒ To focus the 3D Camera on a location, select FOCUS ON SELECTION in the Camera menu and double-click the target in 2D View. The camera now focuses on your selection.

NOTE: When using selection tools, maximize the 2D View window. The tools perform much faster if you maximize the window and close 3D View.

OUTLINES IN 2D VIEW

- ⇒ To create, edit, or delete outlines in 2D View, click the Outlines tab. The toolbar changes. Select the New Outline tool. Click, then drag to define the control points of your outline. Double-click to finish shaping the outline. For more, ➤ [Outlines](#).
- ⇒ To define type of texture in your outline, click the Outline button then right-click in it. Select PROPERTIES. Select the texture type and click OK. For more, ➤ [Outline and Texture Types](#).

UPDATING 3D VIEW

When the 2D View window is active, you can move the 3D Camera and update the 3D View window.

- ⇒ To move the 3D Camera, press the arrow keys.
- ⇒ To update the 3D View window with your most recent changes in 2D View, press **[F2]** or select UPDATE MASKS from the Outlines menu.
- ⇒ To update the 3D View window with the current shadows, press **[F3]** to update Terrain shadows or **[F4]** to update Object shadows or both.
- ⇒ To toggle between opened 2D and 3D View windows, press **[CTRL] + [TAB]**.

CHANGING SHOT PATHS OF THE HOLE

In 2D View, you can alter the shape of the optimal shot paths from each tee. The shot paths are lines that extend from each tee. Where the tee shot is supposed to land, a colored triangle indicates the target. As soon as you start a hole, use the Shot Path to tweak and finalize your tees and targets.

- ☐ Shot paths are used to determine the basic yardage of a hole. Hole yardages are displayed in the Scorecard. For more, ➤ [The Scorecard](#).

The easiest way to move your tees and targets is to use the Shot Path tool and then to regenerate the initial outlines to align them to the new shot path markers.

NOTE: Use the Regenerate Outlines function very carefully. When you regenerate outlines, you reset the hole to the parameters set in the Hole Options screen using the initial set of outlines. All additional outlines or other changes to your hole are LOST. Regenerate outlines essentially resets the hole based on the new Shot Paths.

If you need to move the pins and tee markers but do not want to regenerate outlines, you can use the Shot Path tool to move them, close the tool, and then move each underlying outline separately.

- ☐ In the game, computer-controlled golfers use the shot paths to target their initial shots.
- ⇒ To change the shot path, click and drag a control triangle to a new location.
- ⇒ To change the basic size of the hole, ➤ [Hole Information pop-up](#).

EA TIP As you develop a hole, check each shot path from time to time, especially after you have populated it with objects that might interfere with a computer-controlled golfer's shots.

GRID SIZE

You can layer a grid on top of 2D View. For placing and aligning objects and outlines, it is a useful feature.

- ⇒ To toggle display of the grid, press CTRL + **[G]** or select GRID from the View menu.
- ⇒ To change the size of the grid, select GRID SETTINGS from the View menu. For more, ➤ [2D Grid Settings](#).

HOLE INFORMATION POP-UP

The Hole Information pop-up allows you to reset the basic size and shape of the core outlines (tees, fairway, and green) for the hole. You can read distance information for each tee, adjust the size of the entire hole area, and reconfigure the core outlines for the hole.

- ☐ After a hole is started, you cannot change its par. You can change the basic shape with manipulation of the outlines and their angles. However, if you want to change the par, you need to delete the hole and start over. For more, ➤ [Erasing Your Work](#).
- ⇒ To toggle display of the Hole Information pop-up, press the Hole Information button on the Hole tab.
- ⇒ To switch between the different tabs in the Hole Information pop-up, press **[CTRL] + [TAB]**.

TEES

In the Tees tab, you can review the distance of each shot from each tab, plus the total length for the hole.

TERRAIN SIZE

In the Terrain Size tab, you adjust the size of the terrain that includes and surrounds the playable area of your hole. You can shrink or expand the left, right, top, and bottom margins. The tool prevents you from clipping hole features such as tees, pins, and aiming marks.

When you open this tab for the first time on a hole, each slider bar is positioned in the middle.

- ⇒ To shrink or expand one side of the terrain, use the appropriate slider bar.
- ☐ To undo a change in the terrain size, you can do the same change in the opposite direction. You cannot undo manipulations to the terrain itself.

NOTE: Do not reduce the size of the terrain below the minimums suggested in the Hole Information pop-up. Strange things may happen.

- ⇒ To apply your changes, click APPLY.

EA TIP To improve performance in the game, you may want to trim off the unused pieces of the terrain in the out-of-bounds areas.

REGENERATE OUTLINES

In the Regenerate Outlines tab, you can change the size of the core outlines for your hole.

NOTE: Use the Regenerate Outlines function very carefully. When you regenerate outlines, you reset the hole to the parameters set in the Hole Options screen using the initial set of outlines. All additional outlines or other changes to your hole are LOST. Regenerate outlines essentially resets the hole based on the new Shot Paths.

- ☐ In 2D View, a solid black outline indicates the Viewable Area. You can adjust the width of this area, but you cannot adjust its shape.
- ⇒ To change the value for any of these features, click in the box and enter a new number.
- ⇒ To apply changes to the hole, click APPLY. 2D View is updated.
- ⇒ To restore the default settings, click DEFAULTS.

3D VIEW

When developing 3D art on a computer, you are confronted with an irresolvable fact: you cannot display three-dimensional objects on a 2D screen without some form of interpretation. In *Course Architect 2000*, this interpretation is the 3D View window.



3D View displays what is viewed from the 3D Camera that is placed in the 2D View screen. The 3D View window is your eye on the hole. If you were playing the course as a golfer in the game, you would see the course as it is displayed in 3D View.

- ⇒ To toggle between opened 2D and 3D View windows, press **[CTRL] + [TAB]**.
- ⇒ To focus the 3D Camera on a location, select FOCUS ON SELECTION in the Camera menu and double-click the target in 2D View. The camera now focuses on your selection.

The 3D camera is a powerful tool that gives you infinite perspectives on the course. For more, ➤ [3D Camera](#).

TERRAIN

3D View is the best place to fine-tune your terrain features. While you can start large-scale terrain features such as hills and ridges in 2D View, you give them subtlety and definition in 3D View.

The multiple terrain selection tools allow you to highlight terrain pieces of any size and shape. With the terrain tools, you raise, lower, tilt, flatten, smooth, and add noise to them. For more, ➤ [Terrain](#).

SHADOWS

Shadows are displayed in 3D View. For terrain and objects, you can change the position of the artificial sun and its characteristics in the Shadow Settings pop-up. The shadows for terrain and sun are independent of each other. For more, ➤ [Sun and Shadows](#).

- ⇒ To update the 3D View window with the current shadows, press **[F3]** to update Terrain shadows or **[F4]** to update Object shadows.

EA TIP If you have performed several terrain changes without seeing any differences in the 2D View window, update the shadows. Update Shadows redraws shadows for the entire hole. It takes considerable CPU time and is not automatic because of its impact on slower machines.

3D CAMERA

Like all good cameras, the 3D Camera in *Course Architect 2000* can be positioned at any angle to display the viewed terrain in the 3D View window. The 3D camera has two modes and gives you complete control over which course features to display.

- ☐ Rendering the view of the 3D Camera can take time if you have a lower-end machine. For flexibility, *Course Architect 2000* lets you choose what is displayed in the 3D View window. For more, ➤ [Camera Displays](#).

A NOTE ABOUT 3D DIRECTIONS

Movements in three-dimensional space can be described in three directions. Stand up from your computer. Let's call the position where you are located, "Point A."

The **X-direction** refers to steps to the left or right of Point A.

The **Y-direction** refers to steps to forward and backward of Point A.

The **Z-direction** refers to changes in elevation from Point A. From where you're standing, movements in the Z-direction require you to jump into the air or dig into the ground. Before you get a shovel, let's get back to the computer.

Often, movements can be described in planes. A plane is a perfectly flat surface that extends to infinity. Imagine an infinitely large top to your coffee table—a plane. In 3D space, the **X-Y plane** refers to all of the positions that can be described as movements in the X-direction or the Y-direction—not the Z-direction. While you can describe movements in the other two planes (X-Z plane and Y-Z plane), most planar movements in *Course Architect 2000* are described in the X-Y plane and the Z-direction.

LOCKED/FREE CAM MODES

The 3D Camera has two modes that govern the camera's positioning and movement: Locked Cam mode and Free Cam mode.

- ⇒ To switch between the 3D Camera modes, press the Locked/Free Cam mode toggle button.

Locked Cam mode positions the camera at the scaled equivalent of six feet above the surface of the course – a golfer's point of view. In Locked Cam mode, you can move the 3D Camera over the surface of the course but not in the vertical plane.

- ⇒ To move the camera in Locked Cam mode, use the arrow keys.

Free Cam mode allows you to raise the camera above the plane of the course so that you can get a bird's eye view of your work. Free Cam mode has the 3D display of Locked Cam mode combined with the perspective of the 2D View.

- ⇒ To move the camera across the X-Y (left-right/up-down) plane of the course in Free Cam mode, use the arrow keys.
- ⇒ To move the camera in the vertical plane in Free Cam mode, use **[CTRL] +** the arrow keys.

CAMERA SETTINGS

The Camera Settings pop-up controls the location, mode, zoom, and sensitivity to mouse changes of the 3D Camera.

- ⇒ To make finite changes to the camera's X-Y positioning, enter numbers in the appropriate text box and click APPLY. The 2D View and 3D View are updated.
- ⇒ To change the angle of the camera, enter a number in the Angle text box.
- ⇒ To change the zoom factor in the camera, use the Zoom slider bar. 2D View and 3D View are automatically updated.

You can toggle the Camera mode and establish settings for Free Cam mode.

- ⇒ To change the Camera mode, click the radio button next to the desired mode. To move the Camera in the new mode, you must exit the Camera Settings pop-up.

When you put the camera in Free Cam mode, you can choose to float the camera above the terrain at a fixed height, or you can set the camera to follow the terrain's contours at the selected height from it.

- ➔ To set the altitude of the camera off of the terrain, enter a number in the Z-Offset text box.

CAMERA DISPLAYS

The information that you choose to display in 2D View and 3D View can significantly impact the speed at which 3D View is updated. Under the Camera menu, the render and display options affect display speed. Test different settings in order to find the best options to balance speed and quality of the display updates.

- ☐ These camera settings are used to help you edit the course, but do not affect the cameras in *Tiger Woods 99 PGA TOUR Golf* or *Tiger Woods PGA TOUR 2000*.

The render options affect the display of textures on top of your terrain surfaces. You can choose how the course is rendered in the 3D window:

RENDER TEXTURES	Render all textures in 3D View.
RENDER FLAT	Render textures as flat-colored panels in 3D View.
RENDER WIRE	Render 3D View as a wire-frame mesh of facets. Textures are not displayed. Render Wire updates 3D View the fastest.

Choosing to display various course and environment elements can affect update speeds.

DISPLAY CAMERA	Toggles display of Camera Icon in 2D View.
DISPLAY OBJECTS	Toggles display of objects in 3D View.
DISPLAY OUTLINES	Toggles display of outlines in 3D View.
DISPLAY FAIRWAY STRIPES	Toggles display of stripes from mowing on the fairway.
DISPLAY WATER REFLECTIONS	Toggles display of reflections in the water hazards.

For more information on the individual commands in the Camera menu, ➤ [Camera](#).

COMMAND REFERENCE

The following sections contain reference information for menu and toolbar commands.

MENUS

FILE

The File menu commands open, close, import, and export individual files.

FILE MENU		
COMMAND	KEYS	DESCRIPTION
Open	[CTRL] + [O]	Open new project file.
Close		Close current hole.
Save	[CTRL] + [S]	Save current hole.
Import Terrain		Import <i>Course Architect 2000</i> elevation data. For more, ➤ Import Terrain .
Export Terrain		Export <i>Course Architect 2000</i> elevation data in various formats. For more, ➤ Export Terrain .
Copy to Game		➤ To save the file to a different format, select it from the File Type drop-down list. Add the proper extension to the filename. The tool automatically saves the file to that format. Proof course and compile files into game-ready format. Copies compiled files to game directory.
Exit		Exit the program.

PROJECT

The Project menu items create, open, and close projects, as well as provide data on the currently open project.

PROJECT MENU		
COMMAND	KEYS	DESCRIPTION
New		Start a new project. For more, ➤ Starting Projects .
Open		Open a project.
Close		Close current project.
Info...		Review memory usage and object allocation for the current project. For more, ➤ Information pop-up .
Properties...		Review and edit the source directories for the project. You can choose where to store your project, object, texture, and horizon files. For more, ➤ Properties pop-up .

INFORMATION POP-UP

- ⇒ To toggle the display of memory usage in Kbytes or as a percentage, click the radio button to the left of the measurement.
- ⇒ To close the window, click CLOSE.

EA TIP Avoid exceeding 100% Memory Usage for a hole. Memory Usage is an absolute scale based on a minimum system. While your computer may be able to handle a hole that exceeds the maximum usage, less powerful machines may not be able to load your hole.

PROPERTIES POP-UP

The Properties dialog box is used primarily as a reference for the location of the data files for your project.

NOTE: If you move your course's data directories through the Properties box, strange things can happen, and your data can be corrupted. It is recommended that you not move your directories. However, if you must do so, use the following procedure.

To move your data directories:

1. Open the Properties dialog box. Write down the locations of your directories on a piece of paper.
2. Exit *Course Architect 2000*. In Windows, copy (don't cut) your data files from the source location to their new destination location. Write down the locations of your new directories on a piece of paper.

NOTE: Destination directories should be on your local machine. Do not load data across networks or external media; performance in *Course Architect 2000* may be impacted.

3. Restart *Course Architect 2000*. Load your course. In the Properties dialog box, change the locations to the new directories.
 - To apply the new directories to the project, click APPLY.
 - To cancel changes and exit, click CANCEL.
4. Save your course, and reload it. Look at a few holes. If the holes look to be in perfect shape, then you can exit to Windows and delete your source course files.
5. If your holes look strange or do not load properly, you can revert to your source directories by entering the original locations in the Properties box. Remember to delete the copied destination directories through Windows, as they can occupy a significant amount of space.

EDIT

The Edit menu contains standard editing commands and specialized tools for use in *Course Architect 2000*.

EDIT MENU		
COMMAND	KEYS	DESCRIPTION
Undo	[CTRL] + [Z]	Undo last change. ❑ Some changes such as terrain resizing cannot be undone.
Redo	[CTRL] + [Y]	Redo last change.
Cut	[CTRL] + [X]	Cut the selection and put it on the clipboard.
Copy	[CTRL] + [C]	Copy the selection to the clipboard.
Paste	[CTRL] + [V]	Copy the contents of the clipboard to the selected location.
Delete	[DEL]	Delete selected object or outline.
Move	[CTRL] + [D]	Move the selected object to a new location.
Find...	[CTRL] + [F]	Search the hole for an object. Optional replacement with another object.

Find in Selection...		Search the selection for an object. Optional replacement with another object.
Edit Settings...	[CTRL] + [ENTER]	Open the Edit Settings Screen. For more, ➤ Edit Settings .

CAMERA

The Camera menu manages the settings, position, and display of the 3D camera.

CAMERA MENU		
COMMAND	KEYS	DESCRIPTION
Camera Settings...	[CTRL] + [ALT] + [C]	Open the Camera Settings Screen. For more, ➤ Camera Settings Screen .
Focus on Selection	[CTRL] + [L]	Focus the 3D camera on the currently selected piece of terrain. The camera doesn't change its location. It rotates in the direction of the selected item.
Render Textures	[CTRL] + [T]	In 3D View, render the camera shot with textures included. When ON, it is the default setting for rendering. ❑ Due to the large amount of data in these renderings, it may take some time to render with textures.
Render Flat	[CTRL] + [B]	In 3D View, render the camera shot without elevation information. The hole appears as a flat plain.
Render Wire	[CTRL] + [W]	In 3D View, render the camera shot with the terrain rendered as a red wire frame.
Display Camera	[K]	Toggle the display of the 3D Camera icon in 2D View.
Display Objects	[CTRL] + [J]	Toggle the display of objects on the course. ➡ To speed the updating of 3D View, set Display Objects to OFF.

Display Outlines	[CTRL] + [U]	Toggle the display of outlines on the course.
Display Fairway Stripes		Toggle the display of the fairway stripes in 3D View.
Display Water Reflections		Toggle the display of reflections in the water in 3D View.

SELECT

The Select tools allow you to create, edit, or delete features from your golf course.

SELECT MENU		
COMMAND	KEYS	DESCRIPTION
Clear All	[C]	Deselect all currently selected Terrain pieces.
New	[N]	When you select a new piece of terrain, the tool forgets the previous selection.
Subtract	[S]	Each selected piece of terrain is removed from the highlighted terrain.
Add...	[A]	Each selected piece of terrain adds to the highlighted terrain.
Tool Lock	[P]	Lock the selected tool so that you can use it multiple times in a row.
Constrain Texture	[X]	When you select Constrain Texture and then select a terrain area, the highlighted terrain is only the area that shares the texture of the first terrain facet that you touched.
Grid	[G]	Selects the grid tool. The grid tool lets you place a single terrain piece of a predetermined grid size. To change the grid size, ➤ Grid Size .
Rectangle	[R]	Selects the rectangle tool. The rectangle tool defines terrain pieces of any size in the shape of a rectangle.

Freehand	[F]	Selects the freehand tool. The freehand tool lets you draw with the mouse a single, open line of terrain.
Corral	[J]	Selects the corral tool. The corral tool allows you to draw the outline of an area and select the facets inside that area.
Pick Texture	[.]	Selects the Pick Texture tool. The pick texture tool selects all of the connected facets that share the texture of the facet that you click.
Object	[O]	Toggle selection of objects ON/OFF. When set to ON, you can select Objects.
Outline	[U]	Toggle selection of outlines ON/OFF. When set to ON, you can select Outlines.
Elevation	[E]	Toggle selection of elevation terrain ON/OFF. When set to ON, you can select Terrain.
Grid Size...	[ALT] + [G]	The Grid tool selects a single grid, the size of which is determined in the Grid Size pop-up. To change the grid size, ➤ Grid Size .

OUTLINES

Outline tools create, edit, and delete outlines that are laid on your course. For more detailed information on outlines, ➤ [Outlines](#).

OUTLINES MENU		
COMMAND	KEYS	DESCRIPTION
New Path		Create a new cart path. For more, ➤ How to Create a Cart Path .
New Outline		Create a new outline.
Delete Point		Delete the selected control point in the outline.
Reset Tangent		Reset the tangent for the selected control point in the

		outline.
Move Forward		Move the outline one layer up (forward toward the 2D camera).
Move Back		Move the outline one layer back (away from the 2D camera).
Move to Top		Move the outline to the top layer.
Move to Bottom		Move the outline to the bottom layer.
Rotate...		⇒ Use the slider bar to rotate the outline 0 to 360 degrees in the clockwise direction.
Scale...		Expand or shrink the X- and Y-scale of the outline. ⇒ To scale the outline, enter values less than 1.0 in the dialog box.
Set Tangent Scale Factor...		Set the precision at which rotations a control point's tangent are controlled by the mouse. For more, ► Setting Tangent Scale .
Add Point After		Create a new control point between the selected control point and the next one on the purple segment.
Add Point Before		Create a new control point between the selected control point and the next one on the yellow segment.
Update Masks	[F2]	Update 3D View based on the current state of hole objects, terrain, and outlines.
Bounding Box		Toggle display of the bounding box of the selected outline.
Border/Spine		Toggle display of the black border or spine of the selected outline.
Properties...		Review and edit the properties of the outline. For more, ► Changing the Outline

[Properties.](#)

TERRAIN

The Terrain tools raise and lower terrain on your course and tweak its shape. For more detailed information on terrain, ➤ [Terrain](#).

EA TIP For a better appearance and improved playability, use the terrain tools in conjunction with the Smoothing tool.

TERRAIN MENU		
COMMAND	KEYS	DESCRIPTION
Mesa	[M]	Use the mouse to create a flattened plateau or valley with steep edging for the selected terrain.
Tilt	[T]	Use the mouse to tilt selected terrain to the left or right. Set the anchor point and then drag the tilt.
Bump	[B]	Use the mouse to create a concave or convex bump with a soft, rounded top or bottom. The Bump tool automatically smoothes its features into the surrounding terrain.
Linear	[L]	Use the mouse to pull the center point of the selected terrain straight up or down.
Smooth...	[H]	Blend the features of the selected terrain into smoother curves. For more, ➤ Smoothing Terrain .
Flatten...	[W]	Set a maximum height or depth for the selected terrain. For more, ➤ Flattening Terrain .
Raise/Lower...		Raise or lower the selected terrain a defined number of feet. For more, ➤ Raising and Lowering Terrain .
Add Noise...		Add random undulations to the selected terrain and smooth it, as needed. For more, ➤ Adding Noise to Terrain .

Drop Object	Use the mouse to click on a location in 2D or 3D View to drop the selected object.
Adjust Size...	Change the size of the terrain for the hole. For more, ► Terrain Size .
Ambient Sound...	☐ Set the collection of ambient sounds that are loaded with the hole. For more, ► Ambient Sound.

EA TIP The Tilt tool is excellent for defining large, sloping hillsides.

SHADOWS

The Shadow menu items let you change the parameters governing sun shadows on the course and update the 3D camera with the latest shadows.

SHADOWS MENU		
COMMAND	KEYS	DESCRIPTION
Shadow Settings...		Configure the artificial sun and shadow settings for the hole. For more detailed information on outlines, ► Sun and Shadows .
Update Terrain Shadows	[F3]	Re-render the 3D View with updated terrain shadows.
Update Object Shadows	[F4]	Re-render the 3D View with updated object shadows.

VIEW

The View tools control the appearance of the desktop, 2D View, and 3D View windows.

VIEW MENU		
COMMAND	KEYS	DESCRIPTION
Small Icons		Toggle size of toolbar icons SMALL/LARGE.
Toolbar		Toggle display of toolbar.
Status Bar		Toggle display of status bar at the bottom of the screen.
2D View...		Open another 2D View window on the hole.

		❑ Changes in one 2D View window appear in the other window, too.
3D View...		Toggles display of 3D View window.
		❑ You can have only one 3D View window open at a time.
Textures...		Opens the texture library. For more, ► Textures .
Objects...		Opens the Object Browser. For more, ► Objects .
Horizons...		Opens the horizons and skies library. For more, ► Horizons and Skies .
Score Card		Toggles display of the Scorecard, which contains yardage, difficulty, and other course information. For more, ► Score Card .
25%		Sets display of 2D View window at 25% magnification.
50%		Sets display of 2D View window at 50% magnification.
100%	[CTRL] + [0] (zero)	Sets display of 2D View window at 100% magnification. This is the default setting.
200%		Sets display of 2D View window at 200% magnification.
Magnify		Selects the Magnify tool. ⇒ To zoom in on a part of the hole, left-click on it. You can zoom multiple times. ⇒ To zoom out, right-click.
Fit	[ALT] + [0] (zero)	Adjust the size of the current window to fit your monitor screen.
Grid	[CTRL] + [G]	Toggle display of grid overlay in 2D View.
2D Grid Settings...	[ALT] + [CTRL] + [G]	Adjust the width and height of the 2D grid, when displayed. You can change the unit of measurement between pixels

	on your computer screen and yards in the game. In game data, a pixel converts to 1/16 th of a yard. For more, ➤ 2D Grid Settings .
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2D GRID SETTINGS POP-UP

- To change the width and height of the 2D grid, enter numbers in the appropriate boxes. Or, use the slider bars.
- To apply the changes, click APPLY.
- To close the window, click CLOSE.

WINDOW

Window tools let you arrange how multiple windows are displayed on-screen.

WINDOW MENU		
COMMAND	KEYS	DESCRIPTION
Cascade		Displays the opened windows in a cascading pattern.
Tile		Tiles the windows so that you can see each opened window.

HELP

Use the Help tools to get more information on *Course Architect 2000*.

HELP MENU		
COMMAND	KEYS	DESCRIPTION
Help Topics		Opens the help system.
About Architect...		Displays version number and copyright information for <i>Course Architect 2000</i> .

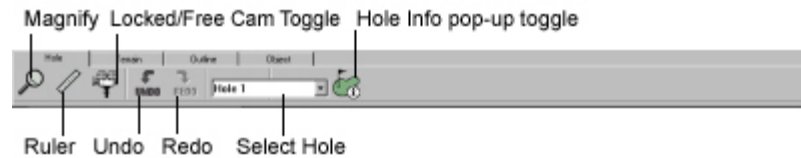
TAB TOOLBARS

Course Architect 2000 has four different toolbar tabs. The tools on each tab control a different area of course development.

- To use any tool, click the tool button in the toolbar. Then use the mouse to point, click, and drag a selected item.

HOLE TAB

Use the Hole tab to add or to open a different hole on the course. In *Course Architect 2000*, you work with one hole at a time.



EDIT TOOLS

Use these tools to undo and redo changes. You can configure the number of Undo's in the Edit Settings Screen. For more, ➤ [Edit Settings Screen](#).

UNDO Undo the most recent change.

REDO Redo the change that was most recently undone.

VIEW TOOLS

MAGNIFY The Magnify tool allows you to zoom in and out over a selected area in 2D View.

➤ To zoom in on a part of the hole, left-click on it. You can zoom multiple times.

➤ To zoom out, right-click.

RULER Use the Ruler tool to measure distances between points on the course in 2D View. With the assistance of the Ruler, you can tailor the hole to require particular clubs for the best approach to the green.

➤ To measure a distance between two points, click on a starting point and drag the mouse while keeping the mouse button pressed. The distance is displayed next to the mouse pointer.

LOCKED /FREE CAM TOGGLE The LOCKED/FREE Cam Toggle switches between Locked Cam mode and Free Cam mode.

Locked Cam mode positions the 3D Camera about six feet off the surface of the hole—at a golfer's viewpoint.

Free Cam mode lets you move the camera in the vertical plane to get the best perspective of an area under construction. For more, ➤ [Locked/Free Cam Modes](#).

HOLE TOOLS

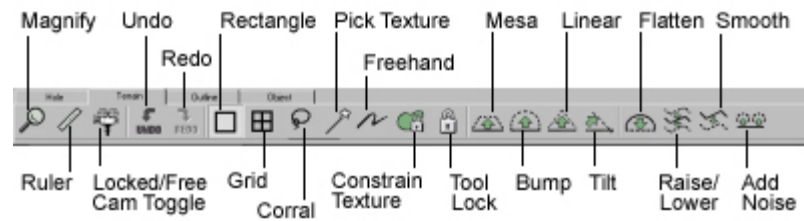
SELECT HOLE To create or edit a new hole, select the hole number from the drop-down list.

If you have not yet created the new hole, the New Hole Wizard begins. For more, ➤ [New Hole Wizard](#).

HOLE INFORMATION Toggles display of the Hole Information pop-up. For more, ➤ [Hole Information pop-up](#).

TERRAIN TAB

The Terrain tab contains the tools to manipulate the terrain geometry of the hole. For more, ➤ [Terrain](#).



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SELECTION TOOLS

OUTLINE Press **[U]** to use the Outline tool to select outlines in 2D View.

FREEHAND Use the Freehand tool to draw an open, single line of terrain. It's useful for placing objects along or path or for making a fence.

RECTANGLE The Rectangle tool lets you select a rectangular piece of terrain.

GRID	The Grid tool selects a single grid, the size of which is determined in the Grid Size pop-up. To change the grid size, ➤ Grid Size .
CORRAL	The Corral tool lets you draw by freehand a closed set of facets and to select all of the facets within that set.
PICK TEXTURE	The Pick Texture tool lets you select all of the connected terrain facets that share the texture of the facet that you first touched.
CONSTRAIN TEXTURE	When you select Constrain Texture and then select a terrain area, the highlighted terrain comprises the areas that share the texture of the first terrain facet that you touched.
TOOL LOCK	Locks the selected tool so that you can use it multiple times in a row.

NOTE: When using selection tools, maximize the 2D View window. The tools perform much faster if you maximize the window and close 3D View.

TERRAIN TOOLS

The Terrain tools assist you in adding shape to your terrain. With your mouse, you can use these tools to raise/lower or move left/right the terrain in the shapes described below.

MESA	Use the mouse to create a flattened plateau or valley for the selected terrain.
BUMP	Use the mouse to create a concave or convex bump.
LINEAR	Use the mouse to pull the center point of the selected terrain straight up or down.
TILT	Use the mouse to tilt selected terrain to the left or right.

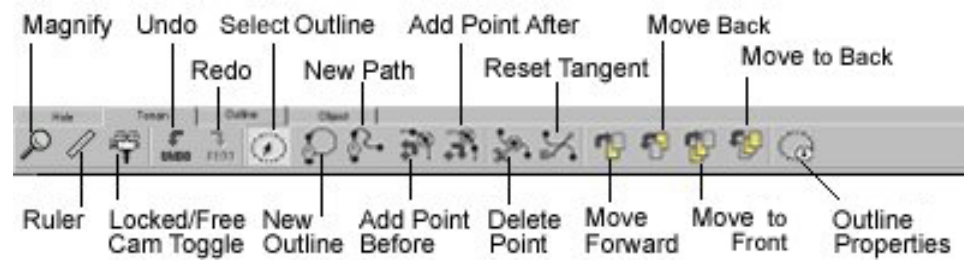
ELEVATION TOOLS

Elevation tools allow you to raise or lower a selected piece of terrain by a defined number of feet. When you select one of these tools, you enter the number of feet that you wish the tool to apply to the terrain.

FLATTEN	Set a maximum height or depth for the selected terrain. For more, ➤ Flattening Terrain .
RAISE/LOWER	Raise or lower the selected terrain a defined number of feet. For more, ➤ Raising and Lowering Terrain .
SMOOTH	Blend the features of the selected terrain into smoother curves. For more, ➤ Smoothing Terrain .
⇒	To open the Smooth pop-up, press [H] .
NOISE	Add random undulations to the selected terrain and smooth it, as needed. For more, ➤ Adding Noise to Terrain .

OUTLINE TAB

The Outline tab holds the tools to manipulate outlines. In *Course Architect 2000*, outlines are shapes that cover the surface geometry of a hole. The various textures applied to outlines determine appearance and place characteristics of an area of the course.



EDIT TOOLS

Use these tools to undo and redo changes. You can configure the number of Undo's in the Edit Settings Screen. For more, ➤ [Edit Settings Screen](#).

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TOGGLE The LOCKED/FREE Cam Toggle switches between Locked Cam mode and Free Cam mode.

Locked Cam mode positions the 3D Camera about six feet off the surface of the hole—at a golfer's viewpoint.

Free Cam mode lets you move the camera in the vertical plane to get the best perspective of an area under construction. For more, ➤ [Locked/Free Cam Modes](#).

OUTLINE TOOLS

OUTLINE Click the Outline tool to select outlines.

- NEW OUTLINE Click the New Outline tool to create a new outline. For more, ➤ [Outlines](#).
- NEW PATH Click the New Path tool to create a new cart path, a special kind of outline. For more, ➤ [How to Create a Cart Path](#).

POINT TOOLS

- DELETE POINT Click the Delete Point tool to delete the highlighted control point.
- ☐ You cannot delete a control point if the number of points in the outline is three.
- RESET TANGENT Resets the tangent for the selected control point to its original placement.
- SET TANGENT ANGLE Set the precision at which movements of the mouse rotate a control point's tangent. Set the precision at which rotations a control point's tangent are controlled by the mouse. For more, ➤ [Setting Tangent Scale](#).
- ADD POINT AFTER Create a new control point between the selected control point and the next one. When you select a control point on an outline, points added after the control point are placed on the purple line.
- ADD POINT BEFORE Create a new control point between the selected control point and the next one in. When you select a control point on an outline, points added before the control point are placed on the yellow line.

LAYER TOOLS

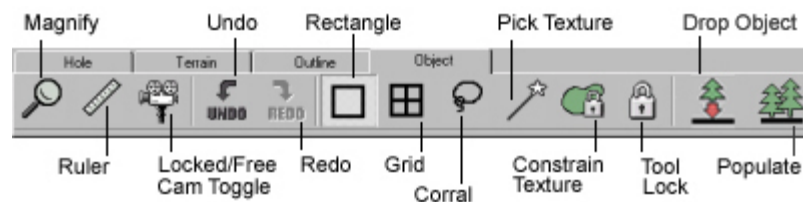
- MOVE FORWARD Move the outline one layer up.
- MOVE BACK Move the outline one layer back.
- MOVE TO FRONT Move the outline to the top layer.
- MOVE TO BACK Move the outline to the bottom layer.
- ☐ When you move an outline to a new layer, you are moving it relative to all of the outlines on the hole—not just the ones that it overlaps.

POSITION TOOLS

- ROTATE Rotate the outline a number of degrees in the clockwise direction.
- PROPERTIES Open outline's Properties window. For more, ➤ [Changing the Outline Properties](#).

OBJECT TAB

With the tools in the Object tab, you can load and place objects from the library of *Course Architect 2000*. The library contains varieties of rocks and trees, combinations of which can be populated over a selected area.



EDIT TOOLS

Use these tools to undo and redo changes. You can configure the number of Undo's in the Edit Settings Screen. For more, ➤ [Edit Settings Screen](#).

UNDO Undo the most recent change.

REDO Redo the change that was most recently undone.

VIEW TOOLS

MAGNIFY The Magnify tool allows you to zoom in and out over a selected area in 2D View.

➤ To zoom in on a part of the hole, left-click on it. You can zoom multiple times.

➤ To zoom out, right-click.

RULER Use the Ruler tool to measure distances between points on the course in 2D View. With the assistance of the Ruler, you can tailor the hole to require particular clubs for the best approach to the green.

➤ To measure a distance between two points, click on a starting point and drag the mouse while keeping the mouse button pressed. The distance is displayed next to the mouse pointer.

LOCKED/
FREE CAM
TOGGLE The LOCKED/FREE Cam Toggle switches between Locked Cam mode and Free Cam mode.

Locked Cam mode positions the 3D Camera about six feet off the surface of the hole—at a golfer's viewpoint.

Free Cam mode lets you move the camera in the vertical plane to get the best perspective of an area under construction. For more, ➤ [Locked/Free Cam Modes](#).

SELECTION TOOLS

RECTANGLE The Rectangle tool lets you select a rectangular piece of terrain.

GRID The Grid tool selects a single grid, the size of which is determined in the Grid Size pop-up. To change the grid size, ➤ [Grid Size](#).

CORRAL	The Corral tool lets you draw by freehand a closed set of facets and to select all of the facets within that set.
PICK TEXTURE	The Pick Texture tool lets you select all of the connected terrain facets that share the texture of the facet that you first touched.
CONSTRAIN TEXTURE	When you select Constrain Texture and then select a terrain area, the highlighted terrain comprises the areas that share the texture of the first terrain facet that you touched.
TOOL LOCK	Locks the selected tool so that you can use it multiple times in a row.
POPULATE	Place multiple objects of different types in a selected area.

NOTE: When using selection tools, maximize the 2D View window. The tools perform much faster if you maximize the window and close 3D View.
--

EDIT SETTINGS SCREEN

The Edit Settings screen allows adjustment to mouse and display settings. Also, you can set the number of previous changes that are retained in memory.

- ⇒ To open the Edit Settings Screen, press **[CTRL] + [ENTER]** or select **OPTIONS** from the Edit menu.
- ⇒ To apply your changes in the Edit Settings Screen, click **APPLY**.
 - ☐ You can apply changes in the Edit Settings Screen and check their effects in the desktop.
- ⇒ To cancel your changes and exit, click **CANCEL**.

NOTE: If you have already clicked apply, your changes cannot be canceled.

- ⇒ To accept your changes and exit, click **OK**.

MOUSE SENSITIVITY

The Mouse Sensitivity settings dictate the responsiveness of the terrain changes to mouse movements. For each type of terrain change, you can alter how the program responds when you move the mouse.

EA TIP Set your mouse sensitivities to suit your editing style or subsequent tasks. If you like to make precise, detailed terrain edits, set the mouse sensitivities to lower levels. If you want to move lots of terrain quickly, set them to higher levels.

LINES

When you draw lines with the selection tools, these colors represent the various states of your lines.

- ⇒ To change a line color, double-click in the colored box. Select a new color from the palette and click **OK**.

OUTLINES

Under the Outlines tab, you set the colors for points and segments in outlines.

For line segments, Normal color indicates the edge of the outline when the outline has been selected. When you select a control point, the Before Color indicates the line segment before the control point, while the After Color indicates the one after it.

You can set the colors of the points themselves. When an outline has been highlighted, the control points appear in the Normal Color. When you click on a control point, it appears in Active Color, and its two tangent points appear in Tangent Color.

- ⇒ To change a color, double-click in the colored box. Select a new color from the palette and click **OK**.

You can change the offset for displaying a secondary, cascading window. The Stagger values indicate how far to the right (X) and down (Y) of the top-left corner of the first window the program opens the second window.

At the bottom of the Outlines tab, you can configure how pasted objects appear relative to the parent object. By setting the X and Y figures using the slider bar, you establish how many pixels to the right (X) and down (Y) from the parent object each subsequent object is pasted.

- ⇒ To set the Stagger X and Stagger Y, use the appropriate slider bars.

CAMERA

The Camera settings define the appearance of the 3D Camera icon in the 2D View.

- ⇒ Set the size of the icon to SMALL, MEDIUM, or LARGE.

You can define the colors that are used to indicate the aiming arrow, the body of the icon, and when the icon is active.

- ⇒ To choose a new color, double-click in the color box. Select a new color from the palette and click OK.

UNDO

You can set the number of Undo's that are retained in memory. If you have a computer with the recommended amount of memory, you may appreciate this feature during development. If you have a computer with the minimum amount of memory (► [System Requirements](#)), set the number of Undo's lower. You will likely find that ten undo's is usually sufficient.

- ⇒ To set the number of Undo's from 1 to 30, use the slider bar.
- ⇒ To prevent Undoing, leave Undo Selections box empty.

If an action cannot be undone, you can decide how the tool alerts you.

- ⇒ To force the tool to ask you before completing the action, select ASK.
- ⇒ To proceed without asking, select PROCEED.
- ⇒ To cancel the action, select CANCEL.
- ⇒ To also alert you with a beep, select BEEP.

STARTING PROJECTS

Starting is easy; finishing takes some work, but hopefully, the work is fun in *Course Architect 2000*.

- ☐ Prior to starting *Course Architect 2000*, you should set your display to 800 x 600 or higher in the Display control panel. For information on how to set it, see your Windows documentation.
- ⇒ To start *Course Architect 2000*, double-click the *Course Architect 2000* icon. The program opens.
- ☐ You cannot open *Course Architect 2000* by double-clicking a project (.JPJ) file.

If you have sufficient hard drive space, you can work on multiple projects and share data between them. This chapter discusses how to get started.

NOTE: When you are using *Course Architect 2000*, it is highly recommended that you close all other programs, including *Tiger Woods 2000*. The tool needs as much RAM as your system can maximally provide.

NEW COURSE WIZARD

Course Architect 2000 stores projects as a series of files and folders inside the *Course Architect* directory. When you start a new project, you name its holding folder the name of your course. For example, if you're building a course called, "Rolling Hills," you should name your folder, "Rolling Hills".

To get you started, the New Course Wizard gathers some basic information about your course and how you want to store it. When you complete the New Course Wizard, you're ready to begin designing.

When you have completed a project, *Course Architect 2000* assembles all of the outlines, textures, objects, and terrain files that are required into a location that your installed *Tiger Woods PGA TOUR* golf game can access.

To start a new project, you should check first to see that you have enough space. To start, you want at least 210MB of free hard drive space.

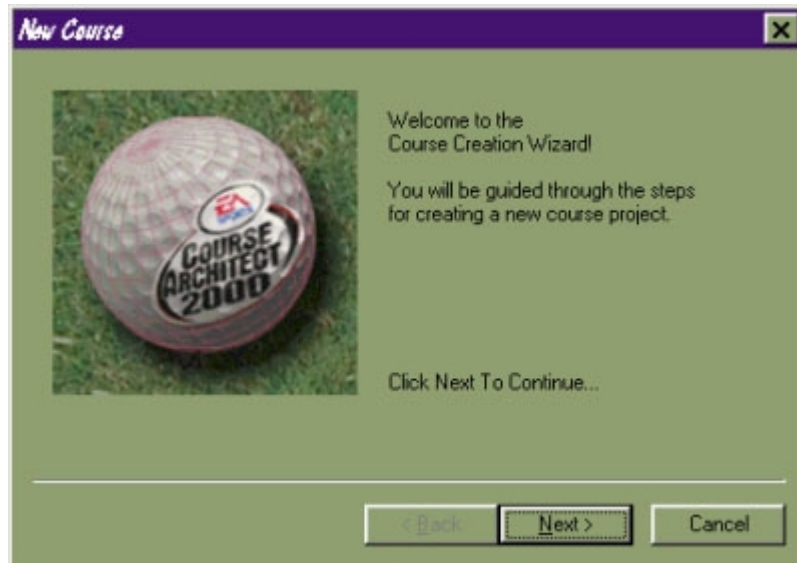
To start a new project:

Course Architect 2000 from EA SPORTS lets you build the golf course of your dreams. Or you can recreate any of the twenty-seven courses on the PGA TOUR®. A specialized suite of graphical tools puts the bulldozers, landmovers, and lawn mowers at your fingertips.

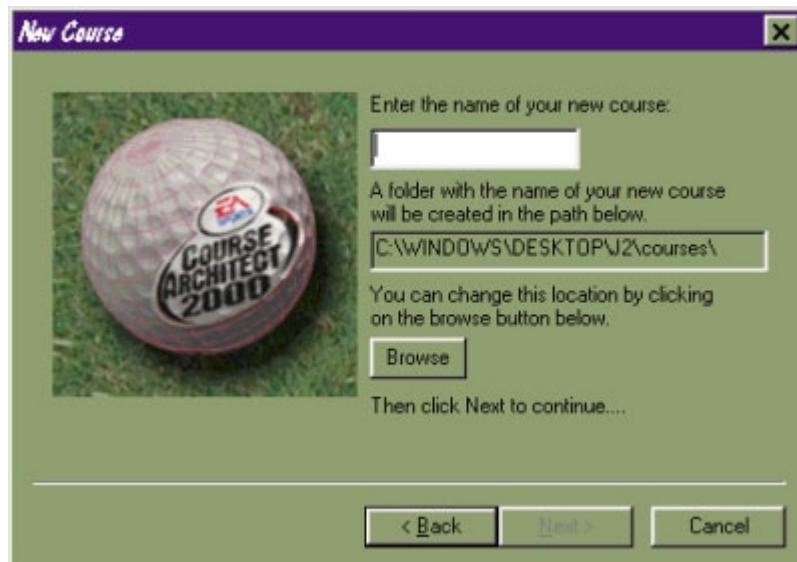
- ☐ You cannot open *Course Architect 2000* by double-clicking a project (.JPJ) file.
- ⇒ To start a new project, select NEW from the Project menu. The New Course Wizard steps you through the setup.
- ☐ After the course file is initialized, do not change the names and locations of the course files on your hard drive.

To start a new course:

1. Select NEW from the Project menu. The New Course Wizard begins.
2. Enter the name of your course in the provided box.

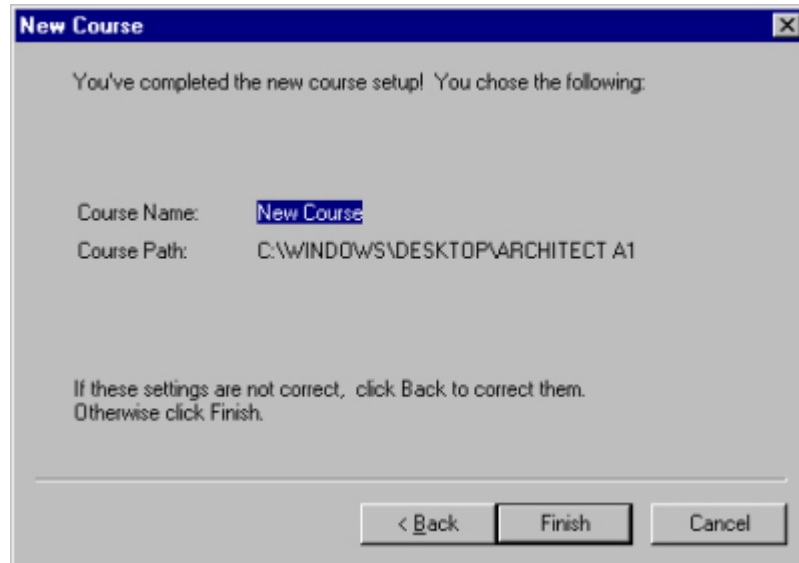


- ⇒ To place your course in a different location than the directory listed onscreen, click BROWSE. Navigate to a new location.
 - ❑ When complete, an eighteen-hole course ready for export can occupy up to 200MB, depending on the size and nature of your course. When packed for use in the game, a course takes 50-60MB.
 - ⇒ To select the current folder in the Browse window, click SELECT.
 - ⇒ To cancel the New Course Wizard, click CANCEL.
3. In the next screen, you can read the name of your course and its location.



- ⇒ To change any of the information, click BACK.
- ⇒ To cancel the New Course Wizard, click CANCEL.

- ⇒ To continue, click NEXT.
- ⇒ To finish creating your course, click FINISH.



4. Your course is now created. *Course Architect 2000* copies the default data directories into sub-directories inside your course folder.
 - ☐ The default data files are about 12MB.
5. When you have finished the Project Wizard, the New Hole Wizard begins on Hole #1. For more, ► [New Hole Wizard](#).
 - ☐ Although you may complete your hole designs in any order, you must create Hole #1 first. We recommend that you build your course from Hole 1 to Hole 18.

EA TIP Do not change the names of the folders of your course, or your data can be corrupted.

YOUR FILES AND THEIR LOCATION

After you have started your project, do not move files to different folders. Do not change filenames. The tool may be unable to find necessary files.

Inside *Course Architect 2000* directories, the following relative directories store the source data files:

- ☐ **Objects:** (course name)\objects
- ☐ **Textures:** (course name)\textures
- ☐ **Horizons:** (course name)\horizons

You can find other objects, textures, and horizons in the LIBRARY directory at the root of your *Course Architect 2000* CD, or the Library folder on your hard drive.

As you build your course, the number of files associated with it continues to grow.

- ⇒ To export your course for game use, select COPY TO GAME from the File menu. The project file is compiled into a single game-course file and placed in

the appropriate directory for access from inside *Tiger 99 PGA TOUR Golf* or *Tiger Woods PGA TOUR 2000*.

WHEN USING COURSE ARCHITECT 2000, save your work on a regular basis. Your project may take more than one day to complete. It's a good idea to back up your work on a regular basis.

SAVING YOUR WORK

When you are loading and saving projects, keep the data on a local drive. Do not store your projects on external media or on a connected network. Performance can be significantly impacted.

- ⇒ To save the current hole, select SAVE from the File menu.
- ⇒ To close the project, select CLOSE from the Project menu. If prompted, save your project.

NOTE: Do not change the names of any *Course Architect 2000* data files outside of the tool. It can produce odd results or fatal crashes in the tool. To modify *Course Architect 2000* data files, it is best to work with copies and re-import the files through the tool.

SAVING HOLES

When you save a hole, you may receive an error message indicating that *Course Architect 2000* is unable to create a hole directory. *Course Architect 2000* has discovered a previously created hole and cannot overwrite it.

If you want to overwrite the hole, you must delete the hole folder outside of *Course Architect 2000* and attempt to resave the hole inside the tool.

LOADING A PROJECT

To load your project, you load the project file that is stored in the course directory.

- ⇒ To load a project, select OPEN from the Project menu. Navigate to the folder where you initially saved your project. Select the .JPJ file and press OPEN. Your project opens.
- ❑ If you cannot see your project file, select the .JPJ file type.

When you are loading and saving projects, keep the data on a local drive. Do not store your projects on external media or on a connected network. Performance can be significantly impacted.

IMPORTING

- ❑ You can import various types of source materials. Each material type has different format and size constraints which you must configure in your external development tools. For more, ➤ [Import/Export](#).

ERASING YOUR WORK

In *Course Architect 2000*, mistakes aren't as costly as on a real golf course. Instead of rehiring the landmovers, contractors, and labor to correct mistakes, a few mouse clicks can undo or erase your worst blunders.

UNDO

If you make a simple mistake, Undo it.

- ⇒ To undo the last action, press **[CTRL] + [Z]**.
- ⇒ To redo the last action, press **[CTRL] + [Y]**.
 - ❑ Some actions cannot be undone. The tool prompts when an action cannot be undone.

You can undo multiple times. Suppose you realize, ten steps later, that you made a mistake. If you Undo ten times, you can correct the mistake.

You can set the number of Undo's that the program remembers—up to 30.

- ⇒ To redo the last action, go to the Undo tab in the Edit Settings Screen. For more, ➤ [Edit Settings Screen](#).

DELETING HOLES

You may decide that it is easier to delete a hole instead of undoing your mistakes and correcting them.

- ⇒ To delete a hole, go to Windows. Navigate to the project folder on your hard disk. Delete the folder that is named "HoleXX" where XX represents the hole number.

The hole is then deleted. To restart the hole, select the hole from the drop-down list in *Course Architect 2000*. For more, ➤ [New Hole Wizard](#).

EXPORTING COURSES

Even if your course is not completed, you can export your course to the game to test it. When you export a course, the tool saves the output files in the proper directory for use in the game. Use this feature to test your partially completed courses or to export finished courses for your system or to share with friends.

NOTE: You can export courses to *Tiger Woods 99 PGA TOUR Golf* and *Tiger Woods PGA TOUR 2000*.

Depending on the size and number of defined holes in your course, an exported file can be 50-60MB in size.

- ⇒ To export a course, select COPY TO GAME from the File menu. After the tool checks the course, it places the course in the proper destination directory.

NOTE: To export a course to the game, you must have a Hole #1. Attempting to play rounds across holes that have not been started can cause crashes in some versions of the game. To test incomplete courses in the game, use Practice Mode and select only holes that you have defined.

LAYING OUT A COURSE

On a computer golf course, you don't have to walk from hole to hole. When you complete a hole, the computer simply places you at the tee for the next hole. Consequently, you never see the course on a scale larger than the individual hole.

However, the best courses in the world have a consistency from hole to hole. On each hole, you can see familiar terrain shapes that are integrated into the topography of the course location. When done right, this consistency has a harmonious effect on the golfing experience. You feel like you're in a peaceful and carefully considered environment.

In *Course Architect 2000*, you build your course hole-by-hole. To account for features and issues on a scale larger than the individual hole, you need to plan ahead. This chapter provides some design points before you start digging.

BASIC DESIGN DECISIONS

DRAMA VS. REALISM

Before you begin to work on your course, you should make some essential decisions. Are you making a realistic course or a fantasy course? Or are you making something in between? Your decision can influence how you complete your course. A realistic course requires more patience and adherence to pre-defined course features, including accurate terrain creation and sun and horizon positioning.

COURSE LOCATION AND DEGREE OF DIFFICULTY

Secondly, you need to place your course in a particular climate and geological environment. Is it a tropical course or an alpine course? How much does the natural surrounding terrain impact the course? These decisions affect which elements such as objects, textures, horizons, and terrain shapes are used on the course.

You should also consider how difficult you want the course to be. Is it a championship-level course? How long is the course? What is the par?

- ❑ A standard format for a course is 4 par 3's, 4 par 5's, and the rest as par 4's. Such an organization produces a par 72 course.

You should consider how you want to distribute the holes on your course. A par 3 hole doesn't necessarily imply an easy hole; your tee shot could be very challenging. Does your course get easier or harder as the holes progress? How do you want the course to finish? On a par 5, so that a second-place golfer can make up a stroke or two?

And finally, what elements of your course are going to stand out as unique? What are its risks? What are its rewards? Do you have signature holes? Unusual terrain? Or is it just a great round of golf?

When you have made decisions on the above issues, you're ready to proceed.

COURSE DESIGN ISSUES

In very rough-cut form, plan your entire course before you begin. Keep in mind the following concerns:

- ☐ How does the course fit into the topography of the surrounding terrain? Is there a general slope to the entire course? Does it have large terrain features that need to be linked into the terrain of individual holes?
- ☐ What are the large terrain features that appear in the horizon of the course? Things like mountains, rivers, a city, et cetera.
- ☐ Where is the sun? Where is it positioned in the sky? Is it bright or cool?
- ☐ How are the holes positioned throughout the course? How are they placed next to each other? How are they oriented relative to the sun?
- ☐ Where is north?
- ☐ How are your holes oriented? If possible, position them at 30-degree intervals. Do not position them at finer intervals, as it can cause discontinuities with the horizon.
- ☐ What are the basic shapes for each hole? Straight? Dogleg left? Dogleg right?
- ☐ What is the par for each hole?
- ☐ Which are the signature holes?

The first and most important issues are discussed in further detail in this chapter.

You may choose to develop your course on graph paper. While the lines can help you to position and orient course features and holes, you may find the constraints of the lines to be overly restricting. After all, there is no way to see the overall view of the course, so approximations of object placements may be sufficient. Choosing to use graph paper is your call.

A NOTE ON PAR

After you start a hole, you cannot change its par. You can change any other aspect of the hole—its distance, its shape, its orientation—but you cannot change the par. When you're developing your course, you should label the par for each hole. On an eighteen-hole course, standard par is 72.

BUILDING HOLES

A 3D graphics tool allows you to tackle any feature of the environment in any order. However, to save time, you may want to consider a few things.

A standard course is par 72, with 4 par 3's, 4 par 4's, and the rest par 5's. You can vary these figures as you see fit. A par 3 doesn't necessarily imply an easy hole; your tee shot may be very challenging.

When you're ready to begin to work, start at Hole #1. The game cannot load a course that does not contain a hole 1. In general, build your holes in sequence, so that you can test them easily in the game.

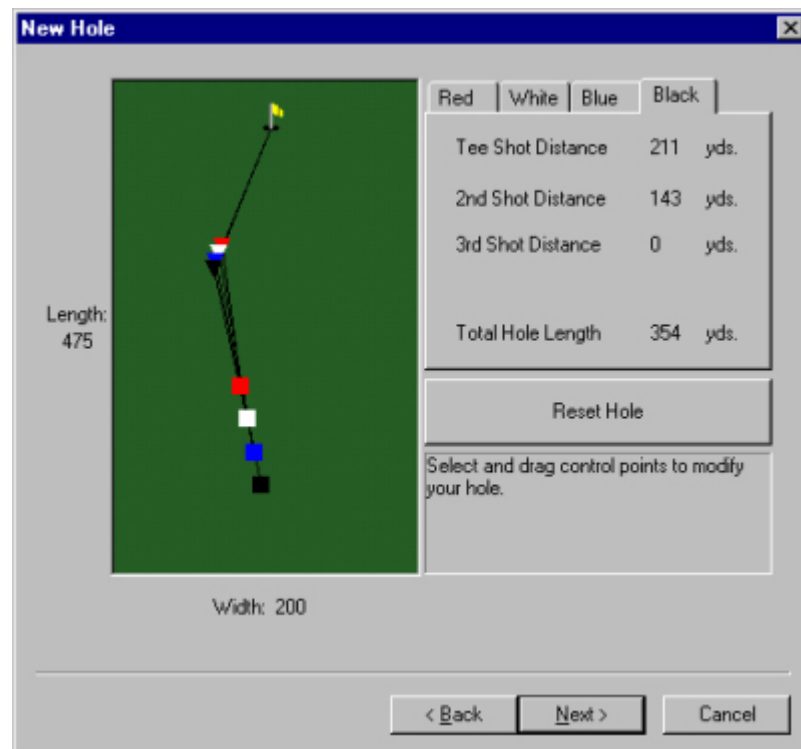
First steps in creating a hole:

- ☐ Start the hole with the New Hole Wizard.
- ☐ Establish the shot path.
- ☐ Check the shot path again. Get the basic shape of the core hole outlines right.
- ☐ Establish your set of textures.
- ☐ Define your basic outlines.
- ☐ Build and manipulate the major terrain pieces.
- ☐ Place objects on the terrain.

The Edit Cycle:

- ☐ Continue editing until you've reached a point where you want to check your results.
- ☐ Copy the course to the game.
- ☐ Play-test your hole. Note the problems and incomplete areas. Be sure to test the shot path.
- ☐ Return to *Course Architect 2000*.
- ☐ Repeat the Edit Cycle until you complete the hole or want to move on to the next one.

HOLE ORIENTATION



When you start a hole in the New Hole Wizard, the basic layout is always along a south to north axis. The top of the screen is due north.

- ❑ If you are simulating a real course, you must simulate the hole orientation and sun placement from within *Course Architect 2000*. It is not a good idea to orient holes off of the north-south axis in the tool; you have to be clever about it. For more information, ➤ [Realistic Hole Orientation](#).

When starting the New Hole Wizard, give yourself some extra space in the Hole Terrain Dimensions, as you may want to expand the hole when you get into building it. It is recommended that you place the green at the top to be consistent with existing EA SPORTS golf courses.

Draw your basic hole layout as if you were pointing the hole due north. Later, in *Course Architect 2000*, you can change the horizon and sun positions to simulate holes oriented in a different direction.

HORIZONS

You cannot display 3D graphics to infinity. To have a computer display a golf course to infinite distances stuffs the CPU with detail that slows down the golfing experience. Consequently, at a definable distance from the perimeter, each hole is wrapped in a 360-degree 2D image of what is visible in the infinite landscape.

In *Course Architect 2000*, these wrappings are horizons. Think of the wall of a circus tent. It is a series of canvas pieces that join together to simulate an entire enclosure. Horizons in *Course Architect 2000* are generated in a similar manner.

Course Architect 2000 comes with a library of pre-made horizons from which you can choose to include in your hole. Each 360-degree horizon is composed of 12 30-degree images that are blended and sequenced for you.

When you start a hole in *Course Architect 2000*, you want to build it along the bottom-to-top axis of the New Hole Wizard and the 2D View window. In the development tool, a north-south hole provides a larger workable area, as the maximum east-west width is 400 yards. In the game, a hole oriented left-to-right can present some visually confusing information to the golfer. In *Course Architect 2000*, build your holes bottom-to-top.

However, on a golf course, all holes are not oriented along the north-south axis. Consequently, you need to make adjustments within *Course Architect 2000* to accommodate different orientations. You change the appearance of the hole's orientation by changing the position of the 1) horizon or 2) sun or 3) both.

NOTE: Because it is more challenging to place the horizon, you should place it before you place the sun.

HORIZON POSITIONING

Think again of our example of the walls of a circus tent. The horizons in *Course Architect 2000* can be thought of as the canvas wall panels of a circus tent. Altogether, they completely enclose the circus area and define what people inside the tent see as the viewable horizon.

Now suppose that circus tent is empty, and you are standing in the dead-center of this perfectly round space. The ringmaster places a dot on the panel that points due north. He puts a blindfold over your eyes and takes you from the tent for a period of time. When you are returned to the tent and the blindfold is removed,

you are standing in the middle of an empty, round tent with one dot on the wall panel. How do you know it's pointed due north?

You don't because you have no points of reference. Your point of reference is the horizon, whose appearance hasn't changed. From inside the tent, the dot on the panel could be indicating any direction.

The same principle applies to placing horizons in *Course Architect 2000*.

Although you use one horizon per course, you can re-orient the horizon for each hole. The horizon tiles are numbered from 1 to 12 starting with number 1 at due north and counting up in a clockwise direction.

If hole #1 is pointed north-south, there may be, for example, a mountain in the horizon due-north of the hole. Suppose that you want to orient Hole #2 along an east-west vector. **If you have properly oriented the hole along the north-south axis in 2D View, you must rotate the horizon tiles to make the hole seem to be along an east-west orientation.** In this case, you rotate the horizon 90 degrees counterclockwise.

To re-orient the horizon:

1. Under the View menu, select HORIZON. The Horizon Browser opens.
2. In the Browser, the left edge of Tile #1 is pointed due north. In 2D View, it is positioned at the top of the window.
3. To position another tile at due north in *Course Architect 2000*, right-click on the tile in the Browser and write down its tile number.
 - ☐ Each horizon tile has a view angle of 30 degrees. To set Tile #2 as the new Start Frame for the horizon means that you have shifted the horizon 30 degrees counterclockwise.
4. Under the Advanced settings, open the Horizons tab. Under Start Frame, enter the tile number. Click APPLY. The horizon has been re-positioned.

To blend the horizon into the particular terrain and outlines of a hole, you must complete a few more steps, which include setting the distance from the edge of the hole to the horizon and defining the textures that fill the space in between. For more information on horizons, ➤ [Horizons and Skies](#).

SUN AND SHADOW POSITIONING

When you re-orient the horizon, you can choose to re-orient the sun and its corresponding shadows. Whether you do or not depends on your ultimate design aims for the course.

Are you building a realistic golf course or a dramatic and effective computer golf course? If you are attempting realism, you should reposition your sun accordingly. To give the appearance of a different hole orientation on the course, when you reposition the horizon, the sun should be repositioned, too.

When you place the sun and shadows on the first hole of your realistic golf course, note its settings: elevation, compass position, and intensity on both terrain and objects. As you adjust your horizon, you should adjust your sun's compass position to a similar degree.

If you are not aiming to duplicate the real world, you can place the sun in different locations on every hole, depending on your requirements for the hole. The sun

can be used for dramatic effect, to highlight important terrain features, and to simulate weather, time of day, and climatic effects. For more on sun positioning and shadowing, ➤ [Sun and Shadows](#).

GENERAL GRADE OF THE COURSE

Suppose you want to build your course at the foot of a mountain. *Course Architect 2000* can import elevation data from external sources and tools. In a paint program such as Adobe *Photoshop*™ or JASC *Paint Shop Pro*™, you can use the gradient tools to define elevation data.

In .PCX, .BMP, or .TGA format, you can import files that *Course Architect 2000* interprets and applies as elevation information for a hole.

Your approach, however, depends upon whether you want to define the entire terrain map for your course or to build recurring terrain features. For more, ➤ [Advanced Terrain Topics](#).

LARGER TERRAIN FEATURES

The technique used to create a general grade for your course can be applied to other kinds of terrain features that apply to more than one hole.

For example, your course may suggest that in the southeast corner of Hole 3, you should be able to see part of a river that flows throughout your course. In *Course Architect 2000*, you can define a water outline to approximate the piece of the river that appears in Hole 3. The same idea can be applied to other terrain features such as mesas, hills, ridges, arroyos, and other bodies of water.

CLUB DISTANCES

This reference chart shows the club distances for the various difficulty settings in *Tiger Woods PGA TOUR 2000*. Using these club distances in conjunction with the Ruler tool can help you plan your hole design strategies.

	NOVICE	AMATEUR	PRO
Driver	225	250	280
3 Wood	200	225	250
5 Wood	180	200	225
3 Iron	170	190	210
4 Iron	160	180	200
5 Iron	150	165	185
6 Iron	135	150	170
7 Iron	130	145	160
8 Iron	110	125	140
9 Iron	105	115	130

Pitching Wedge	90	100	110
Sand Wedge	70	80	90

MEASURING: THE RULER

Designers tweak holes to force golfers to make shots with particular clubs. By calculating distances on the course and by positioning objects and terrain features, a good designer can force a golfer into tough yet interesting decisions.

When you're building a hole, learn to use the Ruler tool to measure distances between course features. Taking care to carefully place your course features can really improve the playability of the hole. Get familiar with the Ruler tool.

THE SCORECARD

As you build holes, the distances and overall slope ratings are automatically updated in the Scorecard. Periodically, check the Scorecard to see distances and slope ratings of your course. You can make changes on the General Information tab.

You can manually enter the hole yardage, course rating, and slope ratings if you are recreating a real course. Users do check these things, especially on signature holes. Fortunately, the hole information and the Scorecard are independent of each other. So, you can enter the data here without rippling effects out onto the course.

- ⇒ To see the Scorecard, select SCORE CARD from the View menu.
- ⇒ To accept changes to the Scorecard, click OK.
- ⇒ To cancel changes to the Scorecard, click CANCEL.

The Scorecard (In) and Scorecard (Out) tabs indicate the yardage for each tee on each hole. Out holes are 1-9, and In holes are 10-18.

EA TIP If a hole has a string of zeroes for the yardage information, you have not yet started it. The Scorecard can be a means of tracking which holes have been started.

- ☐ This information is taken from the course layouts that you have already defined. You cannot alter the data through these boxes.

On the General Information tab, you can add the general course information that appears in the game.

- ⇒ To set a total prize figure for the course tournament, enter the amount in the box next to the dollar sign (\$).
- ⇒ To change the name of your course that appears in the Tiger Woods PGA TOUR 2000 selection screen, enter a new name in the Course Name box.
- ⇒ To set a hole at which playoffs begin, select a hole number from the Playoff drop-down list.
- ☐ If two or more golfers complete the final round with a tie score, they begin a **playoff**. A playoff starts at one hole on the course and continues until one player finishes a hole with a better score than the other player or players.

- To put your signature on the course, you can enter your name and creation date in the Course Descriptions Text box.

EA TIP When you update your course, indicate the update by listing a version number in the Course Descriptions Text box. This way, when you share the course with friends or use it for on-line tournaments, the other users can ensure that they have the most recent version.

WIND DIRECTION

You can suggest a prevailing wind direction, which may be used in the game to compute wind direction and velocity for a hole.

For each hole, you can enter a number of 0-7 to indicate the wind direction. Wind direction 0 brings the wind from due north. Wind direction 1 comes from northeast, and the rest proceed around the spokes of the wheel until 7, which brings wind from the northwest.

AMBIENT SOUND

Ambient sound can have a wonderful effect on the sense of place of a course. If your course is at the coast, the sound of the waves add to the ambience. In the swamps of Florida, the sounds of water burbling and exotic birds place your golfers far from the city.

Course Architect 2000 comes with several sets of ambient sounds from which you can choose.

- ☐ You can configure the ambient sounds for each hole on the course. For example, if your course is on the coast of Florida, the inland holes may require tropical sounds, while the coastal holes suggest seaside sounds.
- To set the ambient sounds for the hole, select AMBIENT SOUND from the Terrain menu. In the dialog box, click the sound file that you wish to use for the hole. Click OPEN. The collection of ambient sounds in that file is added to your hole.

The .AZA format is proprietary to *Course Architect 2000* golf. You cannot import ambient sound into *Course Architect 2000* or *Tiger Woods* golf.

A WORD ON LEVERAGE

In *Course Architect 2000*, you're manipulating a lot of data. The objects, textures, and other materials in the Content Library have been developed over a period of years. Wherever possible, use existing materials instead of starting them from scratch.

To invent new materials, a clever designer takes existing materials and modifies them. As you become more experienced with the types of materials in *Course Architect 2000*, their locations, and their formats, you will discover ways of quickly developing new materials from the existing library. In effect, you can grow the existing Content Library into something larger that meets your needs. Or, find them in the public domain and tailor them to your course needs.

- ❑ When acquiring materials from the public domain, be sure to observe all copyrights.

TWO TIMES 2D VIEW

In *Course Architect 2000*, you can open multiple 2D View windows on the same hole.

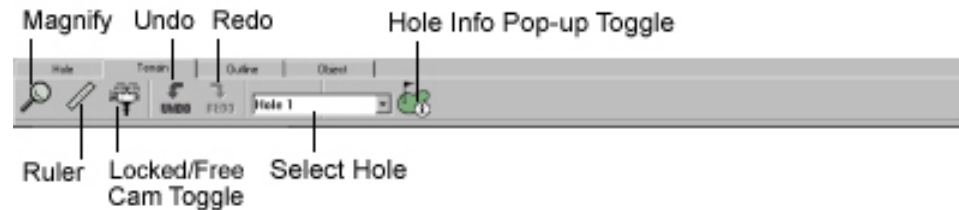
- ⇒ To open another 2D View window, select CREATE NEW 2D VIEW from the View menu.
- ⇒ To close a 2D View window, click the X in the upper-right corner of the window.

Multiple 2D View windows can be useful in development. For example, suppose you are working under the Magnifying glass on a single outline. If you open multiple 2D View windows, you can be working with the Magnifying glass in one window and reviewing the effects on the overall look of the hole in the other.

- ❑ There is only one 3D camera and 3D View window.

STARTING A NEW HOLE

After you've completed the New Course Wizard, you're ready to start building your course. Each course is developed on a hole-by-hole basis. You work on one hole at a time. While it may seem that a designer would want to be able to work on multiple holes at one time, in practice it becomes confusing. Given the high demands on a PC's processor and memory, it is also impractical.



NEW HOLE WIZARD

NOTE: When you are using *Course Architect 2000*, it is highly recommended that you close all other programs, including *Tiger Woods 2000*. The tool needs as much memory as your system can provide.

When you start a hole, the tool needs to assemble a number of files and compute the placement and display of the basic course features. The New Hole Wizard allows you to define the major components of your hole, such as par, distance, positioning of tees, and basic course shape. From your entered data, the tool builds a rudimentary hole with which you begin to build the hole as you imagine.

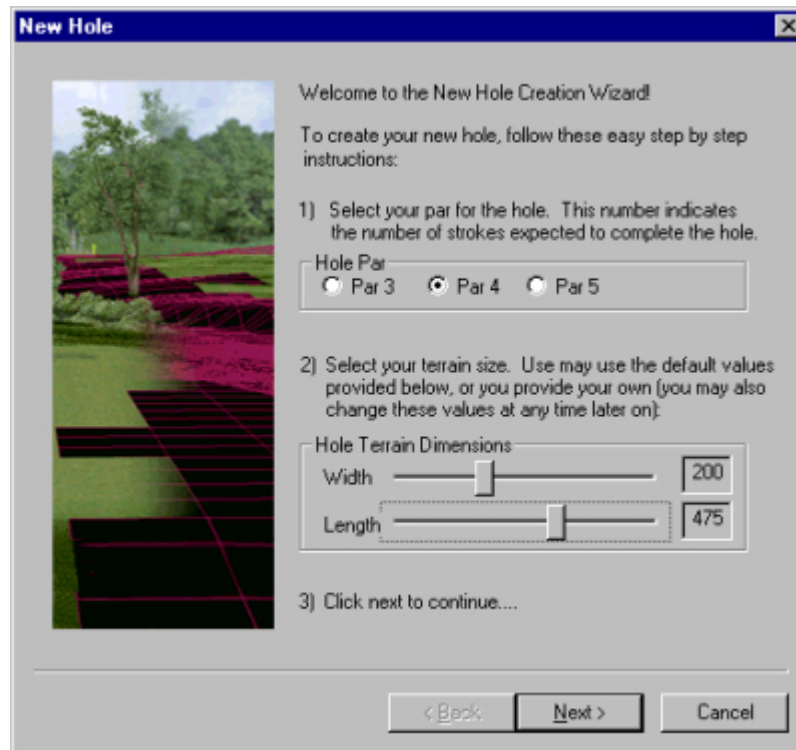
NOTE: To play a course in the game, you must have a Hole #1.

To begin a new hole:

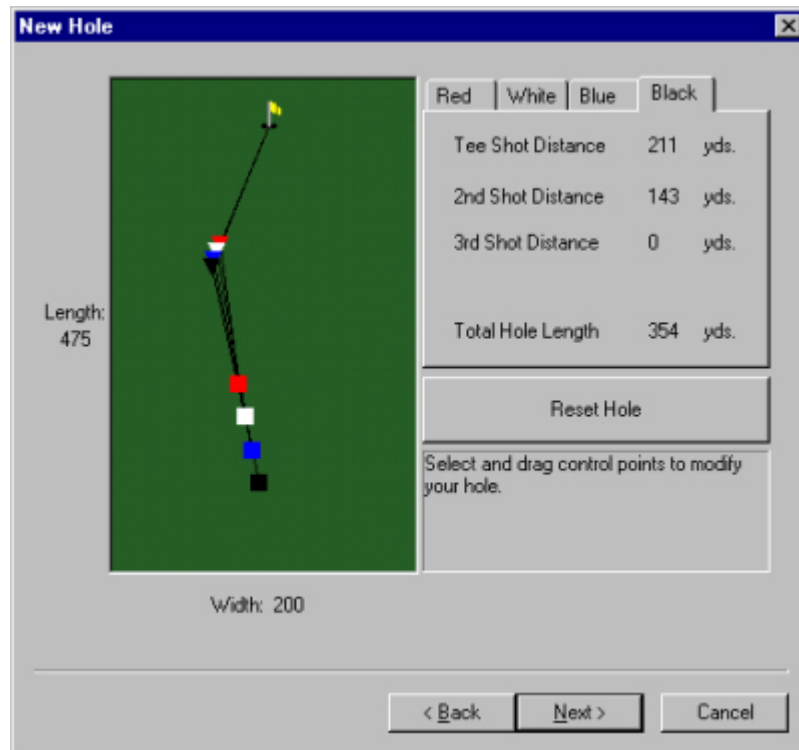
1. Select the Hole tab.
2. From the drop-down list, select the Hole number to begin. The New Hole Wizard appears.

The New Hole Wizard:

1. Select the par for the hole. The par for the hole determines the maximum and minimum dimensions for the height and width.



- ☐ Height and width measurements should include all of the terrain for the hole. Balls hit outside of this area are ruled out of bounds.
- 2. To select the height and width of the hole, use the slider bars.
- 3. When you have finished selecting the dimensions and par, click NEXT.
- 4. You now set your basic hole shape for each tee (red, white, blue, and black – in order of difficulty. Black is for PGA tournament play).
- ⇒ To draw the basic hole shape, click the pointer where you want to set the tees. Pull the line to the first turn of the hole. Click again. Continue until you've laid out your hole.



- ☐ For par 3s, you cannot add doglegs left or right to the hole layout. For par 4s, you can create one change. For par 5's: two changes.

NOTE: When laying out your hole in the New Hole Wizard, orient it along the south to north axis which is bottom-to-top in the Wizard window. For more, ➤ [Hole Orientation](#).

- To change a tee's starting point, click the colored dot representing the tee and drag it to a new location. To place it, click again. To review the distance statistics for other tees, click on the tabs at the top of the screen.
- ☐ The lines connecting the tees and the pin are the shot paths, the optimal line at which to aim. To change a tee's shot path, click and drag it to a new location.
- To change the location of the pin, click and drag it.
- To begin your hole layout again, click RESET HOLE.
- To finish the hole layout, click NEXT.
- 5. Select the initial terrain layout parameters. These parameters can be changed during design.

New Hole

Terrain Layout Parameters

Playable Area width 100 yds

Fairway width 35 yds

Tee radius 3 yds

Green radius 14 yds

Tee-to-Fairway distance 99 yds

< Back Finish Cancel

PLAYABLE AREA WIDTH	Set the width of the playable area. The region between the playable area and the edge of the hole area defaults to deep rough.
FAIRWAY WIDTH	Set the width of the fairway. Fairway width can be a key factor in how players approach a hole.
TEE RADIUS	Set the radius of the tee area.
GREEN RADIUS	Set the radius of the green area.
TEE-TO- FAIRWAY DISTANCE	Set the distance between the tee and the beginning of the fairway.

6. When finished, click FINISH.

If you encounter an error message during creation of the hole, you may be attempting to overwrite a hole. For more, ➤ [Saving Holes](#).

It may take up to two minutes to finish the hole. When the New Hole Wizard is complete, you are presented a top-down 2D View of your hole with the core outlines.

NOTE: Do not delete the default outlines created by the New Hole Wizard. If you delete green, tee, or fairway outlines, you can begin the hole again with the Regenerate Outlines tools. For more, ➤ [Shot Path](#).

START DESIGNING

After you complete the New Hole Wizard, you can change any aspect of the hole except its par. Where possible, try to calculate the hole's par in advance of starting it in the New Hole Wizard.

- ⇒ To change the hole's par, you must delete and restart the hole. To delete a hole, go to Windows. Navigate to the project folder on your hard disk. Delete the folder that is named "HoleXX" where XX represents the hole number.
- ⇒ You can change the basic shapes of the hole. For more information on these shapes, ➤ [Outlines](#).
- ⇒ To change other aspects of the hole, ➤ [Hole Information pop-up](#).

If you're ready to begin working with the hole, you may want to step through the tutorial. ➤ [Tutorial: Creating Hole 1](#).

TUTORIAL: CREATING HOLE 1

You've started your first hole with the New Hole Wizard, and you're ready to start digging, building, and shaping your hole.

This tutorial steps through the essential parts of a hole. The first sections offer instruction on how to position your tees and green. You can then learn the essentials of building course features in a short step-by-step tutorial on making a sand trap.

The second part of the tutorial explains how to design, build, and integrate a number of course features, including more generalized explanations of the elements of the first part of the tutorial.

When you finish the New Hole Wizard, you're ready to build your hole. The major tools of hole development are integrated into the desktop; although it's helpful to know them, you don't need to know the menu system intimately to begin making exciting golf challenges.

If you have not yet started a hole, ➤ [New Hole Wizard](#).

If you have started a hole and want to change some of the elements that were defined in the New Hole Wizard, ➤ [Hole Information pop-up](#).

- ☐ You can change any aspect of a hole except its par. To change par, you must delete the hole and start over. For more, ➤ [Deleting Holes](#).

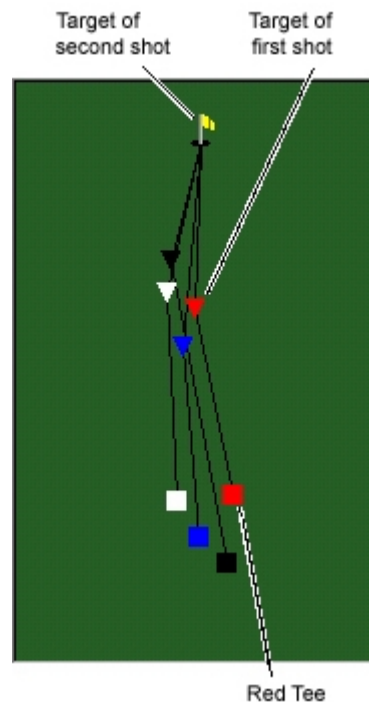
CHANGING THE SHAPE OF YOUR HOLE

Your first view of your new golf course is a 2D View of a flat plane of green with some pieces of different colors on it.

When you finish creating a hole, you see its basic shape as you set it in the New Hole Wizard. You can change all aspects of the outlines and terrain including the basic shape of the hole.

- ⇒ To change the basic shape of the hole, use the shot path tools. For more, ➤ [Shot Path](#).
- ⇒ To restart the hole, you must delete and restart the hole. To delete a hole, go to Windows. Navigate to the project folder on your hard disk. Delete the folder that is named "HoleXX" where XX represents the hole number.

SHOT PATH



Each hole has an optimal **shot path**. The shot path indicates the best way to reach the green. However, golfers may invent better ways to get to the green.

When you start a hole in the New Hole Wizard, the par of the hole determines the number of turns in the shot path. A three-par has no turns. A four-par has one turn, and a five-par can have two turns. You cannot add or delete turns to the shot path after you start the hole.

- ☐ In the game, computer-controlled golfers use the shot paths to determine where to initially aim.

In 2D View, you can see the shot path from each tee to the green. A shot path extends from each tee to a target point for the first shot. If par for the hole is four or more, the shot path has a second leg that points to the green.

- To change a shot path, click and drag it in 2D View.
 - ☐ If you move the shot path marker for a tee, you should move the underlying outline to the new location.
- To display the shot paths in 2D View, go to the Hole tab. Click on the HOLE INFORMATION button if the shot paths are not visible.

After changing the shot path markers, you may choose to regenerate hole outlines to recalibrate the hole from the beginning.

NOTE: Use the Regenerate Outlines function very carefully. When you regenerate outlines, you restart with the basic set of outlines with which you began editing the hole. All changes to your hole are LOST.

- ⇒ To regenerate outlines, open the Hole Information pop-up from the Hole tab. Select the Regenerate Outlines tab. Click APPLY. For more, ► [Hole Information pop-up](#).

POSITIONING THE PIN AND TEE

To reposition the pin and tee, it is best to use the Shot Path tools in 2D View.

- ⇒ If you cannot see the Shot paths in 2D View, you must open the Hole Information pop-up by clicking the appropriate button on the Hole tab.

To position the tees:

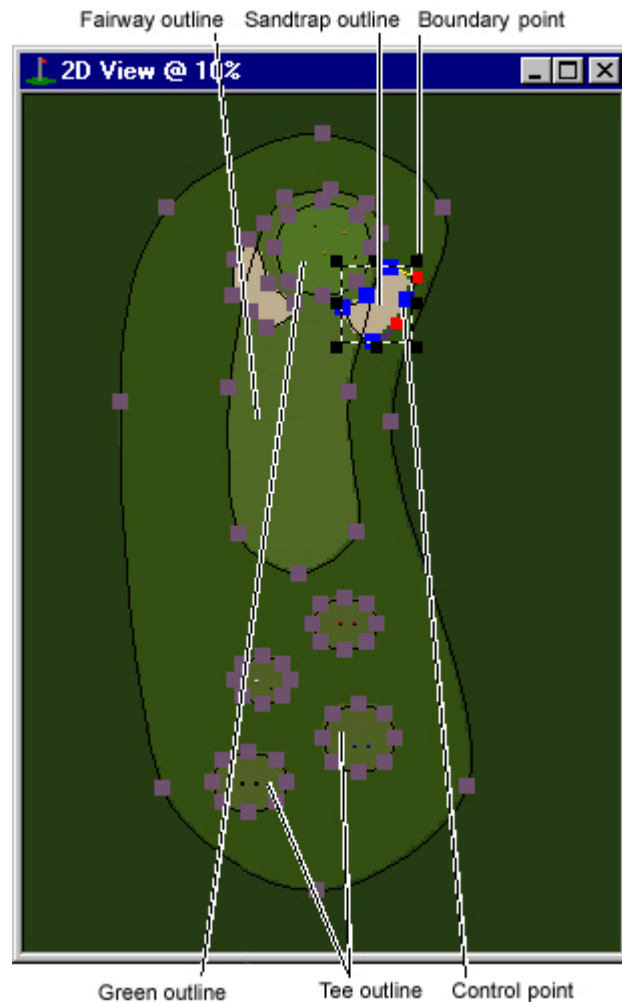
1. With the Shot Path tool, select the dot that indicates the tee for the shot path that you want to move.
 - ☐ If you did not change the tee positions when setting up the hole, the tees should be ordered from closest to furthest as: red, white, blue, and black (tournament).
2. Drag the tee-dot to a chosen location. It's customary for tees to be laid out in red-white-blue-black sequence at 50-100 yards behind the start of the fairway.
3. The shot path is not connected to the tee outlines. You probably want to move the underlying outlines after you have moved the shot path. Click and drag the outline to a location such that the marker for the tee on the shot path is in the middle of the tee outline.

To position the pin:

In 2D View, the four pins look as small markers on the green. To randomize pin placement, the game randomly selects one of the four pins each time you play the hole in *Tiger Woods PGA TOUR 2000*.

1. To change the location of a pin with the Shot Path tool, zoom in on the green in 2D View until you can see four distinct markers.
2. Click and drag one pin to a new location on the green. The pin is moved.

OUTLINES



Outlines are the “skin” of your golf course. After you have shaped your outline, you apply a texture to it in the Properties dialog box to establish the appearance and play characteristics of the outline. Outlines mold to shaped terrain.

As you manipulate terrain, you may want to have more outline area to fine-tune the shape of the terrain. Areas with stacked outlines have play characteristics matching the top outline.

- ⇒ To change the order of stacked outlines, use the Ordering tools, which are the first set of four from the right side of the screen.

Outlines can be rotated, scaled, and stacked on top of each other.

- ⇒ To rotate a highlighted outline, select the outline, and select ROTATE from the Outlines menu. Enter a number from 0 to 360 degrees to rotate the outline in the clockwise direction. When finished, click OK.
- ⇒ To scale an outline, select the outline. From the Outlines menu, choose SCALE. Use the slider bar to grow or shrink the outline as a percentage of its current size. When you click OK, the outline is scaled.

- ⇒ To move the highlighted outline forward or back in the stack, select the outline and click the Move Forward or Move Back button. The outline is moved forward or back one outline level.
- ❑ When you move an outline to a new layer, you are moving it relative to all of the outlines on the hole—not just the ones that it overlaps.
- ❑ Use the Move to Top and Move to Bottom tools to move outlines all the way forward or back.

NOTE: Do not delete the default outlines created by the New Hole Wizard. If you delete green, tee, or fairway outlines, you can begin the hole again with the Regenerate Outlines tools. For more, ➤ [Shot Path](#).

OUTLINES AND TERRAIN: MAKING A SANDTRAP

To Create a New Outline

1. Go to the Outline tab.
 2. Select the New Outline tool.
 3. Click on a location to place your first control point. Drag your mouse to the next desired location then click the pointer to lay down the second control point. Continue until you have roughly approximated your desired shape.
- ⇒ To finish shaping your outline, double-click. You can resize it and shape it as needed.

To Edit Your New Outline

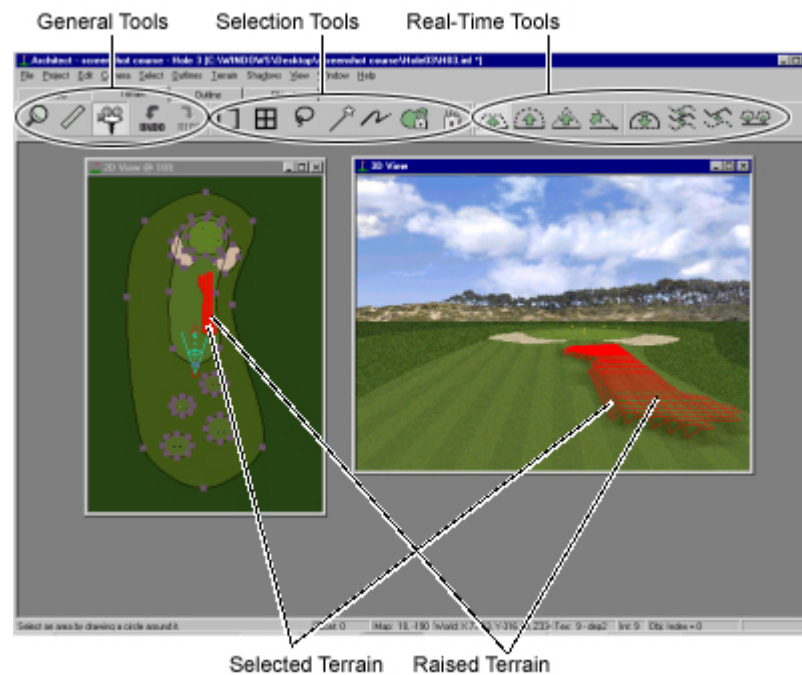
1. In the Outline tab, you can edit your outline to get the shape just right.
- ⇒ To add a new blue control point, click the Select Outline button then click on an existing blue control point. Click on the Add Point Before or Add Point After buttons to add a control point before or after the selected one.
 - ⇒ To change the size of a selected outline, click and drag the black boundary points.
 - ⇒ To change the shape of a selected outline, click and drag the blue control points.
 - ⇒ To add more control points for subtler shapes, click a blue control point. Click the Add Point Before or Add Point After button. Another control point is added before or after the selected control point.

You can use the red tangent points to shape the curves of your outline between control points.

- ⇒ To shape the outline with tangent points, click a blue control point. Click and drag one of the two red tangent points to the desired location. Release the button.
2. From the drop-down list, select the texture to apply to the outline. Set it to Sand.
- ⇒ To change the type of surface for your outline, right-click inside the outline. Select **PROPERTIES**. In the Properties dialog box, make sure there is a checkmark in the box next to **CLOSED**, then select **SAND** from the drop-down list.

3. Reposition the camera in 2D View so that it is looking at your sandtrap.
- ⇒ To update the display in 3D View, press **[F2]**.
 - ⇒ To update shadows in 3D View, press **[F3]** for terrain shadows and **[F4]** for object shadows.

TERRAIN



Now, you can now deepen your sandtrap in the Terrain tab.

To add depth to your sand trap:

1. Go to the Terrain tab.
 2. Using the Corral tool, draw an outline around your sandtrap in 2D View. If your camera is positioned in 3D View, you can see the highlighted terrain in that screen, too.
 3. Click the Raise/Lower tool. In the 3D window, click and drag the mouse pointer toward the bottom of the screen. You can see your terrain shape begin to sink.
 4. When you are satisfied with the depth of the sandtrap, release the mouse.
 5. To smooth the outline into the surrounding terrain, click the Corral tool. Draw a selection of terrain to include the highlighted sandtrap and some of the adjacent terrain.
 6. To smooth the shape of your terrain, click the Smooth tool in the upper-right corner of the Terrain tab. In the dialog box, select the degree of smoothing: LOW, MEDIUM, HIGH, or ULTRA-HIGH. When finished, click APPLY then CLOSE.
- ⇒ To update the display in 3D View press **[F2]**.

7. You have built a smoothed sandtrap.

NOTE: You can adjust terrain within the terrain that you've just defined. Select a portion of the sandtrap with the Corral tool and adjust the terrain depth to shape a multi-leveled sandtrap.

LARGE TERRAIN SHAPES

Managing the larger terrain shapes requires careful planning. While adding ridges and valleys can significantly alter the shape of defined terrain pieces, you want to choose when to add them. Making large terrain outlines consumes the most memory and can impact your computer's performance. If you're working on a slower machine, you may want to delay making larger terrain shapes.

To draw a large terrain shape:

1. Use the Corral tool to draw the shape of the terrain.
2. Use the Terrain tools to lower or raise the terrain to flatten or bump it.
3. Use the Rectangle tool to select the new terrain shape and the area around it.
4. Use the Smooth tool to blend the terrain into the surrounding area.

LINKS

The following links take you to more detailed explanations of the key features of a course or the tool. At the bottom, you can link to the How To section of the Tutorial.

Tool Features

2D View	The 2D View windows give a top-down view of your hole.
3D View	3D View window displays what the 3D Camera sees in the 2D View window.
Camera Icon	The representation of the camera that projects a snapshot of the course into the 3D View window.
Camera Settings	Change the settings of the 3D Camera.
Menus	Review definition and function of all menu commands.
Tabs	Review definition and function of all commands in the toolbar tabs.
Edit Settings	Change Edit Settings for <i>Course Architect 2000</i> .

Basic Course Features

Outlines	Shapes on the surface of the terrain that determine where a texture is displayed.
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Textures	Visual appearance applied to shapes.
Terrain	Elevation information for your course.
Objects	Things such as trees and rocks with which you populate a hole.
Horizons and Skies	Special graphic images that are placed on the periphery of a hole to give the appearance of the horizon and sky.
Sun and Shadows	Positioning and intensity of the sun and its corresponding shadows.
Hole Information pop-up	Change fundamental aspects of your hole's terrain size and tee distances.

How To Create...

A Basic Course Feature	Tee, Fairway, Green, Bunker, Water Hazard, etc.
A Cart Path	A path for golf carts.
A Fence	Define and place a fence on your hole.
A House	House placement on the edge of the hole.
A Horizon	Definition and placement of the image that wraps around the entire hole to give the appearance of an outdoor environment.
A Sky	Definition and placement of the image that defines the sky.
How to Add Objects	Trees, rocks, and other such golfing hazards.
How to Populate an Area with Objects	Placing more than one tree or rock object at one time.
How to Reposition the Tee	Definition and movement of the four tees: red, white, blue, and black.
How to Reposition the Pin	How to reposition the pin. Random placement in the game.
How to Export a Course	How to turn your <i>Course Architect 2000</i> files into a playable course.

How To

For some hands-on users, it's easier to visualize the tools in *Course Architect 2000* by stepping through the process of developing course features. These sections describe how to develop common course features inside the tool.

HOW TO CREATE A FAIRWAY, GREEN, BUNKER, OR WATER

The process for creating a new basic outline shape and terrain feature follows the process described in the Tutorial for making a sand trap. For each outline type, you apply a different texture to give it the appearance and play characteristics of the desired course feature—fairway, green, bunker, water hazard, etc.

1. Go to the Outline tab.
2. Select the New Outline tool.
3. Click on a location to place your first control point. Drag and click the pointer to lay down a second control point. Continue until you have roughly approximated your desired shape.
 - ⇒ To finish shaping your outline, double-click. You can resize it and shape it as needed.
4. In the Outline tab, you can edit your outline to get the shape right.
 - ⇒ To add a new blue control point, select an outline and click on an existing control point. Click on the Add Point Before or Add Point After buttons to add a control point before or after the selected one.
 - ⇒ To change the size of a selected outline, click and drag the black boundary points.
 - ⇒ To change the shape of a selected outline, click and drag the blue control points.
 - ⇒ To add more control points for subtler shapes, click a blue control point. Click the Add Point Before or Add Point After button. Another control point is added before or after the selected control point.

You can use the red tangent points to shape the curves of your outline between control points.

- ⇒ To shape the outline with tangent points, select an outline and click a blue control point. Click and drag one of the two red tangent points to the desired location. Release the button.
5. From the drop-down list in the Properties box, select the type of texture to apply to the outline. This selection defines the appearance and play characteristics. For more, ► [Outline and Texture Types](#).
 - ⇒ To change the type of surface for your outline, right-click inside the outline. Select PROPERTIES.

For some outline types, you may want to raise or lower the terrain. Tees and water hazards are generally flat. Greens have more subtle undulations. As the largest outlines on your hole, fairway terrain changes are usually part of the overall shaping of the hole's terrain. For more information on changing the hole's overall elevation shape, ► [Advanced Terrain Topics](#).

6. To change the terrain shape of your outline, go to the Terrain tab.

7. Using the Corral tool in 2D View, draw around the area whose underlying terrain you want to change. This area could be part of your outline or the entire outline. If your camera is positioned in 3D View, you can see the highlighted terrain in that screen, too.

EA TIP You can manipulate a piece of terrain of any size and shape. You are not required to manipulate the entire terrain of your outline. So, you can design multiple terrain shifts in an outline—a nice feature for shaping, for example, multiple breaks on a green.

8. From the four right-hand tools on the Terrain tab, select the tool to apply to the selected terrain. In 3D View, click and drag the selected piece of terrain into the desired shape. When you're satisfied with the change to the terrain, release the mouse button.
 - ☐ Some tools make changes on a quantitative basis. If you select one of these tools, enter the value of the change and click OK.
9. To smooth the changed terrain into the terrain around it, click the Corral tool. Draw a selection of terrain to include the just-changed terrain and some of the adjacent terrain.
10. To smooth the shape of your terrain, click the Smooth tool in the upper-right corner of the Terrain tab. In the dialog box, select the degree of smoothing. When finished, click OK.

NOTE: Again, you can adjust pieces of terrain inside the area that you just defined. Select a portion of the outline with the Corral tool and adjust the terrain depth to shape a multi-leveled outline.

HOW TO CREATE A CART PATH

To create a cart path, use a specialized Path outline.

1. From the Outlines menu, select NEW PATH.
2. In 2D View, click where you want the cart path to start. Drag the mouse to the first turn point and click. You can see the first leg of the cart path and its control points.
 - ☐ You may notice that the tool does some basic smoothing of the cart path. When you finish defining the cart path outline, you can manipulate the shape with the control and tangent points of the outline.
3. Continue clicking and dragging until you have finished tracing the path in 2D View. To place your final control point, double-click.
 - ⇒ To delete a control point after finishing, select an outline, then select the control point. Right-click and select DELETE POINT in the menu.
4. To look at your path in the 3D View window, position the camera in 2D View so that it looks out on your path. Press **[F2]** to update the 3D View window.
 - ⇒ To open 3D View window, select 3D VIEW from the View menu.
5. You can change the width of your path. Select the path outline in 2D View. Right-click and select PROPERTIES. In the pop-up box, enter a new figure in the Width textbox. Units are inches; one hundred twenty inches equals 10 feet.

6. Course designers generally try to keep cart paths as flat as possible. To that end, paths sometimes cut through rolling pieces of terrain. In *Course Architect 2000*, you can create this effect.
 - ⇒ To sink the cart path into the terrain, go to the Terrain tab. Click on the Constrain Texture tool. Starting from a position on the cart path, click once on the cart path then click again and drag across the area of terrain through which the cart path should be sunk. You do not have to select only the cart path; if you click first somewhere on the cart path, the Constrain Texture tool selects only cart path material.
7. Now that you've selected the part of the cart path to sink into the terrain, select the Flatten tool. Enter the height of the path. When you click APPLY, the screens are updated.
 - ☐ To reset your terrain and try again, select UNDO from the Edit menu or press [CTRL] + [Z].
8. When you are satisfied with the appearance of your flattened cart path, you may want to reduce the width of the path to sharpen its edges.

Your cart path is completed. When you make adjustments to the terrain that includes the cart path, your cart path shifts as well. However, the consistent blending between the cart path and the surrounding terrain is maintained.

HOW TO CREATE A FENCE

How you create a fence depends on the type of fence.

To create a retaining wall or fence:

1. From the Terrain tab, select the Freehand tool.
2. Draw a line of terrain pieces across the terrain where you want the retaining wall to go.
3. Select the Raise/Lower tool.
4. Raise the wall to a height. When you click OK, the terrain is raised.
5. Draw an outline around the retaining wall that includes all of the facets that should be wall texture.
6. Apply a suitable texture to the outline, such as wood or concrete.
7. Blend the retaining wall into the surrounding terrain as needed.

HOW TO POSITION A HOUSE

Houses are objects that can be placed with standard tools.

However, place houses after you feel comfortable with the shape of the underlying terrain. The terrain immediately under the house must be flattened, or golfers may be able to see the seams of the object. If you later must dramatically change the terrain around the house, you have to tweak the terrain directly beneath the house—for each house. It can add work that is unnecessary unless you plan ahead.

When placing a house, resetting the anchor point buries its lower edge into the underlying terrain and can hide the edge from view. For more information on anchor points, ➤ [Anchor Point](#).

HOW TO ADD A HORIZON

When your hole is initialized, a default horizon is placed along the edge of the playable boundary. In 2D View, a black outline demarcates the position of the horizon.

- ❑ In the game, a fill space is placed between the horizon and the edge of the black boundary on the hole to keep the perspective of the horizon in the distance. This space is invisible in the editor.

Course Architect 2000 comes with several predefined horizons. The tutorial covers how to select a horizon, which is a series of 12 separate images that are linked together to form a 360-degree wrap-around view. For more information on horizons, ➤ [Horizons and Skies](#).

If you are trying to orient each hole in a different compass direction, you accomplish the effect by adjusting the horizon, the sun, and the sun's shadow settings. For more information, see ➤ [Horizons and Skies](#) and ➤ [Sun and Shadows](#).

To select a different basic horizon for your course:

1. From the View menu, select HORIZONS. The Horizon Browser opens.
2. Click ADVANCED to open the horizon properties.
3. Under the Horizon tab, select a different horizon from the basename drop-down list.
4. To apply the horizon to your course, click APPLY.

HOW TO CHANGE THE SKY

Skies are not textures that you can position and manipulate. To change the sky, you define the set of general appearance characteristics from which the game can randomly select one to display. For more, ➤ [Advanced Horizon and Sky Settings](#).

HOW TO ADD OBJECTS

You can add objects like trees, rocks, and other types to the surface of your terrain. And you can embed them in the surrounding landscape.

For more, ➤ [Placing Objects](#).

HOW TO POPULATE AN AREA WITH OBJECTS

Suppose you want to plant a grove of trees along the left side of your fairway. To place them one-by-one is a tedious process. With the Populate tool, you can place multiple trees—or another object type—within a selected terrain area. You can also populate with multiple object types. For example, you can populate a grove with two kinds of trees. Or you can populate an area with trees and rocks.

For more, ➤ [Populating Areas](#).

HOW TO REPOSITION THE TEES

Each hole has four different tees from which golfers can play. In order of increasing difficulty, the tees are red, white, blue, and black, where the PGA

TOUR Tournament golfers begin. In standard practice, the tees are placed in order of increasing distance from the green.

- ☐ You cannot add tees. Four tee outlines are placed on the hole when you create it.

To reposition a tee, you use a process that is different from other outlines. Instead of grabbing the outline, you click and drag the shot path. A colored dot indicates the tee identifier.

To move a tee:

1. If you can't see the Hole Information pop-up, select it from the Hole tab toolbar.
 - ☐ If you cannot see the shot paths in 2D View, they should appear after you select Hole Information button.
2. In 2D View, you can see the color-coded shot paths that link each tee to the green. Click and drag the colored dot that identifies the tee to a new location. Release the mouse button.
3. The shot path is not connected to the tee outlines. You probably want to move the underlying outlines after you have moved the shot path. Click and drag the outline to a location such that the marker for the tee on the shot path is in the middle of the tee outline.
4. In 2D View, you can see that the outline that corresponds to the tee has moved to the new location for the shot path indicator.

HOW TO REPOSITION THE PIN

To reposition the pin, use the Shot Path tools.

To reposition a pin:

When you start a hole, four pins are placed on the green. You can reposition these four pins to define pin placements for each hole. In each round of golf in the game, the program randomly selects one of these pins to use.

1. If you can't see the Hole Information pop-up, select it from the Hole tab toolbar.
 - ☐ If you cannot see the shot paths in 2D View, they should appear after you select Hole Information button.
2. Go to the Objects tab.
3. Use the Magnify tool to zoom in on the green. Left-click to zoom again. Keep zooming until you can see the four pins as distinct objects.
4. Click and drag a pin to its desired location. When you're satisfied with its location, release the mouse button to place it.
5. The pin is moved.

You can repeat the above process for each pin. In the game, the program chooses one of these four placements to use for a round.

EA TIP Do your pin placements after you have shaped your green outline and the underlying terrain. You may discover interesting and challenging placements after you've finished your green.

HOW TO EXPORT A COURSE

When your course is ready for play, the tool compiles the course into final format and places it in the appropriate directory of your installed *Tiger Woods* golf game.

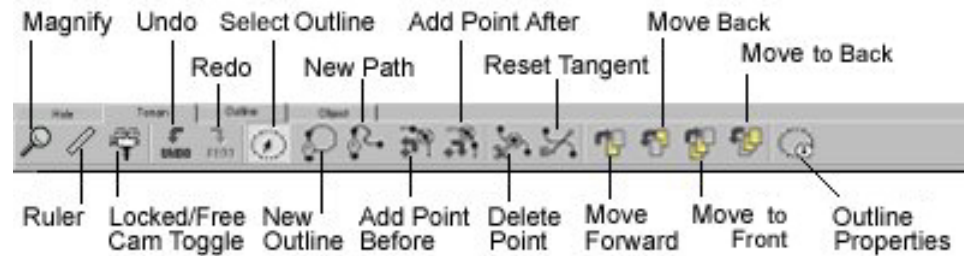
NOTE: In order to export your course, you must have a Hole #1. When you export an incomplete course, do not attempt to play holes that have not been started.

- ⇒ To copy your course to the game, select COPY TO GAME from the File menu.
- ⇒ If both *Tiger Woods 99 PGA TOUR Golf* and *Tiger Woods PGA TOUR 2000* are installed on your computer, you may choose to export your course to one or both.

For more information on exporting your course to the game, ➤ [Export Courses](#).

OUTLINES

In *Course Architect 2000*, an **outline** describes the look and play characteristics of a surface area on the course. In 2D View, outlines appear as shapes of various colors on the surface of the course. When special surface textures are applied to them, these outlines become different types of play areas, such as sand, fairway, green, tee, and rough. You can even make outlines for cart paths.



NOTE: Do not delete the default outlines created by the New Hole Wizard. If you delete green, tee, or fairway outlines, you can begin the hole again with the Regenerate Outlines tools. For more, ➤ [Shot Path](#).

HOW TO CREATE AN OUTLINE

Outlines are the first tool to use in creating a hole. When you've defined the basic features of the hole, you can then add outlines to shape the surface features of your course.

To create an outline:

1. Click the Outline tab.
The Outline tools are also available from the Outline menu.
2. Click the New Outline tool.
3. You can draw outlines in 2D or 3D View. However, for ease of control, you should draw outlines in 2D View. Click a starting location for your outline in 2D View. You place your first control point.
4. Move the mouse to reveal the first blue control point. Click the mouse at the location of the second control point. Continue moving and click until you place all of the control points for your outline. When placing your last control point, double-click to finish the outline.

EA TIP Control points define the basic shape of the outline. Don't worry about fine-tuning the small changes of direction in the shape of the outline. You can manage those changes later.

5. You now have a basic outline.

You can change the size, shape, and type of an outline at any time.

- To change the size, shape, and outline type, ➤ [Outline Tools](#).
- To add a skirt to your outline, ➤ [Adding a Skirt](#).

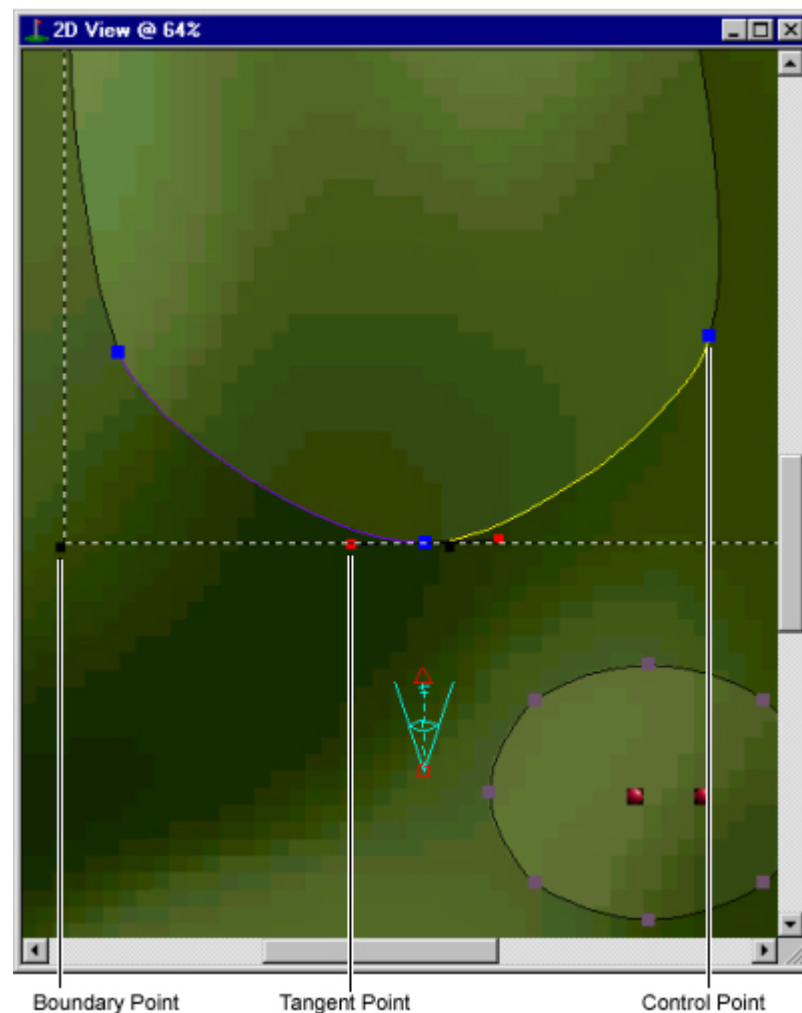
OUTLINE AND TEXTURE TYPES

The following course features can be built in *Course Architect 2000*. When you define an outline, you give a course feature its shape. When you apply a texture to the outline, you define its appearance and play characteristics. Apply the texture to change a green outline into a sand outline.

When you start a new hole, outlines for the tees, fairway, and green are placed for you. You can customize these outlines or add outlines with the Outline Tools

➤ [Outline Tools](#).

FAIRWAY



The fairway outline describes the play area where a golfer wants to hit his tee shot and all other shots before he reaches the green. A golf fairway has fairly short grass and is intended to have smooth play characteristics.

EA TIP The width of a fairway changes the difficulty of a hole. Narrow fairways place a premium on shot-making—target golf.

SAND



Sand

Stay off the beach! The sand outline is used for sand traps, the bane of a golfer's shots.

A sand trap or bunker is filled with relatively soft sand into which a ball can partially sink. To get out of a bunker, a golfer usually swings a sand wedge, a sharply angled club, which is designed to get under a ball mired in sand and to give it lift over the lip of the trap. Sand is not the most forgiving of play surfaces; a sand wedge out of a bunker doesn't carry well. In some cases, a stop in a bunker can effectively cost a golfer a stroke.

EA TIP Add challenge to a hole by placing bunkers around the green. When you place your bunkers, consider where deviations on the approach shot are likely to land. Raise the green above the bunkers to make things even more interesting.

ROUGH



Rough

Where the fairway ends, there begins the rough. Covered in deeper and more uneven grass, the rough can be a crapshoot for a golfer. In what kind of rough did the ball land? What's the lie of the ball? Is the ball on top of the grass? Is it buried? Because of the vagaries of the lie, even a well-struck ball from the rough can end up in an unplanned destination.

EA TIP Place patches of rough in locations where a golfer should pay a modest penalty for inaccuracy. If a golfer misses his drive a little bit, a rough area reminds him.

EA TIP You can combine areas of rough with object placement to make for more challenging second or third shots.

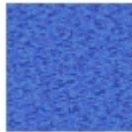
DEEP ROUGH



Deep Rough

Stay out of the deep stuff, as they say. Deep Rough can wreak havoc on an otherwise well-played hole. Generally speaking, deep rough areas are beyond the rough that runs along the edges of the fairway; when a golfer misses a shot badly, the deep rough can swallow the ball. Closer to the main golfing areas, deep rough can have selective, strategic application. For example, in front of an elevated green, an embankment of deep rough can complicate the chip shot the green, which places greater emphasis on the approach shot.

WATER

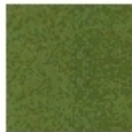


Water

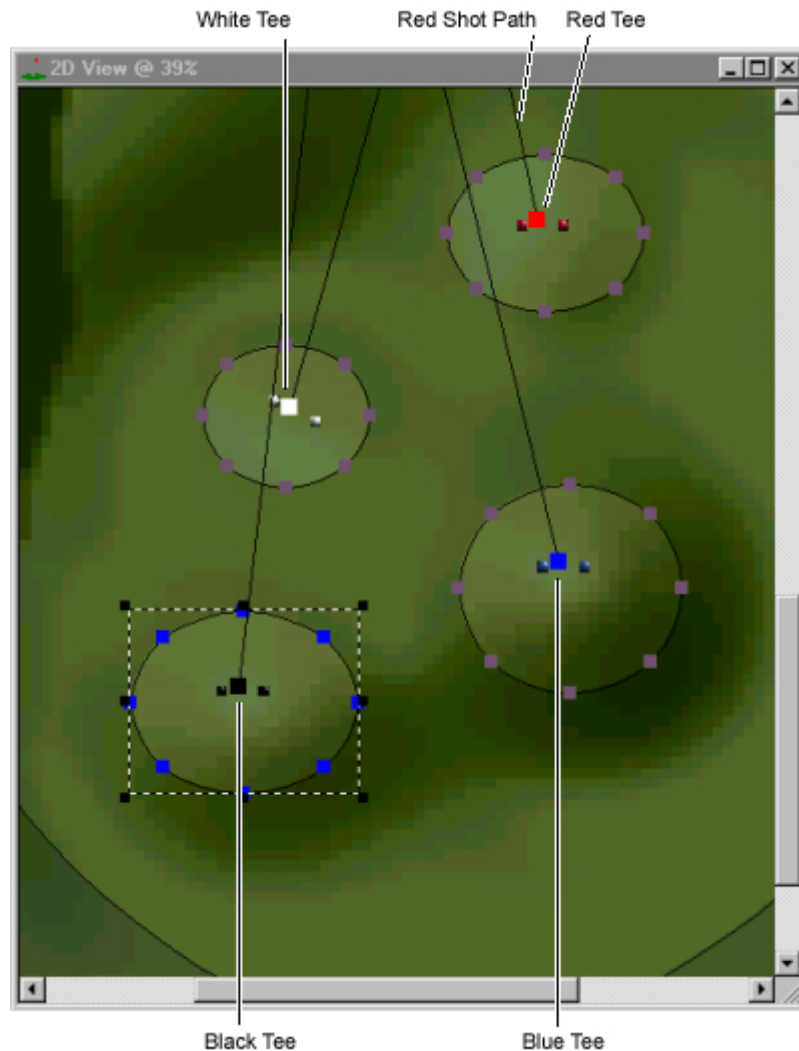
On the golf course, water is death. When a golfer hits the ball into the water, he has two options. He can rehit the ball from where he last hit, or drop the ball near the spot where the ball entered the water. In either case, a penalty stroke is assessed. So if he hit the ball into the water off the tee, his next shot is his third shot. Ouch.

EA TIP Water can be used to divide the aggressive and conservative. You can place water hazards on your course where an aggressive golfer may be able to power a shot over the water hazard. For hitting a long and accurate shot, he is rewarded.

TEE



Tee



A hole's tee is where a golfer makes his first swing. On the course, there are four kinds of tees. Tees are color-coded to indicate distance and difficulty. In order of increasing difficulty, the tees are red, white, blue, and black. PGA TOUR tournaments play from the black tees. A golfer plays the same tees for an entire round.

EA TIP Black tournament tees are supposed to be the most challenging. While tees are usually separated by 10-15 yards, they do not have to be a proportional distance from each other.

When you finish defining a hole, you can see the tees in 2D View. Each tee has a colored dot to indicate its role. You can define the size, shape, and placement of each tee. For more information on how to place tees, ➤ [How to Reposition the Tees](#).

EA TIP Tees are usually placed 50-100 yards in front of the first fairway. The area between the tees and the beginning of the fairway is rough—or worse.

GREEN



Green

Somewhere on the green outline is the cup. When a golfer's ball reaches the green, he switches to his putter to complete the hole. Sticking out of the cup is a flag to indicate the location of the hole from distances up to 500 yards away.

The surface of a golf green is short, immaculate grass. Although Mother Nature may say otherwise, the surface is intended to be consistent. The challenges on a green are the terrain changes; undulations and breaks add degrees of difficulty to targeting and striking a putt.

In the game, the program randomly places the actual pin in one of four locations you define. Randomizing location adds variation to holes and is more consistent with the changing pin locations of real golf courses. You can change the placement of the pin on a green. For more, ➤ [How to Reposition the Pin](#).

You can add a skirt to your green. To learn how to create a skirt, ➤ [Adding a Skirt](#).

EA TIP When you design a green, pay careful attention to its terrain. Subtle changes in elevation can dramatically affect how the greens are played. Similarly, placing the pin in a different location on the green can change a straightforward hole into a challenging one.

EA TIP Do not place a Green texture in any location other than the putting green. The game pulls clubs based on the type of texture on which the ball is resting.

DIRT



Dirt

Dirt is dirt. It takes many years for a golf course to appear in its final form, and continual tweaking of the design may prevent it from ever being completed. Dirt is a part of a golf course in progress. Particularly on newer courses, you are likely to find patches of flat dirt here and there, in places where the designer did not have time to finish the course or chose to leave it as a hazard.

Dirt can be a friendly surface for golfers, as long as mud and rain haven't softened it up.

OB (OUT OF BOUNDS)



OB

Out of bounds areas on a golf course are defined for practical reasons. A golfer who has gotten far away from the fairway may be at risk of overlapping onto another hole. Also, some courses have unsafe areas where, for safety reasons, the golfers should not enter.

In computer golf, these considerations are not factors. However, if you are attempting to model a real golf course, you should use this texture where appropriate. Also, you can use the OB texture to define areas from which play-testing reveals to be extremely difficult to recover.

CART PATH



Cart Path

Path outlines describe the route of cart paths through your golf course. Although a cart path is unnecessary in virtual golf, they do have special play characteristics. If you hit a ball onto a cart path, it will bounce very well—for better or worse. Paths make your course look more authentic, too.

- To add a path, select NEW PATH from the Outline menu. Select a starting location and click. Draw a line and click. Continue until you have completed your path. When you are finished drawing your outline, double-click.

When you start a new hole, outlines for tees, fairway, and green are placed for you. For more on paths, ➤ [How to Create a Cart Path](#).

EA TIP Define cart path outlines before you have add major terrain features. Make them a little wider than you want in the final course, and sink them into the terrain. Use the Smooth tool to blend the path into the terrain. When the terrain is later manipulated, the path is automatically moved with the terrain.

FRINGE



Fringe

Around the green is often an outline of slightly rougher grass. The fringe blends the smooth green grass around the pin into the rough outside of it.

The fringe can subtly affect a shot. While a golfer may hit from the fringe with a putter, the rougher surface is likely to slow the putt down or to divert it from its course. A golfer may choose to hit a bump-and-run shot with a heavier club. In gaining more power on the shot, the golfer sacrifices accuracy.

- To add a fringe, create or select a green outline. Right-click on the green to open the pop-up menu. Select PROPERTIES. In the Properties box, check SKIRT and set the width. Select OK to add the skirt.

The unit of measurement for the width of a fringe is pixels. A pixel in *Course Architect 2000* converts to 1/16th of a yard in the game.

EA TIP A kind designer can use the fringe to slow down putts that have overshot the hole. For pin placements near the edge of the green, you may want to add a larger fringe area to prevent putts from sliding into rough, sand, or water.

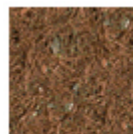
DROP AREA



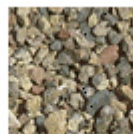
Drop Area

In *Course Architect*, the Drop Area is used to define a hazard area from which the golfer receives a free drop. This can indicate an area of the course that is under construction or is particularly sensitive to a golfer's footsteps. Many golf courses are built in locations where the native ecology should be preserved as much as possible. To help preserve these sensitive habitats, golf courses often designate environmentally sensitive habitat (ESH) areas where a golfer is not allowed to play. A golfer who hits a ball into an ESH area must pick up his ball and drop it, without taking a penalty stroke.

UNIQUE 1-3 TEXTURES



Unique1



Unique2



Unique3

The Unique textures are reserved for you, the user, to create textures of your own. While the texture browser may indicate that these slots are taken, you are free to import or manipulate the textures. For more, ➤ [Importing Textures](#).

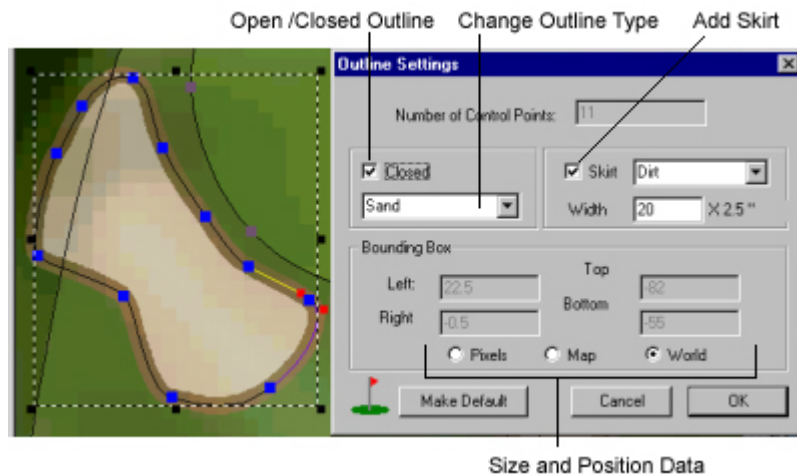
OUTLINE TOOLS

The Outline tools in *Course Architect 2000* provide maximum flexibility and control over the shapes that populate the surface of your course. This section describes how to manipulate existing outlines with the tools.

- To learn how to create a new outline, ➤ [How to Create an Outline](#).

- ⇒ To delete an outline, ➤ [Deleting an Outline](#).

CHANGING THE OUTLINE PROPERTIES



- ⇒ To view and change the properties of your outline, select the outline with the Select Outline tool. Then right-click inside the outline. A menu pops up. Select **PROPERTIES**.

The keys to managing your outline's performance characteristics lie in the Properties dialog box. Change the outline texture to redefine the appearance and performance characteristics of the defined surface.

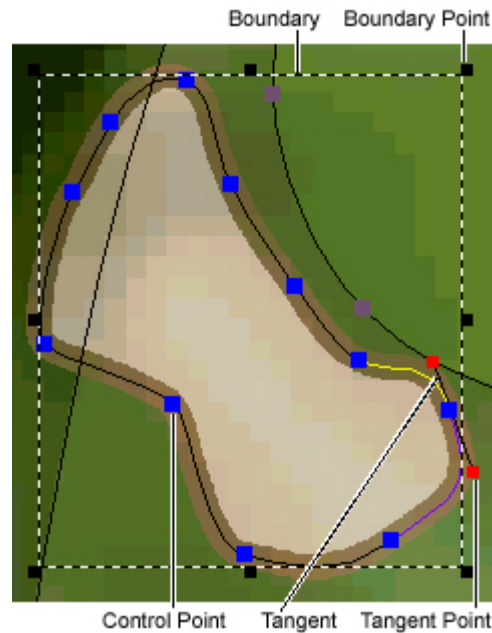
- ⇒ To change the outline texture, select the type from the drop-down list. For more on outline types, ➤ [Outline and Texture Types](#).

Be careful when changing outline textures. If you change an outline from Green type, the cup may end up in the middle of a sand trap!

- ⇒ To change the performance characteristics of a play surface, you must change the physics of the corresponding texture. For more, ➤ [Advanced Texture Properties](#).
- ⇒ To add a skirt to your outline, check the Skirt box. Select the skirt type and the width. For more, ➤ [Adding a Skirt](#).
- ⇒ To inform the tool whether an outline is a full circle, place a checkmark next to Closed. Cart paths are examples of Open outlines.

At the bottom of the screen, you can read the size and positional data of the bounding box for your outline. The data can be displayed relative to the World (entire course), the Map (current hole), or Pixels (measurement in dots of the hole when exported to the game).

- ⇒ To view the bounding box data in a different measurement, click the radio-button next to the desired measurement.
- ⇒ To set the selected outline as the default for all outlines, click **MAKE DEFAULT**.
- ⇒ To apply your changes and exit, click **OK**.
- ⇒ To cancel your changes and exit, click **CANCEL**.



CHANGING THE OUTLINE SIZE

You can expand or shrink an outline at any time. The boundary of an outline is always defined as a rectangle that is marked by eight black boundary points.

- ⇒ To change the size of an outline, select the outline. The outline is highlighted. Click and hold one of the black boundary points on the periphery of the outline. Drag the boundary point to its new position. Release the mouse button to set the new size of the boundary box.

If you select an outline and the boundary box is not visible, select BOUNDING BOX from the Outlines menu.

- ⇒ To update the 3D View, press **[F2]**.

When you manipulate the terrain underneath an outline, the outline expands in the Z-plane (stretches up or down) to cover the terrain changes.

You can rotate your outline at any angle.

- ⇒ To rotate an outline, select the outline and select ROTATE from the Outlines menu. In the dialog box, use the slider bar to select a Rotate Outline angle from 0 to 360 degrees.

☐ Angles are measured in a clockwise direction starting from 0 at due south.

- ⇒ To accept changes, click APPLY. You can see your changes in 2D View.
- ⇒ To close the window, click CLOSE.

You can scale your outline larger or smaller in X and Y directions.

- ⇒ To scale an outline, select the outline. From the Outlines menu, choose SCALE. Use the slider bar to grow or shrink the outline as a percentage of its current size. When you click APPLY, the outline is scaled.
- ⇒ To shrink your outline, select a scaling factor less than 100 for either direction.

- ⇒ To expand your outline, select a scaling factor greater than 100 for either direction.
- ⇒ To accept changes, click APPLY. You can see your changes in 2D View.
- ⇒ To close the window, click CLOSE.

CHANGING THE OUTLINE'S BASIC SHAPE

With a shape's control points, you change the basic shape of the outline.

- ⇒ To change the basic shape of your outline, select an outline, then click and drag a blue control point on the outline.

You may find that you cannot shape a desired outline with the current set of control points. You can add or delete control points as needed to refine your shape.

- ⇒ To add a point after a control point, click the control point and press the Add Point After button.
- ⇒ To add a point before a control point, click the control point and press the Add Point Before button.
- ⇒ To delete a control point, click the control point and press the Delete Point button.

If you have only three control points in your outline, you cannot delete a control point, as you would then have no shape. Delete the outline and start over, as needed.

EA TIP Try to limit the number of control points that you add to an outline. When you reposition or change the shape of your outline, a high number of control points can require lots of smoothing work. Use tangent points to change the shape of your outline, and add control points only as necessary.

TANGENT POINTS: SMOOTHING THE CURVES

Each control point has a pair of tangent points with which you can refine the outline's shape around the control point.

A **tangent** is a line that intersects another curve at only one point. Each point on your outline has a single tangent. When you click on a control point, a line with red points at either end appears. This line is your tangent, and the red dots are the tangent points. By changing the tangent point that, by definition, touches the outline at a single point, you force the outline to change its shape. Tangent points can be rotated around the control point to change the shape of the outline's curve. Or, they can be stretched out to make a larger, smoother curve.

- ⇒ To change the shape of your outline around the control point, click and drag a tangent point.
- ⇒ To reset tangent points, click the control point and click the Reset Tangent button.

SETTING TANGENT SCALE

You can change the rate at which your adjustments to the tangent points affect the shape of the outline. Change the tangent scale to set the precision of your adjustments to the tangent points.

- ⇒ To set the tangent scale for an individual control point, select the outline point. From the Outlines menu, select SET TANGENT SCALE FACTOR. The Modify Outline dialog box opens.

In the Scale Tangent box, you set the factor. For example, if the factor is set to 4, the smallest change adjusts the tangent four degrees. Larger scale factors shrink the tangent controls, so small changes to them affect the shape of the tangent to a greater degree.

- ⇒ To set the Scale Tangent factor, use the slider bar.
 - ☐ You can also adjust the tangent scale by clicking and dragging a tangent point further away from or closer to its control point.
- ⇒ To accept changes, click APPLY. You can see your changes in 2D View.
- ⇒ To close the window, click CLOSE.

ADDING A SKIRT

A skirt is the area that rings any texture. In *Course Architect 2000*, you can add a variety of textured skirts to any outline.

- ⇒ To add a skirt, create or select a green outline. Right-click on the green to open the pop-up menu. Select PROPERTIES. In the Properties box, check SKIRT, select the skirt's texture, and set the width. Select OK to add the skirt.

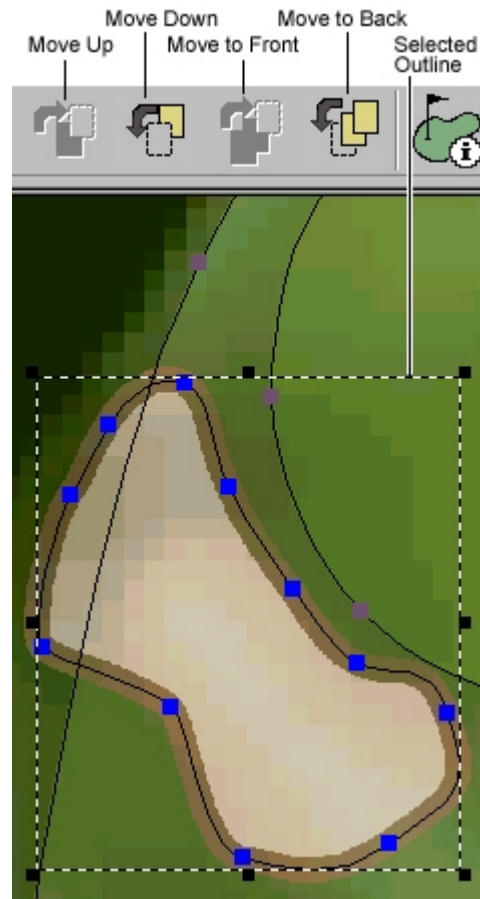
NOTE: When you add a skirt to an outline, the center of the skirt is the edge of the outline. The skirt expands from the edge of the outline both outward and in towards the center of the outline. So, it is possible to completely hide the outline with a skirt.

DELETING AN OUTLINE

BE CAREFUL! When you delete an outline, it's gone. A hole requires some types of outlines, like tees and greens. To delete an outline, select it. Then, right-click to open the pop-up menu and select DELETE. Or, press **[DEL]**.

- ⇒ To undo a delete, press **[CTRL] + [Z]**.

OUTLINE LAYERS



You can layer your outlines for hole development. When you layer multiple outlines, the top-most outline represents the appearance and performance characteristics of that area of the course. By allowing layers to overlap, *Course Architect 2000* simplifies the alignment of outlines. Instead of getting the edges of two outlines to match up perfectly, you can overlap them and shape the top-most outline as needed. The bottom outline is invisible to the golfer if it's covered by another.

When you change the shape of the outline, *Course Architect 2000* automatically smooths the shape of the remainder of the outline. By overlapping your outlines, you can change the shape of one area without causing adjustments to the other areas of the outline.

EXAMPLE OF MULTIPLE OUTLINE LAYERS

When you use the Hole Wizard to create a new hole, *Course Architect 2000* layers multiple outlines onto your course. On the bottom layer, the Rough outline covers the entire hole. On top of that, the Wizard places the fairway outline, whose dimensions are specified in the Wizard. On the fairway outline sit the tee and green outlines.

If the tee and green outlines were placed on the bottom layer, you would not be able to see them or play them on the course. The entire hole would appear like the fairway.

Therefore, it's important to consider the layering of the outlines of your hole.

- ⇒ To change the layer of an outline, select the outline. Then select the layer tool to change the layer level of the outline. Or right-click on the outline and select a layer tool from the menu.

UPDATING THE VIEW

- ⇒ To update 3D View after you have changed or moved your outlines, press **[F2]**.

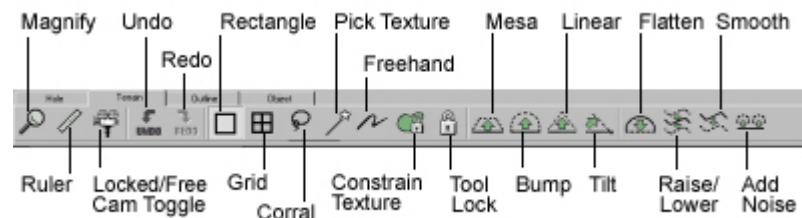
TERRAIN

Course Architect 2000 comes with a robust set of terrain tools for selecting and manipulating the elevation information on your course. You can grab any piece of elevation information and apply large-scale terrain tools or push and pull the terrain with mouse control.

With the terrain tools, you can raise, lower, tilt, flatten, smooth or add noise to the selected piece of terrain.

For more sophisticated applications of the terrain tools, ➤ [Advanced Terrain Topics](#).

SELECTING TERRAIN AREAS



In either 2D View or 3D View, you can select terrain in multiple ways.

The toolbar selection tools allow you to make specialized selections of terrain. You can select a tool to use from the Terrain toolbar, menu system, or keyboard shortcut. After selecting the tool, you select the terrain piece by clicking on a start location and dragging until you have highlighted the desired shape. To select the shape, release the mouse button.

To trace the outline of the terrain shape that you want to manipulate, select the Corral tool from the toolbar. In 2D View or 3D View, click and drag around the outline of the piece of terrain that you want to manipulate. When you return to the starting point, release the mouse button. The terrain piece is selected.

- To select a rectangular piece of terrain, use the Rectangle tool.
- To select a single piece of grid, use the Grid tool. To define the size of the grid, ➤ [Grid Size](#).
- To trace an outline around the perimeter of a piece of terrain that you want to select, use the Corral tool.
- To select all of the terrain that is covered by and connected to the same type of texture that you touch, use the Pick Texture tool.
- To select only the terrain pieces within a selected area that are below the first texture that you touch, use the Constrain Texture tool.
- To use a tool for multiple manipulations in a row, toggle the Tool Lock button.
 - ☐ Tool Lock does not work for tools that require text or slider-bar entry. It works only for mouse-controlled tools.

- ➔ To subtract pieces of selected terrain, select a piece of terrain and then select SUBTRACT from the Select menu. The next terrain that you select is subtracted from the original piece.

EA TIP Subtracting unusual or large shapes can be a heavy burden on slower machines. If you notice an appreciable slow-down on your machine, avoid using the Subtract tool to deselect pieces of unusual shape.

For more on the selection tools in the Terrain tab, ➤ [Terrain Tab](#).

MAKING TERRAIN SHAPES

After you select a piece of terrain, you can apply one of several standard shapes to the terrain. While these tools assist you in getting started on building terrain features, you may want to use the finishing tools to make the terrain look smoother or to give it unique features and definition.

Some of these tools are controlled using the mouse. You can set the responsiveness of the tools to mouse movements in the Mouse Sensitivity tab of the Edit Settings Screen. For more, ➤ [Edit Settings Screen](#).

MESA

After you have selected a piece of terrain, you can reshape it into a flattened plateau or arroyo. After selecting the Mesa tool, use the mouse to click and drag the terrain up or down either View window. When you are satisfied with the new height or depth of the selected terrain, release the mouse button.

- ☐ Keep dragging: to define large or exaggerated shapes, you can drag the mouse outside the View window.

EA TIP The Mesa tool is good for shaping any flattened area—a tee, a multi-leveled sand trap, or a water hazard.

BUMP

The Bump tool shapes concave or convex features in the selected terrain. The top or bottom of the shape is always in the middle of the selected terrain; you cannot pull up one edge of a selected piece of terrain.

Like the Mesa tool, you use the mouse to click and drag the terrain up or down inside either View window. When you're satisfied, release the mouse button.

- ☐ Keep dragging: to define large or exaggerated shapes, you can drag the mouse outside the View window.

EA TIP For traditional British links courses, the Bump tool comes in handy, as it is the best way to build a smooth hillock.

LINEAR

The Linear tool allows you to pull sharp peaks out of or push depressions into the selected piece of terrain. When the Linear tool is applied, the center point of the selected terrain is raised or lowered. The sides of the selected piece of terrain do not bubble like the Bump tool.

You use the mouse to click and drag the terrain up or down inside either View window. When you're satisfied, release the mouse button.

TILT

The Tilt tool lets you lean a selected piece of terrain along a user-defined axis.

In either View window, you select a piece of terrain. Then click the Tilt tool. Across the piece of terrain, you click and drag the axis of the tilt. After releasing the mouse button, click and drag the mouse in either View window to tilt the selected terrain on either side of the axis.

RAISING AND LOWERING TERRAIN

You can raise or lower the terrain by a fixed number of feet. After you select a piece of terrain, use the Raise/Lower tool to lift it or lower it relative to the surrounding terrain or on an absolute scale.

- ❑ The Raise/Lower tool is slightly different from the Mesa tool. The Mesa tool controls the height of the terrain change via the mouse. With the Raise/Lower tool, you change the average height by entering a figure.

When you select a piece of terrain and click the Raise/Lower button, the Raise/Lower pop-up appears. The Average Height box indicates the average height of the selected piece of terrain.

- ⇒ To change the height of the selected terrain, enter a figure in the textbox or use the slide bar.
- ⇒ To base your Raise/Lower adjustments on the height of the surrounding terrain, select RELATIVE.
- ⇒ To base your adjustments from the height of the hole when you first defined it, select ABSOLUTE.
- ⇒ To recompute the average height of the selected terrain, click COMPUTE.
- ⇒ To apply the height changes to the selected terrain, click APPLY. You can check your work in the 3D View window.
- ⇒ To close the Raise/Lower pop-up, click CLOSE.

EA TIP After making adjustments, compute the average height. Set the slider bar to RELATIVE to make small additional adjustments based on the new average height.

NOTE: Raising or lowering terrain by large amounts along the border of the playable area can produce some odd effects on the horizon. Since the horizon is tied to the level of the terrain, you can effectively bury it if you change the terrain height significantly after loading a horizon. For more, ► [A Warning: Horizons and the Terrain](#).

ADDING NOISE TO TERRAIN

Nature rarely makes completely smooth shapes. To design more natural-looking terrain pieces, use the Add Noise tool for ripples, ridges, and cracks in your terrain shapes.

When you select your terrain piece and click the Add Noise tool, the Add Noise pop-up appears. Use the slider bar to set the maximum height of the bumps to apply to the surface of the terrain.

- ⇒ To smooth the added noise into the terrain, check the Smooth box.
- ⇒ To apply the changes, click APPLY. You can review the changes in the 3D View window, if displayed.
- ⇒ To close the Add Noise pop-up, click CLOSE.
 - ☐ For adding terrain noise that is over 3.0 feet above the surface of the terrain, Add Noise multiple times on the same piece of terrain, or select a piece of your terrain and apply other terrain tools.

EA TIP When building smaller terrain shapes on the course, use the Add Noise tool last to put finishing touches to them. Or, use it first when building rugged waste areas.

MAKE IT NATURAL

An artifact of some of the terrain tools is unnatural blending with the surrounding terrain. Because the tools make mathematical adjustments to the selected terrain, they do not, by themselves, blend those adjustments into the terrain. That is the role of the Smooth tool.

SMOOTHING TERRAIN

You can smooth a terrain shape into the surrounding piece of terrain with the Smooth tool. After you have defined a terrain shape with another tool, use one of the selection tools to highlight a large piece of terrain that includes the changed piece of terrain within it. Click the Smooth tool to open the Smooth pop-up.

- ⇒ To set the smoothing values in the X or Y direction, select a degree of smoothing: LOW, MEDIUM, HIGH, or ULTRA-HIGH.
 - ☐ More smoothing produces a smoother terrain shape.
- ⇒ To apply the smoothing settings to the selected terrain, click APPLY.
- ⇒ To update your newly smoothed terrain, press [F2] or [F3].
- ⇒ To close the Smooth pop-up, click CLOSE.

EA TIP To smooth the edges of a selected terrain piece, use the selection tools to select the large piece and then select SUBTRACT from the Select menu. Your next selection should be an interior piece of the highlighted terrain that you do not want to smooth.

If you're smoothing a large section of the hole, do it piece by piece. Smoothing in smaller pieces, in the long run, takes less CPU time.

EA TIP When selecting a piece of terrain to smooth, use the Rectangle tool. It provides a better overall appearance than irregular shapes selected with the Corral tool.

FLATTENING TERRAIN

The Flatten tool makes the selected piece of terrain horizontal at a defined height. After you select a piece of terrain to flatten, click the Flatten button on the Terrain tab to open the Flatten pop-up.

In the Flatten pop-up, the range of the slider bar is from the lowest point of the selected terrain to the highest point in feet. For heights greater than zero, terrain pieces above it are flattened to the selected height. For heights less than zero, terrain pieces below it are flattened.

- ⇒ To set a flatten height, use the slider bar or enter a figure in the text box.
- ⇒ To apply the flattening to the selected terrain, click OK.
- ⇒ To cancel changes, click CANCEL.

COPYING TERRAIN

You can copy a selected piece of terrain and paste it in a new location.

To copy a piece of terrain:

1. Using the Grid tool from the Terrain tab, select the piece of terrain to copy.
2. From the Edit menu, choose COPY.
3. From the Edit menu, choose PASTE.
4. In 2D View, click where you want to place the terrain piece. The terrain piece is pasted.
5. Use the Smooth tool to blend the terrain piece into its new environment.

EA TIP To cut and paste, after you have copied the terrain piece, select the original terrain piece. Use the Flatten tool to reduce its elevation to zero.

CREATING TERRAIN WITH OUTSIDE TOOLS

You may find that external graphics tool can speed the development of larger terrain pieces or repeated terrain shapes. *Course Architect 2000* can import prepared grayscale images to apply as terrain to a given hole.

NOTE: If you are exporting terrain from a course to import into another one, use *Course Architect 2000*'s .JEV format. It produces superior results to grayscale imports.

For more on creating terrain with outside tools, ➤ [Import Terrain](#).

ADVANCED TERRAIN TOPICS

The following sections extend the discussion of terrain into topics that can be of benefit to serious designers who have become familiar with *Course Architect 2000*. These step-by-step processes can be of some assistance in developing precise, sharp-looking terrain.

NOTE: The techniques in the following sections require a high performance machine. Creating these large images consumes a great deal of memory and

processing time. If your computer does not meet the Recommended Requirements, you may have difficulty manipulating the large terrain shapes inside *Course Architect 2000*. For more, ► [System Requirements](#).

GENERAL GRADE WITH EXTERNAL TOOLS

Many courses are built in areas that have a general grade to them. Courses built along major bodies of water may gradually slope to the shore. Similarly, courses can be built along the foothills of a range of mountains. Before you begin the nuts-and-bolts designing work, you can add a general grade to your course.

The following section outlines how to create a general grade to a hole with external paint tools. When you have mastered the procedure, you might want to apply a more generalized process to the entire course. For more, ► [Terrain for the Whole Course](#).

To create a gradual slope for your course:

1. In your external paint tool, define a new image whose characteristics meet the following parameters:
 - ☐ Dimensions in pixels match the dimensions of your hole's total terrain in yards. The top of your terrain image corresponds to the top of your hole file in 2D View—north.
2. Set image to eight-bit grayscale.
 - ☐ For grayscale terrain maps, you must use all 256 shades.

EA TIP Start with a grayscale image that is at least 600 DPI (dots per inch). Don't convert from a color image, as the conversion can create a noticeable banding in the imported terrain.

3. Use the gradient tools to define a gradual shading where darker colors represent lower elevations and lighter colors represent higher ones.
 - ☐ The darkest shade represents a height of 0 feet. The lightest color is the highest height, the measurement of which you establish inside *Course Architect 2000*.
4. When you are satisfied with your gradient slope, save it in the folder of the hole on your course in which you want to test the elevation data. Give the name of your elevation data, “*elv” with an extension that corresponds to the file format (.PCX, .BMP, .TGA). For example, the filename for the elevation data of Hole #2 might be, “HOLE_2ELV.PCX”.
5. In *Course Architect 2000*, open your course and select the hole on which you want to test the imported elevation.
6. From the File menu, select IMPORT TERRAIN.
7. Under file type, select the elevation data type. Select the file to import. Click OK.
8. Enter the height to which the lightest color corresponds. Click OK.
9. The elevation data is imported.

If you are unsatisfied with the effect, close the project without saving and return to your paint program to make changes. Follow the above steps to re-import the elevation data until you are satisfied with the results.

A GOOD MOUNTAIN

Suppose there is a very large terrain feature like a mountain pieces of which appear in the terrain of multiple holes. From an external tool, you can erect the mountain and apply its terrain features to multiple holes.

1. In your external paint tool, define an 8-bit grayscale image whose length and width in pixels matches the size in yards of the hole in *Course Architect 2000* on which you want to test the mountain.
2. Use the paint tools to build elevation information for the mountain.
3. Save the file as .PCX, .BMP, or .TGA.
4. Import it into test hole.
5. Return to the paint program to edit the terrain file as needed. Re-import. Repeat the process until it looks correct.
6. When you're satisfied with the mountain, create 8-bit grayscale images in the paint tool for each hole in which the mountain will appear.
7. From the finalized terrain file, select and copy the entire mountain terrain piece.
8. In each new file, paste the mountain in the place where it is to be located in the terrain for the hole. If only part of the mountain extends into the hole, paste and move the object so that only the visible parts appear in the grayscale image. Repeat for each hole.
9. Save the terrain for each hole in the proper format.
10. Import each file into the correct hole from within *Course Architect 2000*.

EA TIP You can paste part of the selection at an edge of the terrain. You do not have to paste the entire selection onto the hole. Use this for pasting parts of terrain features that overlap holes.

TERRAIN FOR THE WHOLE COURSE

It's possible to define the terrain for the entire course and then to import it hole-by-hole into *Course Architect 2000*.

NOTE: To shape the terrain for an entire course outside of *Course Architect 2000* requires a working knowledge of the tools of your external paint program. Before attempting to build an entire terrain map, you should practice on a hole-by-hole basis.

To prep the terrain for the entire course in an external tool:

1. If you're simulating an actual course, get a good topographical map of the course that includes length and width in yards for the entire course. If you're doing your own design, you are free to prep as you see fit. A sketch of the hole layouts and positional relationships on graph paper can help.
2. Note the length and width of the entire map for the course in yards. Note the direction of north on the map and the range of heights, as well.

3. In your external paint tool, create an 8-bit grayscale image. The length and width of it in pixels corresponds to the length and width in yards of the entire course.
4. In the darkest grayscale shade, trace the rectangular outlines of the available terrain for each hole onto the map. These terrain stamps correspond to the 2D View for each hole.
 - ☐ For ease of visualization, the top of the map should correspond to north. To orient your holes properly, you must define your stamps along a south-to-north orientation and then rotate them to the proper orientation for each hole. It's a good idea to change the orientation so that you can properly blend terrain features that cross multiple holes.
5. You are now ready to begin painting inside the terrain stamps. Using the tools of your paint program, you can paint grayscale shapes onto the terrain that, when imported, become topographical data.
6. When you complete your terrain map, save it as .PCX, .BMP, or .TGA.
7. Now, you must cut out the terrain stamps for individual holes. For holes that are situated at an off-angle, you must re-orient them in a south-to-north direction for importation using your paint program's rotation tools.
8. Save each stamp as a separate file. Double-check that their length and width correspond to the length and width in yards of the hole.
9. In *Course Architect 2000*, import the appropriate terrain file for each hole. Save each hole before continuing to the next one.

OBJECTS

A golf course without trees, rocks, bushes, benches, equipment huts and the occasional family of deer would be sterile and lifeless. *Course Architect 2000* comes with a library of hundreds of objects that you can place on your courses. Almost 200MB of trees, rocks and other touches are at your disposal for inclusion in your designs.

If you're familiar with external graphics tools, you can design your own objects and import them into *Course Architect 2000* through the Object Browser. The Browser also supports aliasing, which allows you to define objects of similar appearance that have slight yet critical differences at very little storage overhead. The alias facility can turn a grid of identical tree files into a grove of unique and varied trees.

HOW OBJECTS WORK

In terms of data storage, objects are two-dimensional graphics images. Through the Object Browser, you import and select these images. You then apply special properties to the objects to instruct the game how to display and interact with the objects.

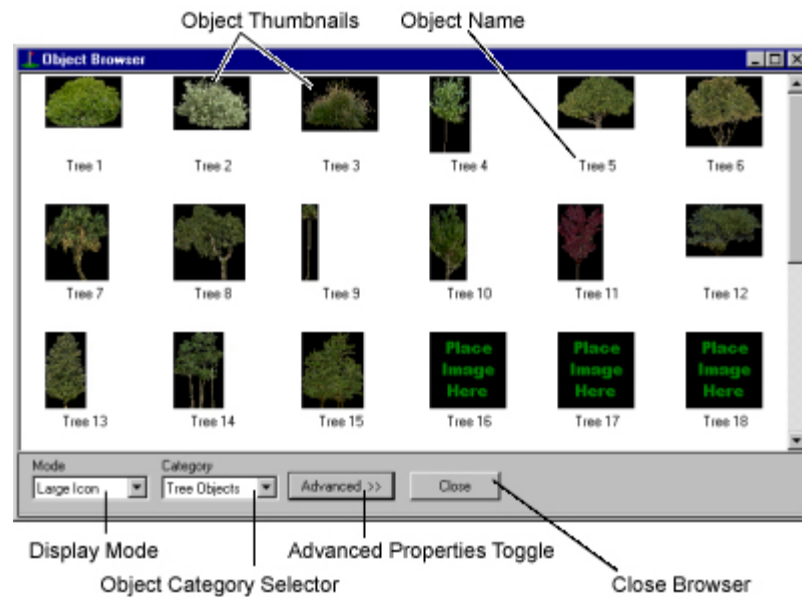
Finally, using the object selection and placement tools, you can plant objects on your course or populate it with multiple objects of multiple varieties. When their properties have been defined, objects interact with the ball in the game like their real-world counterparts.

In the game, these two-dimensional graphics are rendered so that they always face the user who is never aware that they are billboards.

THE OBJECT BROWSER

The primary tool for reviewing, selecting, and importing objects is the Object Browser.

⇒ To open the Object Browser, select OBJECTS from the View menu.



The Object Browser opens to display the available objects as thumbnails. You can scroll through the available objects.

- ⇒ To see objects that are offscreen, use the scroll bars.
- ⇒ To close the Object Browser, press CLOSE.

The Object Browser displays the available objects and empty object slots by category. Pre-defined object categories set the play characteristics of objects and the sounds that are played when the ball hits the object. For example, the sound and play characteristics of a ball striking a tree or a rock are quite different.

There are two object categories. Place trees and bushes under the Tree Objects category. All other objects like rocks and houses belong under Special Objects.

- ⇒ To change the object category under display, select a different category from the drop-down list.

The play characteristics of an object are defined through its two types of properties. You can change properties of the image file and of the object in the game.

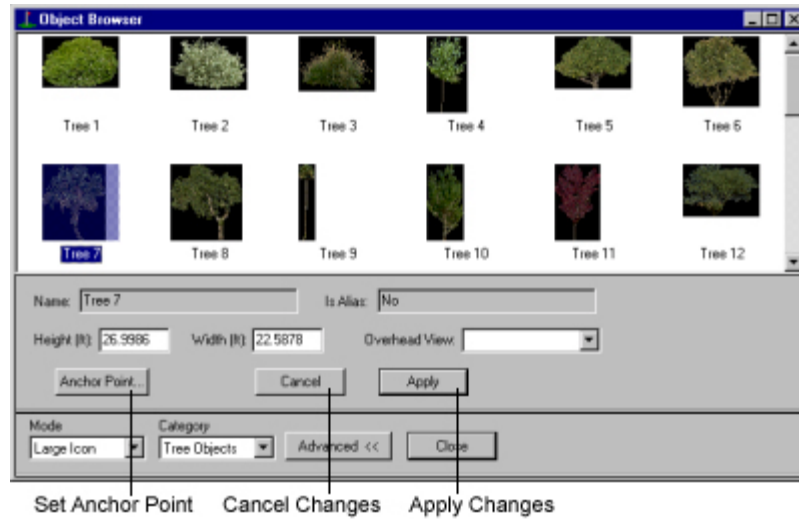
- ⇒ To change the properties of an object, click on the object in the Browser and then press ADVANCED. The Advanced screen appears at the bottom of the Object Browser. For more, ➤ [Advanced Object Properties](#).

OBJECT PROPERTIES

Under an object's properties, you can see the filename properties of the object and whether it is locked or not.

- ⇒ To open the Object Properties pop-up, right-click on the object in the Object Browser. Select PROPERTIES. The Object Properties pop-up opens.

ADVANCED OBJECT PROPERTIES



In the advanced object properties area, you configure the height and width of the object and set other characteristics of the object.

- ⇒ To toggle display of the Advanced Object Properties, click ADVANCED.
- ⇒ To set the anchor point for the object in the terrain, click ANCHOR POINT. For more, ➤ [Anchor Point](#).
- ⇒ To apply your changes to the object, click APPLY.
- ⇒ To cancel changes, click CANCEL.
- ⇒ To toggle display of the Advanced area, click ADVANCED.
- ⇒ To close the Object Browser, click CLOSE.

When you set the height and width of the object, you configure the scaled display of the object and its collision boundaries for the game. Its appearance in 3D View is also affected.

- ⇒ To set the height and width in yards of the object, enter numbers in the appropriate box.

In the game, a two-dimensional overlay appears in the corner of the game window. The overlay displays a bird's eye view of the hole, including iconic representations of objects on it. You can define the icons that represent the object in this overlay.

EA TIP When defining the icons, remember that these icons appear very small on the screen in the game. Thus, define icons only for large or tactically important objects on a hole.

- ⇒ To change the icon that represents the object in the hole overlay in the game, select an icon name from the Overhead View drop-down list.

ANCHOR POINT

The **anchor point** defines how the object sits on the terrain.

- ⇒ To set the anchor point for an object, click on the object in the Object Browser. Press ADVANCED to open the Advanced Properties. Click ANCHOR POINT.

When you set the anchor point, all of the terrain below the horizontal line that passes through the middle of the anchor point is buried in the terrain. For objects such as trees and flags, you want to set the anchor point along the trunk or stem of the object.

- ⇒ To change the anchor point, click a new location.
- ⇒ To close the anchor point window, click CLOSE.

EA TIP It's a good idea to hide part of the bottom of an object under the terrain. As you build your hole, the shape of the terrain may change and can expose the bottom edge if you do not hide it in the terrain.

EA TIP Anchor points cannot be changed for each alias. When you change the anchor point of the parent object, the anchor points of all of the aliases are changed, too.

BROWSING THE CONTENT LIBRARY

When you install *Course Architect 2000*, only some of the installed objects are displayed in the Object Browser. The Content Library contains almost 200MB of objects that you can browse, import, place and even modify for your courses.

For more information on the Content Library, ➤ [Content Library](#).

PLACING OBJECTS

You can place single objects on the course through the Object Browser.

To add an object to your course:

1. Go to the Object tab.
2. Select OBJECTS from the View menu. The Object Browser opens.
3. Select the class of object that you want to review: Tree Objects or Special Objects.
4. Select the object to add to the terrain. When finished, click OK.
5. From the Terrain menu, select DROP OBJECT.
6. In 2D or 3D View, click the location where you want to place the object. The object is placed.
 - ☐ When you use objects on the course, you should set the anchor point for the object. For more, ➤ [Anchor Point](#).

To place special objects like fences and cart paths, you have to take some additional steps. For more, ➤ [Miscellaneous Objects](#).

- ⇒ To place multiple objects at once, ➤ [Populating Areas](#).

TIPS ON PLACING OBJECTS

EA TIP Where possible, place objects some distance from the playable areas on the course, particularly if you have increased the scale of the object's height and width parameters. Up close, even high quality objects can look artificial.

EA TIP Delay placement of objects until you feel that the terrain of the hole is close to completion. When you place objects on unfinished terrain, adjustments to the terrain, can expose the bottom edge of the 2D image. Especially for larger objects, you may want to flatten a space on the terrain to hold the object—after the major shaping around the space has been completed.

POPULATING AREAS

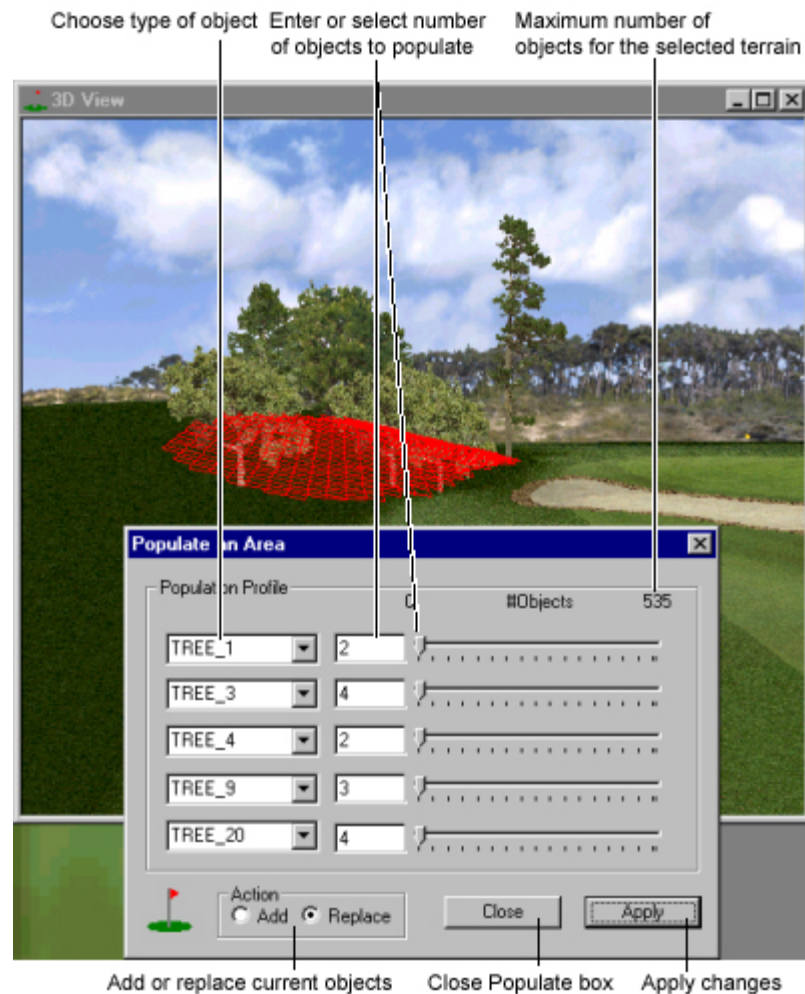
The Populate tool allows you to place multiple objects in various combinations in a designated area. For example, it's a great way to plant a stand of trees or a field of rocks.

Use a selection tool to define the area in which you want to populate with objects. Then click the Populate button. The Populate dialog box opens.

EA TIP When placing objects, don't fill every selected facet. Populating twenty percent of the available facets with objects is too much. Too many objects can slow down your gameplay performance.

EA TIP To populate an irregular shape, use the Corral tool. Or, add a special outline that contains, for example, a stand of trees and select it for population with the Pick Texture tool.

POPULATE DIALOG BOX



The Populate dialog box allows you to select multiple object types and place them in the selected area. From the drop-down lists on the left side, you select the object or objects to place. On the right side, you can enter a number or use the slider bar to set the number of the selected object to place.

- ❑ The maximum number of objects that you can place is one per facet. The maximum number is displayed above the right edge of the slider bars.
- ⇒ To add the selected objects to the objects already in place on the terrain, click the Add button.
- ⇒ To replace the objects already on the terrain with the selected objects, click the Replace button.
- ⇒ To populate the objects in the terrain, click APPLY.
- ⇒ To close the Populate dialog box, click CLOSE.

NOTE: Do not add objects again after performing an Add or Replace. If you want to add more objects after performing one of these functions, exit the Populate dialog box and re-open it to add more objects.

MISCELLANEOUS OBJECTS

Elsewhere in the help guide, you can learn how to place the following miscellaneous objects.

HOUSES

Because of their large size, placing houses requires special attention. For more on placing houses, ➤ [How to Position a House](#).

HOW TO CREATE A CART PATH

Although you never see moving carts in the game, you can add cart paths to give the authentic appearance of a golf course. For more, ➤ [How to Create a Cart Path](#).

HORIZONS AND SKIES

You can change the sky and horizon appearance. For more, ➤ [Horizons and Skies](#).

- ☐ Horizons and skies are not treated as objects in *Course Architect 2000*.

CUT, COPY, AND MOVE OBJECTS

You can cut, copy, and move (cut and paste) objects on your course.

To move an object:

1. Select the terrain facet underneath the object.
 - ☐ Unless you need a high level of precision, it's easier to select the terrain around and including the object.
2. When you place the cursor in 2D View over the terrain holding the selected objects, the cursor changes to a four-arrowed cursor. Click and drag the object to its new location. The object is placed.

To cut or delete an object from the terrain:

Cutting an object places it on the clipboard. Deleting it does not.

- ⇒ To cut an object from the terrain, select the terrain facet underneath the object. From the Select menu, select CUT. The object is cut from the terrain and placed on the clipboard.
- ⇒ To delete an object from the terrain, select the terrain facet underneath the object. Press [DELETE]. The object is deleted from the terrain.

To copy and paste an object multiple times:

1. Select the terrain facet underneath the object.
 - ☐ If you select multiple facets, you paste multiple facets. For greater precision, select only the facet that contains the object.
2. From the Select menu, select COPY. A copy of the object is placed on the clipboard.
3. From the Select menu, select PASTE.
4. Click on each location where you want to paste the object.

SCREEN REFRESH

To refresh the display in 3D View, press **[F2]**.

REMOVING OBJECTS FROM TERRAIN

To remove object from the terrain:

1. Click the Objects tab.
2. Click one of the terrain selection tools.
3. Highlight the terrain area that contains the object that you want to remove.
 - ☐ You can highlight multiple objects to delete.
4. When the facet containing the object is highlighted, press **[DELETE]**. The object is deleted.

OBJECT ALIASES

Course Architect 2000 supports aliases for objects. An alias lets you place a copy of the object into another object slot where you can modify all of the settings within the Object Browser on the alias without affecting the original. You can change height and width.

Aliases are a great way to prevent what is called "stamping." Stamping is the repeated placement of identical objects. With aliases, you can take an object and make slight variations of it at little storage cost. Reusing objects as aliases also helps improve the gameplay performance of a hole.

- ⇒ To create an alias of an object, click on an object and drag it to a spot with a "Place Image Here" icon.
 - ☐ In the Object Browser, aliases are identified by a small arrow in the corner of the displayed image.
- ⇒ To delete an alias, right-click on the alias and select DELETE. The spot is now available for creating a new alias or importing an object.

EA TIP Use object aliases wherever you can. In the game and *Course Architect 2000*, objects can occupy a great deal of memory and can slow down screen updates.

CREATING AND IMPORTING OBJECTS

Outside of *Course Architect 2000*, you can create objects and then bring them into the tool.

- ☐ Before you go to the trouble of creating objects from scratch, browse through the Content Library. For more, ► [Content Library](#).

You may also consider copying the .PCX object files in the Content Library, saving them under a different name, and re-importing them into the Object Browser. The following sections describe the process of building an object from scratch.

NOTE: Do not change the names of any *Course Architect 2000* data files outside of the tool. It can produce odd results or fatal crashes in the tool. To modify *Course Architect 2000* data files, it is best to work with copies and re-import the files through the tool.

OBJECT FILE PARAMETERS

Technically, an object is a two-dimensional graphic image built under certain parameters, to which are applied play characteristics. So, what counts as an "object" in *Course Architect 2000* is limited only by your imagination. For example, a designer might create the objects (and textures and terrain pieces) to build a golf course on the moon.

To build an object in an external tool, you must follow these conditions:

- ☐ 8-bit TGA (targa) file, no Alpha Channel
- ☐ Max height and width: 640 x 640 pixels

NOTE: It is recommended that you use image names of eight characters or less

The object's size in the game is defined within *Course Architect 2000*. However, if you take a small object file and turn it into a very large object in the tool, the object appears very grainy and pixilated in the game. Make small objects with small images and large objects with large images.

- ☐ In general, you want an object to look slightly larger in your external tool that you think it should appear finally in the course. Although you can set objects to be any size in *Course Architect 2000*, they look better if you scale them down instead of scaling them up.

GENERAL OBJECT HEIGHTS

Practical experience suggests the following height guidelines for importing objects into *Course Architect 2000*:

- ☐ Trees: 300 to 500 pixels, depending on the tree's size
- ☐ Bushes: 250 or fewer pixels, depending on the size
- ☐ Rocks and other small solids: 100 or fewer pixels

If your objects in the game appear blurry or pixilated, your image resolution or the display settings of the game may be too low. To correct this you can redesign the object on a larger image size. Don't simply expand a lower resolution; the effect is even worse.

SAVING OBJECTS

When you finished your object in the external tool, save it into the following sub-directory:

(your course's directory)\objects

IMPORT OBJECTS

After you have saved your object file in the proper location, you need to make *Course Architect 2000* recognize the file as an object. You need to import the object into the tool.

General Object Importation Process:

1. To import an object, you right-click on an empty slot in the Object Browser.
 - ☐ You cannot import an object into an occupied slot. You will need to delete the current image in order to import another to a particular slot.
 - ☐ When importing objects, be sure to select a slot in the proper object category. The object category defines, in part, the play characteristics and sound that is played when the ball strikes the object.
2. Select IMPORT.
3. In the dialog box, find the file that represents the object. Click OPEN.
4. Pick the color that you want to be transparent. The **transparent color** is used to indicate areas through which the user should be able to see. For example, in tree objects, the areas between branches and on either side of the trunk should be the transparent color. When you have selected the color, click OK.
5. The object is imported to the Browser and is ready for placement on your course.
 - ☐ To refresh the object displayed in the Object Browser, right-click on the object and select REFRESH FROM SOURCE. Use this when you need to reset the transparency of the object.

After you import an object, you need to set its height, width, and anchor point. For more, ➤ [The Object Browser](#).

DELETING OBJECTS FROM THE BROWSER

Each object category has a maximum number of objects that can be stored. As you approach this maximum number, you may want to consider deleting objects from the Browser.

- To delete an object from the Browser, right-click on the object. Select DELETE. When you click OK, the object is deleted.
 - ☐ Aliases of deleted objects will also be lost, so be careful when deleting an object.

NOTE: When you delete an object from the browser, the file is deleted from *Course Architect 2000*. If you accidentally delete an object file, you must then re-import the object into the Object Browser. For more, ➤ [Import Objects](#).

HORIZONS AND SKIES

What is an outdoor environment without a horizon and sky? If you can't see these natural elements, you are not outdoors.

Course Architect 2000 includes a number of horizon files that you can use in your courses. These files have been photographed, digitized, prepared, and tiled for use in *Course Architect 2000*.

- ❑ Skies are not objects or textures. They are a set of toggles that are set inside *Course Architect 2000*.

You can use the Horizon Browser to review the available horizons in *Course Architect 2000*. For more, ► [Content Library](#).

HOW HORIZONS AND SKIES WORK

The horizons that you see in the game are illusions prepared with a bit of technical wizardry and plenty of experience.

The space occupied by each hole can be thought of as an upside-down bowl that entirely covers the hole. Around the interior wall of the bowl/hole is placed the horizon. Behind the horizon and stretching up to the apex of the bowl are the wedge-shaped pieces of the sky that are mathematically computed inside the game.

It's impossible to tell in the game, but each horizon is 12 separate images whose edges are blended together to produce a seamless effect. Each image represents a 30-degree viewing area. Thirty times 12 images yields a 360-degree viewing area.

Algorithmically, these images are wrapped around the perimeter of each hole at an ideal viewing distance from the actual edge of the playing area. Between the edge of the playing area and the base of the horizon is a fill spaced into which you can add any of the fifteen surface textures.

Behind the horizon, wedge-shaped pieces of sky are placed. To simulate weather, you can set random effects on the skies. From inside *Course Architect 2000*, you can configure the skies to be cloudy or cloudless, brilliant or dull, and several other random effects.

A WARNING: HORIZONS AND THE TERRAIN

After you load a horizon into *Course Architect 2000*, its height is pegged to the height of the terrain. As the terrain is raised or lowered along the edge of the playable area, so to is changed the height of the horizon. Consequently, if you lower the terrain by a large amount, you can effectively bury and hide the horizon behind the surrounding terrain.

Be careful when you adjust the height of the terrain along the edge of the playable area. Where possible, do not make large adjustments.

THE HORIZON BROWSER

Through the Horizon Browser, you can load and position your horizon and then blend it into the terrain with sky settings and fill tools.

SETTING THE HORIZON FOR THE COURSE

You can change the horizon for your course in the Horizon Browser.

- ⇒ To open the Horizon Browser, select HORIZONS from the View menu.
- ⇒ To change to a new horizon, click ADVANCED to open the Advanced properties area. Under the Horizons tab, select a new horizon from the basename drop-down list.
- ⇒ To set the fill texture, right-click on a horizon tile. For more, ► [Fill Textures](#).
- ⇒ To apply changes, click APPLY.
- ⇒ To close the Horizon Browser, click CLOSE.

BASENAMES

The following basenames are the horizons that can be set under the Advanced tab in the Horizon browser.

- ☐ Coast1, Coast2, Coast3, Coast4, Coast5
- ☐ Club1, Club2, Club3
- ☐ Dsert1, Dsert2, Dsert3
- ☐ Oasis1, Oasis2
- ☐ Flori1, Flori2, Flori3

ORIENTING HORIZONS FOR EACH HOLE

For each hole, you can have one and only horizon. However, you can rotate the horizon to different positions around the hole. For example, the large mountain that appears in the horizon directly in front of the tee in Hole 1 may appear behind the tee in Hole 3. In this manner, you can orient each hole in a different compass direction.

In 2D View, the upper-end of the window is due north. When you start a hole, for technical reasons, you should create it in a south to north orientation. However, the holes on real courses do not always orient in such a convenient manner. To simulate proper orientation, you can rotate the horizon to give the appearance of a hole oriented in a direction other than along the north-south axis.

- ⇒ To re-orient the horizon for a hole, go the Horizon Browser. Click the ADVANCED button to toggle the Advanced Horizon settings. In the Start Frame textbox under the Horizon tab, enter the number of the frame that you want to appear beyond the edge of the hole terrain that appears at the upper-end of the 2D View window.
 - ☐ By default, Frame 1 of a horizon file is the Start Frame and is thus located due north of the hole.
- ⇒ To apply the change, click APPLY. The View windows are updated.

The sequence of the frames is not changed. The horizon is merely spun around the stationary hole. There are other settings to blend the horizon into the terrain. For more, ► [Horizons tab](#).

For more information on laying out the orientation for each hole on your course, ➤ [Hole Orientation](#).

FILL TEXTURES

As noted, the horizon textures are placed in the game at some distance from the edge of the playable area. To sustain the illusion of a view to the infinite horizon, there is a gap between the playable area and the base of the horizon. Into this gap, you can instruct the game to place a texture.

After you have loaded and oriented your horizon for each hole, you can see the outlines and their textures that are closest to each tile of the horizon. Set the fill texture for a horizon tile to the texture of the closest outline.

- ☐ Although you do not have to do so, you ought to orient and add the fill textures for each horizon tile on each hole. The labor pays off in nice effects within the game. However, as a fallback, you can set the default fill texture for each tile. For more, ➤ [Below Horizon Textures](#).
- To set the fill texture, right-click on a horizon tile. Select the appropriate texture to blend the edge of the playable area to the horizon.
- ☐ The fill texture is invisible in standard views in *Course Architect 2000*. To see the fill texture, display only a wire frame view and position the camera so that it is looking along the edge of the playable area. You should see a gap between the playable area and the horizon. The fill texture fills this gap.
- To change the intensity of the texture, enter a number between 0 and 15, the setting that produces very rich textures.
- To apply the settings, click APPLY.
- To cancel the changes and exit, click CANCEL.
- To accept the changes and exit the pop-up, click CLOSE.

ADVANCED HORIZON AND SKY SETTINGS

In the Horizon Browser, you can adjust other settings to improve the view beyond the edge of the playable terrain.

- To toggle the display of settings to configure your horizon, click ADVANCED.
- To apply changes, click APPLY.
- ☐ You must click APPLY on each individual tab to apply changes.
- To close the Horizon Browser, click CLOSE.

HORIZONS TAB

Under the Horizons tab, you orient the horizon, and position it at a distance from the playable area.

- To set the frame that is located at due north, enter a figure from 1 to 12 in the Start Frame box. For more, ➤ [Orienting Horizons for Each Hole](#).
- To change the horizon used on your course, select a new basename from the drop-down list. That horizon file is loaded if it exists.

- ⇒ To set the distance between horizon and playable area, enter a figure in yards in the Distance from Terrain box.
- ⇒ To scale the height of the horizon as a percentage of its file size, enter a figure greater than 0 in the Scaling Factor box.
 - ☐ Scaling factors less than 100 make the horizon appear to be further in the distance.
- ⇒ To sink the horizon below the level of the terrain, enter a figure in pixels in the Bottom Edge Offset box.

EA TIP Enter a figure greater than zero for the bottom edge offset. If the edge of your hole terrain dips below the bottom edge of the displayed horizon, golfers may be able to see seams.

SKIES TAB

For a round of golf in the game, the program randomly chooses one of the toggled settings under the Sky tab to define the appearance of the sky.

- ⇒ To add a setting to the list of randomized possibilities, place a check in the box next to the setting's description.

NOTE: The skies displayed in 3D View do not necessarily correspond to the skies that appear in the game. Skies in the game are selected at random from the checkmarked settings under the Skies tab.

TEST CONTROL TAB

Under the Test Control tab, you can test the appearance of the various sky settings against the selected horizon.

- ⇒ To test a different sky setting, select a setting from the Test Sky drop-down list. Click APPLY.
- ⇒ To display the seams between the pieces of sky terrain, place a checkbox next to Show Breaks.

BELOW HORIZON TEXTURES TAB

By placing textures below the horizon, you blend the edge of the playable area with the horizon beyond it. You can set the fill texture for each horizon tile or establish a default one for tiles that you do not specify.

- ⇒ To set the fill texture for the numbered tile, enter a fill texture and intensity in the boxes provided.
- ⇒ To set the default fill texture, enter a fill texture and intensity in the Default boxes.

For more on how fill textures work, ➤ [Fill Textures](#).

SUN AND SHADOWS

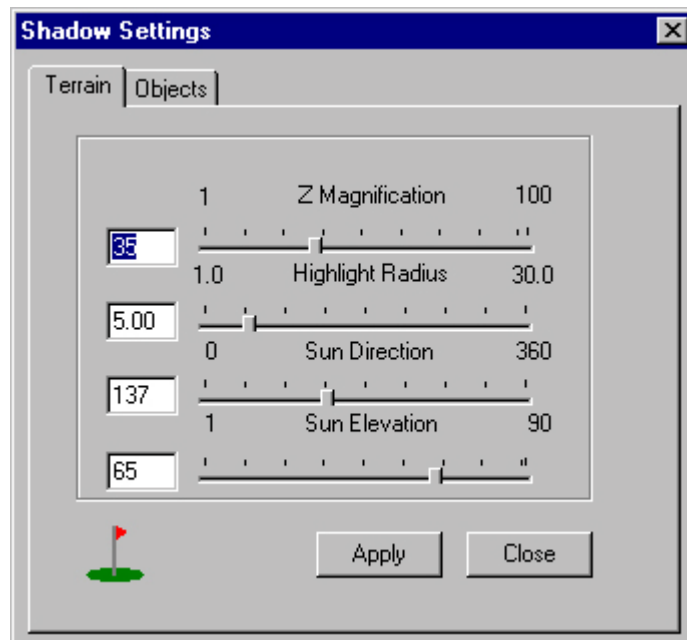
How you handle sun and shadows depends on your approach to course design. Are you designing the most realistic course? Or are you building a handsome and playable course with dramatic effects for emphasis?

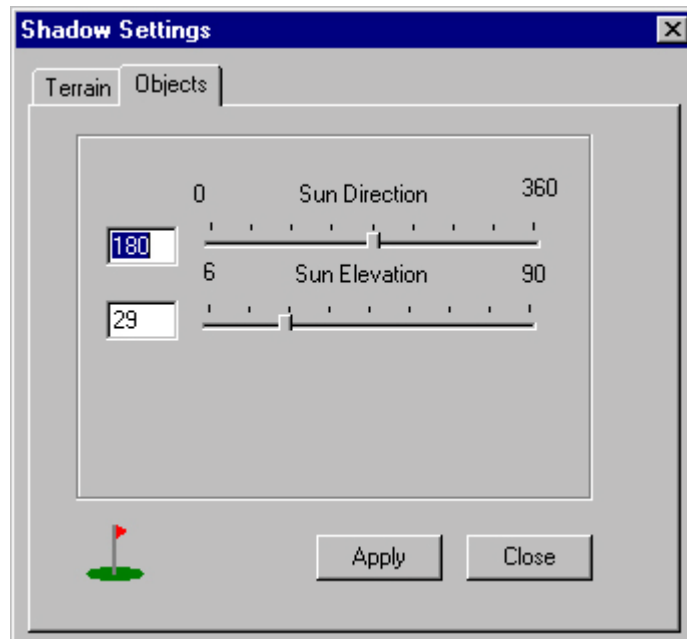
In this section, the mechanics of sun and shadow placement are explained first. Afterward, you can read some pointers on how to place the sun on each hole for the desired effect to achieve your design goals.

SHADOW SETTINGS

Technically speaking, you don't place shadows. In the Shadow Settings pop-up, you place the sun in a position over the surface of the course and assign it an intensity. When your course is imported to the game, the program applies the shadows that are suggested by your placement of the sun.

- ⇒ To change the position of the sun, select SHADOW SETTINGS from the Shadows menu.





In Shadow Settings, you can position the sun to cast different shadows across terrain and across objects. In a realistic setting, there is only one sun and one direction of the shadows. However, in practical design, multiple shadow parameters give you greater flexibility. For more, ➤ [Drama vs. Realism](#).

UNITS OF MEASUREMENT

In the Shadow Settings pop-up, the sun's direction is measured from due south. A Sun Direction of 0 corresponds to the bottom of the 2D View window. A Sun Direction of greater than zero moves the sun clockwise around the hole to 360 or 0 which returns the sun shining from due south. Sun Elevation indicates the angle at which the sun is positioned off of the surface of the course. A Sun Elevation of 1 puts the sun just above the horizon and thus casts very long shadows across the course. A Sun Elevation of 90 places the sun directly overhead.

TERRAIN SHADOWS

Elevated and recessed terrain on your course can cause shadows across the landscaping. Under the Terrain tab, you set the Sun Direction and Elevation as they apply to terrain shadows.

Under Terrain shadows, you can specify the intensity of the shadows themselves. By raising the Z-Magnification factor, you increase the level of shadow detail applied to the terrain. Raising the highlight radius expands the blurry edges of the shadows.

- To change the terrain shadow settings, select the Terrain Tab.
- To apply your changes, click APPLY.
- To close the Shadow Settings pop-up, click CLOSE.
- To update your terrain shadows in 3D View, select UPDATE TERRAIN SHADOWS from the Shadows menu or press **[F3]**.

OBJECTS SHADOWS

Under Objects tab, you set the shadows as they apply to objects. Set the direction and the elevation of the sun. In the game, the program calculates the shadow positions behind objects and their lengths across the terrain.

- ⇒ To change the objects shadow settings, select the Objects Tab.
- ⇒ To apply your changes, click APPLY.
- ⇒ To close the Shadow Settings pop-up, click CLOSE.
- ⇒ To update your object shadows in 3D View, select UPDATE OBJECT SHADOWS from the Shadows menu or press **[F4]**.
 - ❑ When updating the object shadows, you can receive an error message, "There is No Art for the Object" if *Course Architect 2000* cannot find the image files for your objects. Exit the program, and place them in the following directory (your course's root directory)\objects. Restart the program and load your course.

EA TIP Be careful in your application of object shadows. On lower-end machines, it can significantly impact gameplay. This memory drain is one of the reasons for the separation of Terrain and Object shadows.

DRAMA VS. REALISM

When you first begin to lay out a course, you must make a fundamental decision: are you creating a realistic simulated course? Or are you creating a fun and exciting computer golf course? The goals of each approach are quite different and thus affect how you use the tools. For more, ► [Laying out a Course](#).

For dramatic effects, you can place the sun wherever it is most advantageous for each hole. For realistic effects, however, you must pay attention to the details such as horizon location, climatic concerns, and the orientation of each hole.

DRAMATIC EFFECTS

If you're going for the best looking golf course around, you can use sun and shadows to paint good visuals for the players of your course and to highlight or hide terrain features.

EA TIP Again, remember that object shadows may take awhile to update. To speed your work in *Course Architect 2000*, you may choose to update them sporadically.

PRETTY PICTURES

Adding sun and shadows to your course gives you absolute command over the lighting. In effect, you become the lighting director on the "set" of your course. Imagine the long cast of pale afternoon shadows over the green. Or consider the image of Tiger Woods pitching from the rough over a water hazard that reflects a brilliant sun. With independent control of terrain and object shadows, you can add visual drama to each hole.

On most holes, there are no more than a couple of ways to play it. A golfer shoots a tee shot into a general area from which he strikes his second shot into a general area and proceeds until he is on the green, aimed at the cup. When you lay out your hole, you can effectively determine the golfer's shots and the corresponding camera shots. When using the sun and shadows in this manner, you can play around with different light angles and intensities and how they apply to the most likely shots for each hole.

EA TIP When changing the intensity of your sun and shadows, keep the changes from hole to hole relatively small. A moody hole followed by a very bright one catches the eye of even the most casual observer.

HIGHLIGHT TERRAIN FEATURES

Three-dimensional graphics are constrained by a fundamental fact: they are projected onto a two-dimensional space. Mathematically placed objects can give a sense of depth in a 3D field. On smaller screens, however, some of the details in the distance can be lost.

You can use the sun and shadows to highlight various terrain features. For example, if a hillock looms on the fairway 280 yards from the tee, you may want to highlight it for the golfers. Without lighting and shadows, a golfer may not see it in the distance and may be frustrated when his tee shot caroms off of it and into the rough. Similarly, you can use the sun and shadows settings to hide features.

REALISTIC EFFECTS

When you go for the truth of realism, you invite a lot more work. But the payoff for the work is a greater command of the tools.

REALISTIC HOLE ORIENTATION

In 2D View, you remember, each hole is oriented south to north. The top of 2D View is always north. As suggested elsewhere, you should lay out each hole in a north-south fashion in 2D View. While it is possible to lay out holes along an east-west flow, you can run out of space in the 2D View window, which can display a maximum width of 400 yards. In the game, the overhead view of an east-west hole can overlap the golfer's viewing area during gameplay. For best results in the tool and for display reason in the game, you should align the layout of your holes along the north-south axis.

However, if you're replicating a real course, each hole may have a different directional orientation. Hole 1 may point due north. Hole 2 may point southeast. To account for these changes while maintaining the fundamental north-south orientation of each hole inside *Course Architect 2000*, you may want to sketch your course and to make adjustments to the horizon and the sun and shadows for each hole in *Course Architect 2000*.

One way to define the orientation of each hole is through the course's scorecard. Call the course and ask them to send to you a scorecard that indicates the direction of north. When the card arrives:

1. Mark true north.

2. Mark where you want the sun to be placed.
3. Draw a line from the sun's position to the center of each hole.

The point at which the vector from the sun intersects the edge of each hole indicates the relative position of the sun for each hole. Use a protractor to measure the angle formed by a) the true north point, b) the center of each hole, and c) the point where the sun-vector intersects the edge of the hole. What is this figure? Write the figures for each hole on a piece of paper. When you start each hole, enter those figures in the Shadow Settings dialog box.

- ☐ To sync the sun settings with the horizon, you may choose to round off your angle measurements to the nearest multiple of thirty. Since each horizon frame covers 30 degrees, adjustments to a realistic sun position can be made at this interval. However, it would be very difficult to notice the difference inside the game.

However, the payoffs for such attention to detail are small. In the game, golfers may recognize the different orientation of each hole only by noticing the changed location of fixed objects in the horizon frames. The shadows on the course may appear to be sourced from a consistent angle across the eighteen holes. Since most golfers are interested in playing the game, few of them, in practice, actually notice the details. But if you are inclined to include them, the experts do pay attention.

Realistic Sun Direction

Default Hole Orientation

Is the direction which holes are lined up when viewed in Course Architect.

Relative Hole Orientation

Is the way a hole is placed in relation to other holes. This can be seen if a course overview is drawn by the user as described in Realistic Hole Orientation

Sun Direction (Relative to Course)

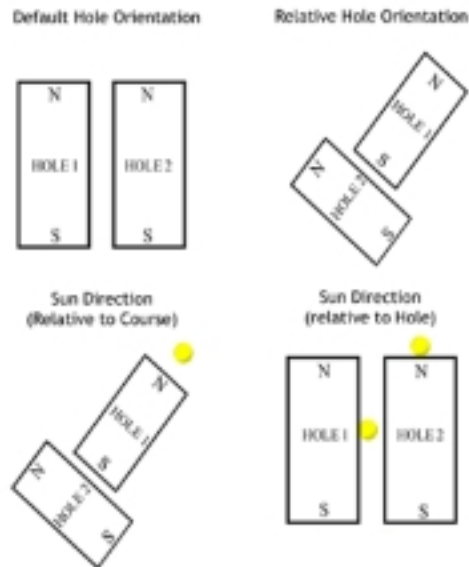
Is the user defined position of the sun in relation to the course.

Sun Direction (Relative to Hole)

can be set from the Shadow Settings menu. Setting the slider to 0 will place the sun South of center (the amount is determined by Sun Elevation slider) in the Default Hole Orientation while setting the slider to 180 will place the sun North of center.



Realistic Sun Direction



SYNCHING THE SUN AND THE HORIZON

On each hole, you must load, sequence, and place your horizon textures and your sun. Since you are attempting a realistic environment, you must track where in the horizon textures the sun is to be placed. This placement remains consistent for all eighteen holes, barring any attempts to account for the passage of time. For more, ➤ [Simulating the Passage of Time](#).

After you place the horizon to sync with the true orientation of the hole, you must place the sun so that its position corresponds to the place in the horizon texture where you have decided to place it. For each hole, place the horizons first and then add the sun and its shadows.

SIMULATING CLIMATES

Believe it or not, there are golf courses above the Arctic Circle. During summer in northern Norway, you can play eighteen holes at almost any time, as the sun is out eighteen hours a day.

In computer golf, you don't have to chase the sun. However, you may want to model climatic effects on the course. To take a course in northern Norway as an example, you can simulate the light and shadows of that environment through *Course Architect 2000*.

During Norwegian summers, the sun rises very low in the sky and suffuses the environment with a pale light. In *Course Architect 2000*, you place the sun at a low elevation and low magnification. The low sun casts pale shadows across your course.

Using the standard country-club objects, outline textures, and horizons, however, you're going to create an effect like an early winter morning. Spend some time browsing through the Content Library to find the pieces that you need. In our example, you would look for coniferous trees with which to populate your

terrain—not deciduous ones. And, you probably would want to make your outline textures a paler hue to match the light and harsher environment of Norway.

Advanced users can bring pieces from the content library into paint programs like *Adobe Photoshop* or *JASC Paint Shop Pro* to tailor them to individual courses. For example, you might take an object such as a tree and lighten the contrast and background colors in order to render it in paler, duller light.

- ☐ Be sure to save reworked pieces from the Content Library under different names.

SIMULATING THE PASSAGE OF TIME

Just as you can simulate the climate of the course, you can simulate the passage of time across a three- to five-hour round. If you want to model a four-hour round, for example, each hole requires 13 minutes and 20 seconds to complete. If you're willing to calculate the movement of the sun every 13 minutes and 20 seconds based upon the solar position in the sky and its intensity, well, hats off to you.

TEXTURES

Onto the outlines of each course, you can place any of fifteen textures. If you're familiar with textures from other graphical tools, textures in *Course Architect 2000* are a little different. Associated with each texture is a set of characteristics that define the sounds and physical properties of the texture. For example, you could define a texture that looks like green to act and sound like water.

Each course has fifteen textures available to it. Twelve out of the fifteen textures are standard play surfaces on most golf courses. For more, ► [Importing Textures](#).

Assigned to each texture is a set of sound and physical properties. These characteristics define how the ball responds to the texture when it lands.

Textures are accessible via two ways. You can apply textures to outlines via the Outline Properties pop-up. For more, ► [Changing the Outline Properties](#). This section addresses how to manipulate and define the textures themselves. The primary tool for interacting with the palette of textures for your course is the Texture Browser.

⇒ To open the Texture Browser, select TEXTURES from the View menu.

STANDARD TEXTURES

The following textures are standard surfaces that regularly appear on a golf course. While you can substitute other textures for these ones, at some point during development of a course, you're going to want to have them back. If you are attempting to develop textures of a specific geographic or climatic region, you should make your substitutions into the corresponding slots. If you create a tee that applies to an Arctic region, for example, you should place import the file in the Tee slot in the Texture Browser. The 12 texture types are as follows:

- ☐ Fairway
- ☐ Sand
- ☐ Rough
- ☐ Deep Rough
- ☐ Water
- ☐ Tee
- ☐ Green
- ☐ Dirt
- ☐ OB (Out of Bounds)
- ☐ Cart Path
- ☐ Fringe
- ☐ Drop Area (free drops in environmentally sensitive habitats)

In addition to the twelve texture archetypes above, you can add up to three unique textures in the following slots in the Texture Browser:

- ☐ Unique 1

- ☐ Unique 2
- ☐ Unique 3

TEXTURE FILE PARAMETERS

For information purposes, the parameters for the texture files are listed below.

- ☐ 15 textures per course
- ☐ TGA (Targa) format.
- ☐ 24-Bit
- ☐ 64 pixels by 64 pixels

For more on importing textures into the game, ➤ [Importing Textures](#).

APPLYING TEXTURES TO OUTLINES

In *Course Architect 2000*, textures are applied exclusively on outlines.

- ⇒ To apply a texture to an outline, use the selection tool in the Outline tab to select the desired outline. Right-click on the highlighted outline. The Outline Properties pop-up appears. Select the texture from the drop-down list.

For more, ➤ [Changing the Outline Properties](#).

THE TEXTURE BROWSER

Through the Texture Browser, you can review all of the textures that are available for use on your course.

- ⇒ To open the Texture Browser, select TEXTURES from the View menu.
- ⇒ To apply any changes to the textures, click APPLY.
- ⇒ To toggle display of the Advanced Texture Properties, click ADVANCED. For more, ➤ [Advanced Texture Properties](#).
- ⇒ To close the Texture Browser, click CLOSE.
- ⇒ To learn how to apply textures to outlines, ➤ [Changing the Outline Properties](#).

TEXTURE PROPERTIES

In the texture properties window, you establish properties of your textures.

- ⇒ To open the properties window for a texture, right-click on the texture in the Texture Browser. Select PROPERTIES. The properties window opens.
- ⇒ To assign a different sound on impact, select from the Hit Sound drop-down list.

Patterned is a special characteristic of textures. In the game, all textures are blended to give softer edges and definitions and to give a more natural-looking appearance. When set to ON, Patterned does not blend a texture into the surrounding textures. It's useful for displaying textures that you want to stand out from the background.

Show in Game Overhead informs the game to display the texture in the Overlay Display that appears in the game screen. Some textures do not need to be displayed. For example, showing the fringe of the green is not vital. However, a golfer should know where the sand traps and water hazards are located when tees up at the hole.

For a texture, you can customize the physics that are applied to balls that strike the texture. Friction, elasticity, roll, and drag applied to balls that strike the surface can be changed to your preference.

- ⇒ To customize the physics for the texture, place a check in the Custom box. The other options become available.
- ⇒ To allow a golfer to take a drop onto the surface, place a check in the Can Drop box.
 - ☐ Water is the only hazard on which it is impossible to drop. However, it is customary to prevent drops on man-made surfaces like a cart path or in sand.
- ⇒ To change a physical property, enter a new number in the appropriate box.
- ⇒ To apply any changes to the textures, click APPLY.
- ⇒ To toggle display of the Advanced Texture Properties, click ADVANCED. For more, ➤ [Advanced Texture Properties](#).
- ⇒ To close the Texture Browser, click CLOSE.

PHYSICS TERMS

NOTE: Changing the values for the physics on the textures greatly affects how the game plays. If you want to make changes, test them thoroughly inside the game.

ELASTICITY Determines the bounce of the texture. High numbers like 0.58 for cartpath textures are bouncy while low numbers like 0.05 for sand textures are sticky.

FRICTION Determines how the ball slows down when bouncing. Low numbers like 0.35 for cartpath textures mean the ball slows less, while high numbers like 0.9 for sand textures means the ball slows more.

DRAG Determines how the terrain “pushes back” against a rolling ball. Low numbers like 0.23 for cartpath texture indicate less drag, and high numbers like 1.5 for sand texture add drag.

MIN ROLL SPEED The minimum speed at which a ball can continue to roll across the texture.

ADVANCED TEXTURE PROPERTIES

Under Advanced Texture Properties, you can define all of the standard texture properties, plus generalized texture properties and special properties that apply to water textures.

GENERAL PROPERTIES

Under General Properties, you define which textures are unplayable or out of bounds. You can have up to three out-of-bounds textures and two unplayable textures.

- ☐ The texture OB is always defined as an out-of-bounds texture. Likewise, the Drop Area (Environmentally Secure Habitat) is always defined as an unplayable texture.
- ⇒ To define a texture as out of bounds or unplayable, select the texture name from the appropriate drop-down list.
- ⇒ To toggle the appearance of fairway stripes on the fairway texture, click the checkbox next to No Fairway Stripes.
- ☐ Fairway stripes can impact display speed in *Course Architect 2000* and the game.

PHYSICS

For a description of the physical properties of a texture, ➤ [Texture Properties](#).

WATER EFFECTS

You can define and apply effects to the water texture on your course.

- ⇒ To apply expanding splash rings when a ball lands on the texture, set Splashing Rings to ON.

You can define the intensity and occurrence of reflections and their blurring in the wind.

GAME SETUP Lets the game define the water blur from inside the game.

ALWAYS Sets the water blurring to always be the Calm setting.
CALM

ALWAYS Sets the water blurring to always be the Breezy setting.
BREEZY

ALWAYS Sets the water blurring to always be the Windy setting.
WINDY

- ⇒ To establish the intensity of reflections on the water in calm, breezy, or windy weather, use the slider bars or enter a number from 0 to 15 in the textbox. A setting of 15 is the maximum intensity.

OTHER

For a description of the Other properties of a texture, ➤ [Texture Properties](#).

NOTE: When you are using *Course Architect 2000*, it is highly recommended that you close all other programs, including *Tiger Woods 2000*. The tool needs as much RAM as your system can maximally provide.

IMPORTING TEXTURES

The texture strip contains fifteen textures. While you can edit and substitute all fifteen textures, use the Unique 1-3 slots for textures that do not directly replace

the first twelve textures. To replace the Deep Rough texture, for example, you should create or find a texture that has a similar appearance and set of physical properties.

- ❑ All fifteen textures are available for the entire course; they are a course-level resource.

You can import textures through Texture Browser into the texture strip as long as the textures meet the file parameters. For more, ► [Texture File Parameters](#).

- ⇒ To import a texture, right-click on the texture in the Texture Browser to replace. Select IMPORT. In the dialog box, select the texture file to import.

IMPORTANT NOTE: If you replace a texture, the change is applied to every instance of the old texture on the entire course. When possible, resolve your texture palette in the beginning of development.

RENDERING IN 3D

The computations involved in repositioning and displaying three-dimensional data involve millions of instructions. They can consume all of a CPU's capacity and as much RAM as your system makes available.

When you're rendering in *Course Architect 2000*, you may notice that updates to the 3D View are too slow for your preference. In addition to the 3D calculations, the renderer must recompute the sun's positions and its shadows across your terrain. In sum, it is a large computational effort to update 3D terrain, outlines, objects, horizons, suns, and shadow positions and to display them in the 3D View.

- ☐ You may see some improvement in updating the 2D View window by turning the display of objects to OFF.

SPACE CONSIDERATIONS

To maximize the speed of the renderer and to store the complicated 3D art of your courses, you should allow for plenty of hard drive space on your PC.

- ☐ Full Installation of *Course Architect 2000* (includes Content Library): 215MB
- ☐ Workspace: 100MB
- ☐ Full Installation of Content Library: 195MB

NOTE: When you are using *Course Architect 2000*, it is highly recommended that you close all other programs, including *Tiger Woods 2000*. The tool needs as much RAM as your system can maximally provide.

WHEN TO UPDATE THE 3D VIEW

For commands in which terrain is changed, 3D View is automatically updated with the new terrain information. Shadows are recalculated, too.

- ⇒ To update the 3D View window when a change has been made that does not affect the terrain, select UPDATE MASKS from the Outline menu or press [F2].
 - ☐ The **masks** are the textures that are applied to 3D terrain shapes to give the appearance of the surface of your course. The masks are the skin of the course.

If you only want to see the effect of the sun on its shadows without invoking the heavy computations of updating masks, you can update the shadows only.

- ⇒ To update the sun and shadow effects on terrain in 3D View, select UPDATE TERRAIN SHADOWS from the Shadows menu or press [F3].
- ⇒ To update the sun and shadow effects for objects in 3D View, select UPDATE OBJECT SHADOWS from the Shadows menu or press [F4].

3D DISPLAY OPTIONS

To speed rendering, turn off the render and display options that you don't need for your current editing task. Under the Camera menu, you can toggle the display settings. For more information on definitions of the display settings under the Camera menu, ➤ [Camera Displays](#).

In order of impact on the speed of the render, the render options are: Wire, Flat, and Textures for a 3D View of highest quality and slowest update speed.

For display options, a good approach is to turn off the displays that do not pertain to the task at hand. If you are placing objects, you do not need to see the terrain. If you are manipulating the terrain, you do not need to see horizon or sky.

- ☐ Fairway stripes and water reflections are handsome details in the game that are often unneeded in design. Toggle these displays OFF to speed performance.

These constraints may alter your design processes. If you are experiencing performance hits, it is worth the effort to experiment with different render and display settings.

NOTE: For additional performance tweaks to your system, see the enclosed Reference Card for *Course Architect 2000*.

IMPORT/EXPORT

Course Architect 2000 assembles a variety of file formats into an integrated development environment. Object, terrain, and texture files can be developed with other tools and brought into *Course Architect 2000*.

Similarly, terrain files can be exported so that others can assist you in development.

When developing your courses, don't be afraid to stand on the shoulders of giants. Whether you are using data files from the public domain or distributing the workload across a couple of friends—if you discover a way to shorten your development time or improve the quality of your work, do it. The import and export tools in *Course Architect 2000* give you flexibility in where you develop your data files for your courses.

Materials from the Content Library can be brought into paint tools where you can edit them for new use back in *Course Architect 2000*. For example, suppose you are building a course at a high latitude. The light on the course is paler, and the grasses are perhaps not less rich. So, you find a base set of textures through *Course Architect 2000*, copy the texture file to a work directory, and make it paler and cooler in a paint tool. When you finish your work, you copy the texture file back into the proper directory and import it through *Course Architect 2000*.

IMPORT TERRAIN

You can import terrain from two sources: from a paint tool in standard formats or from another *Course Architect 2000* workstation. In both cases, you import terrain on a hole-by-hole basis. For information on importing terrain for the entire course,

➤ [Advanced Terrain Topics](#).

NOTE: If you are exporting terrain from a course to import into another one, use <i>Course Architect 2000</i>'s .JEV format. It produces superior results to grayscale imports.

FROM PAINT TOOLS

In *Course Architect 2000*, start the hole into which you want to import a terrain file. Establish the basics of the hole, such as tee position, shots paths, and the overall size of the terrain. Keep the playable surface entirely within the defined terrain. Write down the height and width of the entire terrain. You'll need it later.

To create terrain in a paint tool:

1. After you've started the hole in *Course Architect 2000*, create a new file in your paint tool with the following parameters:

☐ 8-bit grayscale

EA TIP Start with a grayscale image that is at least 600 DPI (dots per inch). Don't convert from a color image, as the conversion can create a noticeable banding in the imported terrain.
--

- ☐ Height and Width in pixels match height and width of 2D View of hole in yards. If the height and width in pixels of the terrain file does not match the height and width in yards of the hole, the terrain file won't be imported.
 - ☐ All 256 grayscale gradients must be used.
 - ☐ The darkest color is the lowest. Lightest color is the highest.
2. When you import the terrain file into *Course Architect 2000*, you must inform the tool of the height representations in your file. When you enter the height in feet of the highest color, the tool assumes the darkest color is 0 feet and computes the height of each color step accordingly. Factor this future consideration into the development of your terrain file, if you are attempting to create terrain pieces of a specific size.
 - ☐ The **step height** refers to the change in height with a change of one gradient in your terrain file. The formula to calculate the step height: $\text{step height} = \text{highest height in feet} / 256$
 3. When you finish your terrain file, save it in one of the following formats: PC Exchange (.PCX), Windows Bitmap (.BMP), or Targa (.TGA).
 - ☐ Give your file a name in the following convention: "holeXXelv.ext". For example, "hole02elv.bmp".
 4. Load *Course Architect 2000*. Open the project. Open the hole into which you want to import the terrain file.
 5. From the File menu, select IMPORT TERRAIN.
 6. In the dialog box, find the file and select it. Click OPEN.
 7. In the subsequent dialog box, enter the height that the lightest color in your terrain file represents.
 8. If your terrain file is the exact dimensions of your hole, it is imported.

Do that process for each hole in your course, as needed. For tips on shaping a general grade to your course, ➤ [Advanced Terrain Topics](#).

FROM COURSE ARCHITECT 2000

Importing terrain from other *Course Architect 2000* workstations is straightforward. The source workstation exports it through the EXPORT command on the File menu, and the destination workstation imports it through the IMPORT command.

When exporting and importing, keep in the mind the following considerations:

- ☐ Export it as file type .JEV.
- ☐ Height and width of source and destination holes must match.

For more on exporting terrain, ➤ [Export Terrain](#).

IMPORT HORIZONS AND SKIES

You cannot import horizons and skies. Horizon and sky development requires a solid understanding of photographic principles, access to 360-degree landscape photographs, and editing skills to seamlessly blend the prepped files.

While you may be technically proficient at creating great-looking horizons and skies, the wide variety of horizons and skies included in the Content Library provide plenty of options for the background appearance of your courses.

IMPORT TEXTURES

For each course, you have a usable palette of fifteen textures. Into this palette, you can substitute any textures that meet the texture file parameters. For more, ► [Texture File Parameters](#).

- ☐ The first twelve textures on the texture strip are basic course textures. Use the final three slots (Unique 1-3) to import specialty textures that do not apply to the first twelve. If you substitute for one of the first twelve, choose a close substitute. For example, if you substitute for the Sand texture, choose a texture that looks like sand and has the same physical properties.

Before you attempt to create textures from scratch, begin your search for textures in the Content Library. For more, ► [Content Library](#).

EA TIP The World Wide Web can be a great source of textures. Copy and save them to your local drive. In a paint program, resize them and save them in the proper format for *Course Architect 2000*. **Observe all copyright notices.**

If you cannot find the right texture among the texture strips in the Content Library, you can import textures into the Texture Browser as long as you develop your objects with external tools under the following parameters:

- ☐ 8-bit with no Alpha Channel
- ☐ 64 pixels by 64 pixels
- ☐ TARGA format with the ".TGA" extension in the filename.

To import a texture:

1. From the View menu, select TEXTURES. The Texture Browser opens.
2. In the Texture Browser, click the slot into which you would like to substitute the imported texture.
 - ☐ Textures 0-11 are basic course textures. Add specialty textures to slots 12-14 (Unique 1-3).
3. Right-click on the texture. Select IMPORT.
4. In the dialog box, find and select the file to import. Click OPEN.
5. Set the Recoloring and Shade ranges, then click OK.
6. The texture appears in the Texture Browser.

Before you use the texture on your course, set the Properties and Advanced settings first.

- ⇒ To set the properties, right-click on the texture in the Texture Browser. Select PROPERTIES. The Properties pop-up opens. For more, ► [Texture Properties](#).
- ⇒ To set Advanced Properties, click on the texture in the Texture Browser. At the bottom of the screen, select ADVANCED.

In the Advanced Properties, you define key characteristics such as how the texture should play in the game. For more, ► [Advanced Texture Properties](#).

IMPORT OBJECTS

The Content Library contains almost 200MB of common and uncommon objects to place on your golf course. Since these objects have been specially made for use with *Course Architect 2000*, we recommend that you try to find a suitable option among them. For more on the Content Library, ► [Content Library](#).

If you find an object that looks similar to your desired object, you might be able to define an alias for the original object and then tweak it to make your desired object. For more on the Content Library, ► [Object Aliases](#).

If you cannot find the right object in the Content Library, you can import objects into the Object Browser as long as you define your objects with external tools under the following parameters:

- ☐ 8-bit, with no Alpha Channel
- ☐ 640 x 480 maximum pixel dimensions
- ☐ PCX format with the ".PCX" extension

The height and width of the source file can be any size. For purposes of object placement and display, the size of the object on the course is defined inside the Object Browser.

To import an object:

1. Find the object that you want to import in the Content Library. For more, ► [Content Library](#).
2. Select OBJECTS from the View menu. The Object Browser opens.
3. In the Object Browser, select the category to which the imported object belongs: Tree or Special Object. The object category defines the play characteristics and accompanying sound when the ball strikes it.
4. From the appropriate category, click a slot that you would like to substitute with the imported object.
 - ☐ Scroll down to view empty slots. Fill empty slots before removing defined objects.
5. Right-click on the object. Select IMPORT.
6. In the dialog box, find and select the file to import. Click OPEN.
7. The object appears in the Object Browser.

Before you place the object into your terrain, set the Properties and Advanced settings first.

- ⇒ To set the properties, right-click on the object in the Object Browser. Select PROPERTIES. The Properties pop-up opens. For more, ► [Object Properties](#).
- ⇒ To set Advanced Properties, click on the object in the Object Browser. At the bottom of the screen, select ADVANCED.

In the Advanced Properties, you define the height and width of the object as it appears in the terrain. Also, you can place the anchor point for the object, which

allows you to partially bury the object in the terrain. For more, ➤ [Advanced Object Properties](#).

IMPORT COURSES

Course Architect 2000 is compatible with *Tiger Woods 99 PGA TOUR Golf*, *Tiger Woods PGA TOUR 2000*, and subsequent EA SPORTS golf titles.

You cannot import courses from earlier versions or other games. Nor can you import compiled courses back into *Course Architect 2000*.

EXPORT TERRAIN

You can export the terrain for individual holes for importation into *Course Architect 2000* installed on other workstations.

To export terrain:

1. Open the course and hole from which you want to export terrain.
2. From the File menu, select EXPORT TERRAIN.
3. Save the file in a location other than the directory of the source hole. If you save it in the directory of the source hole, the tool may confuse the two elevation data files.
 - ☐ Give your file a name in the following convention: "holeXXelv.jev". For example, "hole02elv.jev". The hole number should represent the hole number for the destination course.
4. Transfer the file to the local hard drive of the destination workstation.
 - ☐ Don't load files into *Course Architect 2000* over a network or external drive.
5. On the destination workstation, import the terrain file into the desired project and hole. For more on importing terrain, ➤ [Import Terrain](#).

EXPORT COURSES

After you have started Hole 1, you can export your course to the game at any time. From the game, you can play any of the holes that you have initialized through the New Hole Wizard.

NOTE: To export a course to the game, you must have a Hole #1. Attempting to play rounds across holes that have not been started can cause crashes in some versions of the game. To test incomplete courses in the game, use Practice Mode.

- ➡ To export a course, select COPY TO GAME from the File menu. The tool prepares the files and copies them to the courses directory of your installed EA SPORTS golf game.
 - ☐ A compiled 18-hole course can take from 50-60MB, depending on the size of the course and number of data files.

NOTE: You can export courses to *Tiger Woods 99 PGA TOUR Golf* and *Tiger Woods PGA TOUR 2000*.

CONTENT LIBRARY

In addition to the default objects that are accessible through the Object Browser, *Course Architect 2000* comes with almost 200MB of other objects and textures that can be incorporated into your courses.

Using these catalog pages, you can review all of the materials in the Content Library.

Or you can browse through the folders on the disk to review the content library.

- To open a catalog page in a folder, double-click the file with a .CHM extension.

For general information on how to import objects and textures into *Course Architect 2000*, ► [Import/Export](#).

LOCATION OF LIBRARY

The second CD contains *Course Architect 2000* and its libraries.

- ☐ If you installed the Content Library onto your local hard drive, find the *Architect* folder. The Content Library is stored inside.

TABLE OF CONTENTS TO CATALOG

Click on any of the following links to access the catalog page of objects in the described category.

A listing for an element in the Content Library contains the image's filename, size, and a thumbnail for it.

CATEGORY	DESCRIPTION
Ambient objects	Miscellaneous ambient objects
Animals	Deer, ducks, and other critters
Buildings	Includes houses
Bushes	Short, tall, fat, bald and bushy.
Cacti	Many versions of the cactus plant—good for desert courses
Grasses	Bermuda, Bent, and other types
Golf-Related Objects	Yardage markers, flags, and more.
Rocks	From pebbles to boulders in a variety of geological patterns
Trees	Many varieties to match the range of climates
Textures	A variety of surface textures for all course types

AMBIENT OBJECTS

Ambient objects are the small touches that players remember about your course. When you add these items, players recognize and appreciate your attention to detail.

For information on how to import objects into *Course Architect 2000*, ► [Import Objects](#).

Ambient Objects



Ballcart.tga
531x210x24(RGB)



cablebx.TGA
152x210x24(RGB)



CLOCK.TGA
77x310x24(RGB)



clock2.tga
185x295x24(RGB)



lamp.TGA
100x260x24(RGB)



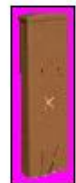
podium.tga
165x250x24(RGB)



pwrbox01.TGA
140x310x24(RGB)



pwrbox02.TGA
39x135x24(RGB)



pwrbox03.tga
46x135x24(RGB)



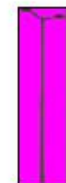
skull1.TGA
305x160x24(RGB)



skull2.TGA
234x160x24(RGB)



speakers.tga
40x295x24(RGB)



stlight.tga
65x243x24(RGB)



table.TGA
108x260x24(RGB)



UMBRELLA.TGA
180x150x24(RGB)



WATRUMP.TGA
97x310x24(RGB)

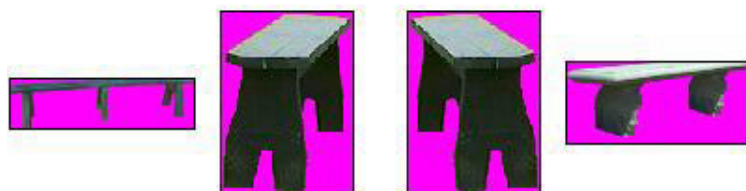
[1]

BENCHES

Benches



BEN01.TGA 267x140x24(RGB) BEN02.TGA 469x140x24(RGB) BEN03.TGA 267x140x24(RGB) BEN04.TGA 441x125x24(RGB)



BEN05.TGA 441x125x24(RGB) Bench01.tga 94x130x24(RGB) BenCH03.tga 94x130x24(RGB) bench81.TGA 620x280x24(RGB)

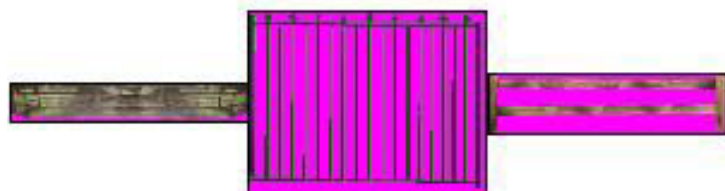


bench82.TGA 640x196x24(RGB)

[1]

FENCES

Fences



fence01.TGA 636x135x24(RGB) fence02.TGA 177x135x24(RGB) fence03.tga 470x125x24(RGB)

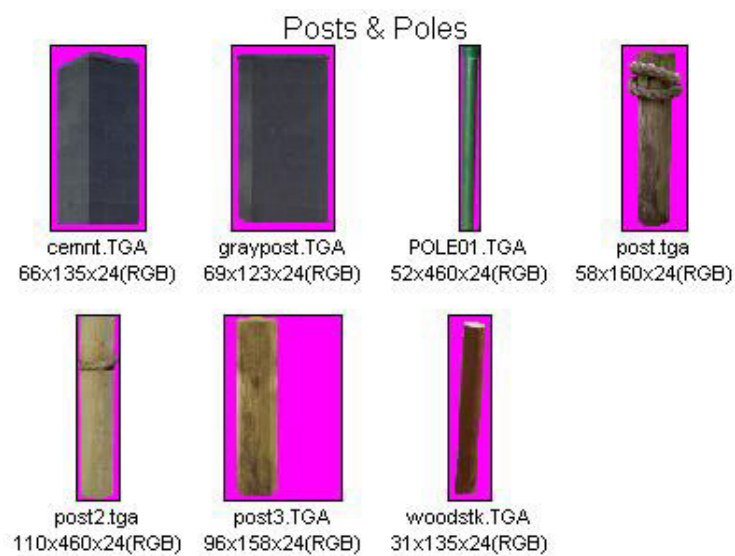
[1]

GARBAGE CANS



[1]

POSTS & POLES



[1]

SIGNS

Signs



nocarts.TGA
132x135x24(RGB)



stopsign.TGA
123x510x24(RGB)

[1]

WALLS

Walls



rckwall.TGA
323x220x24(RGB)

rckwallw.TGA
323x220x24(RGB)

rkwallw2.TGA
323x220x24(RGB)



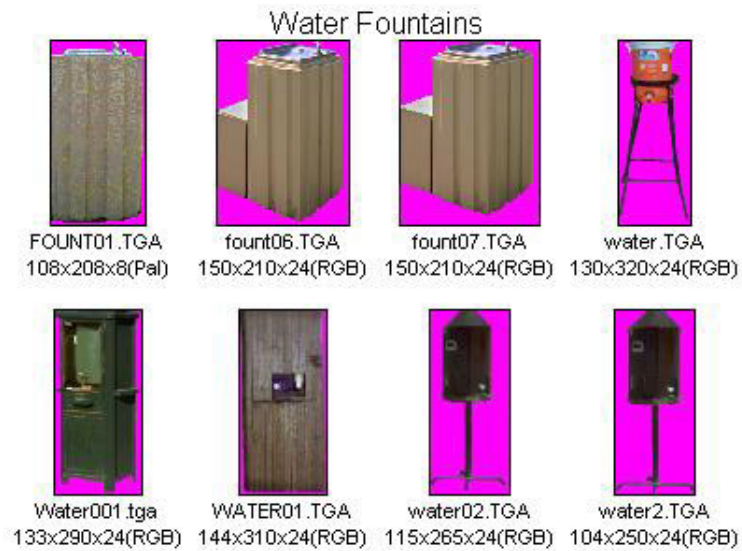
wall.TGA
54x77x24(RGB)



WALL01.TGA
239x208x24(RGB)

[1]

WATER FOUNTAINS

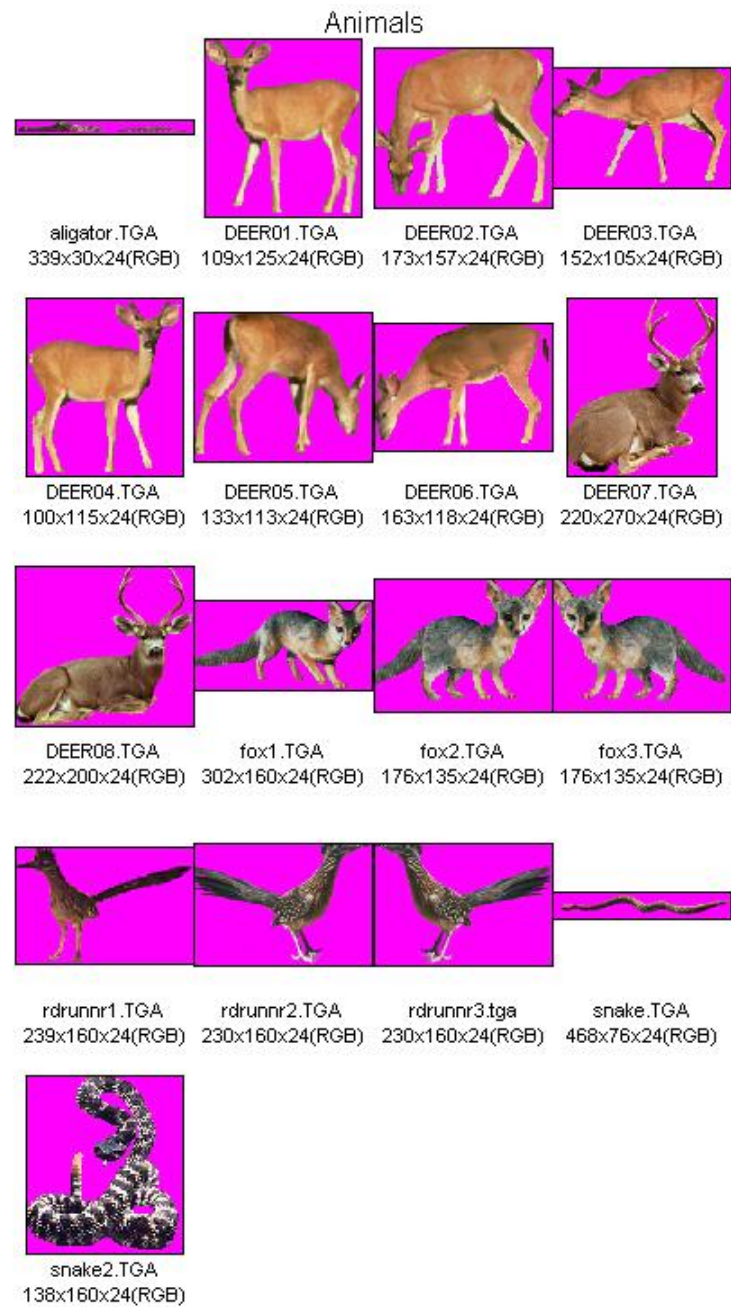


[1]

ANIMALS

What's a golf course without the occasional animal? Add a bit of nature to your outdoor environments. Ducks, geese, deer, squirrels and others.

For information on how to import objects into *Course Architect 2000*, ► [Import Objects](#).



[1]

BUILDINGS

All kinds of structures can be found on or near a golf course—houses and equipment shacks, to name a couple of varieties. You can find them in the Content Library.

For information on how to import objects into *Course Architect 2000*, ► [Import Objects](#).

Buildings



bldg01.TGA 516x141x24(RGB)
bldg02.TGA 749x220x24(RGB)
bldg03.TGA 283x130x24(RGB)
bldg04.tga 486x160x24(RGB)



bldg05.TGA 414x160x24(RGB)
gazebo.tga 147x98x24(RGB)
gazebo2.TGA 291x310x24(RGB)
Hotel01.tga 624x210x24(RGB)



House01.tga 495x170x24(RGB)
House02.tga 516x150x24(RGB)
House03.tga 384x200x24(RGB)
House04.tga 483x170x24(RGB)



House05.tga 339x200x24(RGB)
House07.tga 410x150x24(RGB)
House08.tga 495x170x24(RGB)
House09.tga 498x150x24(RGB)



House10.tga 633x150x24(RGB)
House11.tga 513x150x24(RGB)
House12.tga 561x170x24(RGB)
House13.tga 564x170x24(RGB)

Buildings



House14.tga 354x150x24(RGB) House15.tga 496x170x24(RGB) House16.tga 473x170x24(RGB) House17.tga 469x170x24(RGB)



House19.tga 324x170x24(RGB) House20.tga 520x170x24(RGB) House21.tga 489x150x24(RGB) House22.tga 429x170x24(RGB)



House23.TGA 603x210x24(RGB) House24.TGA 400x210x24(RGB) House25.TGA 607x210x24(RGB) House26.TGA 581x175x24(RGB)



House27.TGA 640x192x24(RGB) House28.TGA 594x174x24(RGB) House29.TGA 539x210x24(RGB) House30.TGA 560x210x24(RGB)



House31.TGA 640x210x8(Pal) House32.TGA 593x260x24(RGB) House33.TGA 629x185x24(RGB) House34.TGA 603x185x24(RGB)

Buildings



House35.tga 616x210x24(RGB) House36.tga 640x235x24(RGB) House37.tga 622x210x24(RGB) House38.tga 539x260x24(RGB)



House39.tga 573x227x24(RGB) House40.tga 599x210x24(RGB) House41.tga 569x260x24(RGB) House42.tga 604x230x24(RGB)



House43.TGA 582x260x24(RGB) House44.tga 640x139x24(RGB) House45.tga 640x247x24(RGB) House46.TGA 626x260x24(RGB)



House47.tga 495x238x24(RGB) House48.tga 579x260x24(RGB) House49.tga 475x230x24(RGB) House50.tga 640x203x24(RGB)



House51.tga 640x197x24(RGB) House52.tga 640x168x24(RGB) House53.TGA 324x160x24(RGB) House54.TGA 502x220x24(RGB)

Buildings



House55.TGA 594x174x24(RGB)
House56.TGA 539x210x24(RGB)
House57.tga 375x150x24(RGB)
House58.tga 466x200x24(RGB)



House59.TGA 560x210x24(RGB)
House60.TGA 479x260x24(RGB)
House61.TGA 603x185x24(RGB)
House62.TGA 626x220x24(RGB)



House63.TGA 640x186x24(RGB)
House64.tga 539x260x24(RGB)
House65.tga 573x227x24(RGB)
House66.TGA 436x220x24(RGB)



House67.TGA 632x260x24(RGB)
House68.tga 710x135x24(RGB)
House69.tga 460x148x24(RGB)
House70.tga 425x150x24(RGB)



House71.TGA 530x260x24(RGB)
House72.TGA 529x260x24(RGB)
House73.TGA 466x260x24(RGB)
House74.tga 245x150x24(RGB)

Buildings



House75.tga House76.TGA House77.TGA House78.TGA
640x103x24(RGB) 500x280x24(RGB) 495x271x24(RGB) 450x300x24(RGB)



House79.TGA House80.tga House81.tga House82.tga
640x142x24(RGB) 334x150x24(RGB) 488x170x24(RGB) 336x200x24(RGB)



House83.tga House84.tga House85.tga House86.tga
398x150x24(RGB) 505x200x24(RGB) 428x150x24(RGB) 438x200x24(RGB)



House87.tga House88.tga House89.tga House90.tga
473x170x24(RGB) 640x113x24(RGB) 368x150x24(RGB) 358x150x24(RGB)



House91.tga House92.tga House93.tga House94.tga
326x150x24(RGB) 629x150x24(RGB) 388x150x24(RGB) 338x150x24(RGB)

Buildings



House95.tga REST01.TGA REST02.TGA REST03.TGA
529x170x24(RGB) 492x240x24(RGB) 510x240x24(RGB) 403x200x24(RGB)



sighse.TGA sighse2.TGA station.TGA
614x200x24(RGB) 587x207x24(RGB) 406x210x24(RGB)

[6]

BUSHES

Place these bushy objects on your course to add to the natural ambience and to challenge players to avoid them.

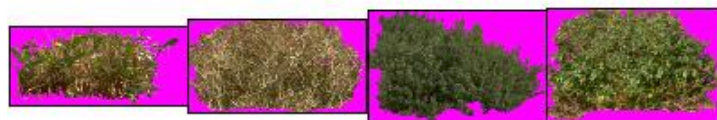
For information on how to import objects into *Course Architect 2000*, ► [Import Objects](#).

Bushes



[1]

Bushes



Bush21.tga 293x135x24(RGB) Bush22.tga 287x150x24(RGB) Bush23.tga 285x183x24(RGB) Bush24.tga 229x150x24(RGB)



Bush25.tga 311x210x24(RGB) Bush26.tga 271x183x24(RGB) Bush27.tga 226x150x24(RGB) Bush28.tga 325x183x24(RGB)



Bush29.tga 313x130x24(RGB) Bush30.tga 295x213x24(RGB) Bush31.tga 183x150x24(RGB) Bush32.TGA 293x135x24(RGB)



Bush34.TGA 320x210x24(RGB) Bush35.TGA 394x200x24(RGB) Bush36.TGA 291x290x24(RGB) Bush37.TGA 407x260x24(RGB)



Bush38.TGA 317x210x24(RGB) Bush39.TGA 337x225x24(RGB) Bush40.TGA 296x210x24(RGB) Bush41.TGA 291x210x24(RGB)

[2]

Bushes



Bush42.TGA 327x210x24(RGB)
Bush43.TGA 256x210x24(RGB)
Bush44.TGA 342x220x24(RGB)
Bush45.TGA 438x220x24(RGB)



Bush46.TGA 303x220x24(RGB)
Bush47.TGA 293x220x24(RGB)
Bush48.TGA 354x220x24(RGB)
Bush49.TGA 367x220x24(RGB)



Bush50.TGA 257x204x8(Pal)
Bush51.TGA 285x183x24(RGB)
Bush52.TGA 193x204x8(Pal)
Bush53.TGA 327x210x24(RGB)

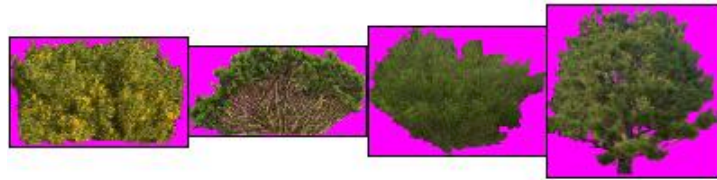


Bush54.TGA 293x204x8(Pal)
Bush55.tga 268x150x24(RGB)
Bush56.TGA 295x220x24(RGB)
Bush57.tga 220x208x24(RGB)



Bush58.tga 183x154x8(Pal)
Bush59.TGA 180x270x24(RGB)
Bush60.tga 325x183x24(RGB)
Bush61.tga 242x153x24(RGB)

Bushes



Bush62.tga 242x153x24(RGB)
Bush63.tga 296x150x24(RGB)
Bush64.TGA 285x208x24(RGB)
Bush65.TGA 216x210x24(RGB)



Bush66.tga 212x170x24(RGB)
Bush67.TGA 245x204x8(Pal)
Bush68.tga 374x150x24(RGB)
Bush69.tga 312x160x24(RGB)



Bush70.tga 235x150x24(RGB)
Bush71.tga 259x130x24(RGB)
Bush72.tga 346x158x24(RGB)
Bush73.tga 296x208x24(RGB)



Bush74.tga 320x170x24(RGB)
Bush75.tga 183x154x24(RGB)
Bush76.tga 290x154x24(RGB)
Bush77.TGA 245x204x24(RGB)



Bush78.TGA 319x204x24(RGB)
Bush79.TGA 224x204x24(RGB)
Bush80.TGA 286x158x24(RGB)
Bush81.tga 234x254x24(RGB)

Bushes



Bush82.TGA 261x204x24(RGB)
 Bush83.TGA 198x154x24(RGB)
 Bush84.tga 193x204x24(RGB)
 Bush85.TGA 258x154x24(RGB)



Bush86.TGA 293x204x24(RGB)
 Bush87.tga 185x204x24(RGB)
 Bush88.TGA 323x143x24(RGB)
 Bush89.TGA 280x204x24(RGB)



Bush90.tga 220x210x24(RGB)
 Bush91.tga 294x210x24(RGB)
 Bush92.TGA 295x213x24(RGB)
 Bush93.TGA 365x205x24(RGB)



flower01.TGA 200x220x24(RGB)
 flower02.tga 266x200x24(RGB)
 flower03.tga 280x210x24(RGB)
 flower04.tga 179x158x24(RGB)



flower05.tga 206x183x24(RGB)
 flower06.TGA 334x185x24(RGB)
 flower07.TGA 289x185x24(RGB)
 flower08.tga 244x204x24(RGB)

Bushes



flower09.TGA 348x154x24(RGB)
 flower10.tga 305x170x24(RGB)
 flower11.tga 213x170x24(RGB)
 flower12.TGA 360x189x24(RGB)



flower13.TGA 174x135x24(RGB)
 flower14.TGA 335x210x24(RGB)
 flower15.TGA 288x210x24(RGB)
 flower16.TGA 310x260x24(RGB)



flower17.TGA 206x185x24(RGB)
 flower18.TGA 360x210x24(RGB)
 flower19.TGA 426x210x24(RGB)
 flower20.TGA 182x185x24(RGB)



flower21.TGA 289x210x24(RGB)
 flower22.TGA 261x204x8(Pal)
 flower23.TGA 214x185x24(RGB)
 flower24.TGA 357x210x24(RGB)



flower25.TGA 268x210x24(RGB)
 flower26.TGA 318x210x24(RGB)
 flower27.TGA 274x210x24(RGB)
 flower28.TGA 435x210x24(RGB)

[6]

Bushes



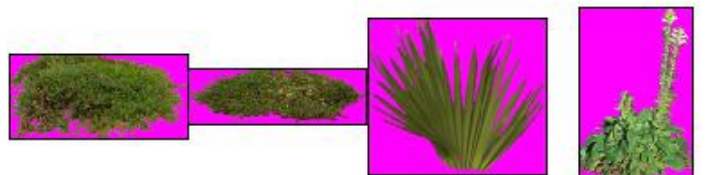
flower29.TGA 259x210x24(RGB)
grpbsh01.TGA 388x199x24(RGB)
grpbsh02.TGA 320x220x24(RGB)
Hedge01.TGA 267x208x24(RGB)



Hedge02.tga 245x197x24(RGB)
Hedge03.tga 251x157x24(RGB)
Hedge04.tga 524x210x24(RGB)
Hedge05.tga 336x210x24(RGB)



Hedge06.tga 271x210x24(RGB)
Hedge07.TGA 298x190x24(RGB)
iceplnt1.tga 353x150x24(RGB)
iceplnt2.tga 274x150x24(RGB)



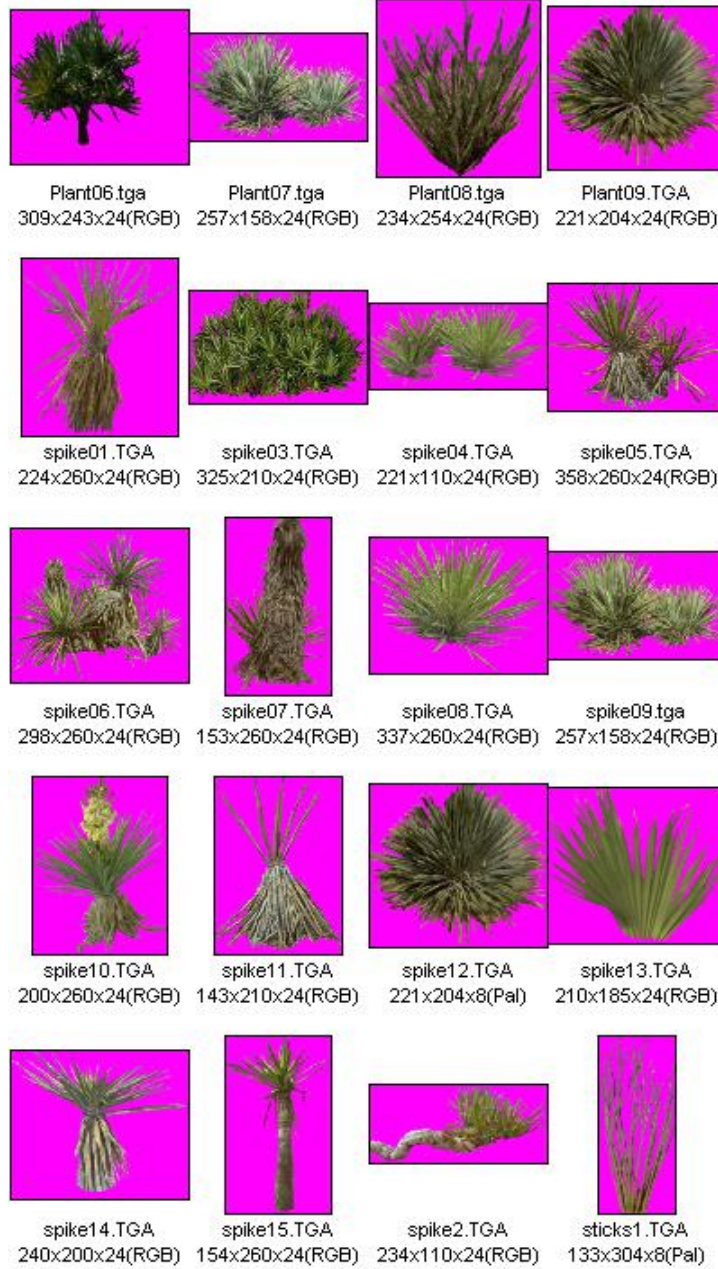
iceplnt3.tga 351x170x24(RGB)
iceplnt4.tga 371x120x24(RGB)
Plant001.tga 210x185x24(RGB)
PLANT01.TGA 157x250x24(RGB)

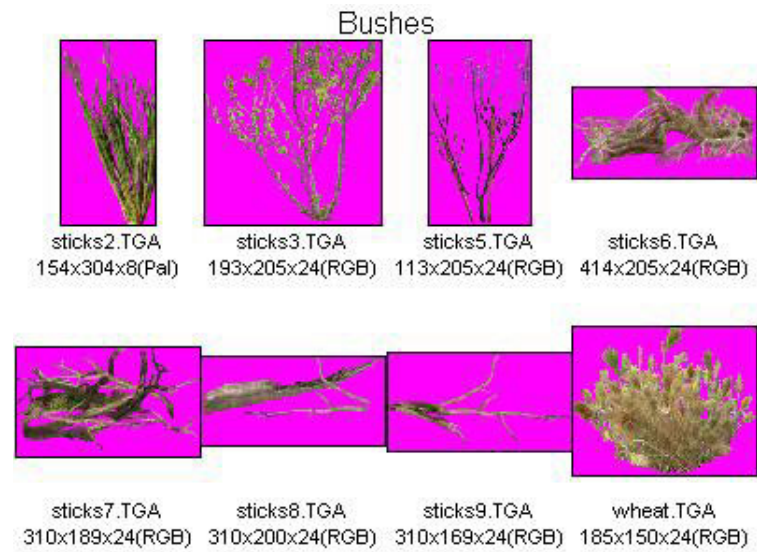


PLANT02.TGA 269x185x24(RGB)
Plant03.TGA 247x170x24(RGB)
Plant04.tga 247x170x24(RGB)
Plant05.tga 247x157x24(RGB)

[7]

Bushes





[9]

CACTI

Added especially for use in desert courses, the variety of cactus plants bring the feeling of a desert to your design workstation.

For information on how to import objects into *Course Architect 2000*, ► [Import Objects](#).

Cacti



cactus01.TGA 242x185x24(RGB)
cactus02.TGA 193x185x24(RGB)
cactus03.TGA 225x185x24(RGB)
cactus04.TGA 242x205x24(RGB)



cactus05.TGA 235x185x24(RGB)
cactus06.TGA 313x205x24(RGB)
cactus07.TGA 256x204x8(Pal)
cactus08.TGA 348x205x24(RGB)



cactus09.TGA
256x204x24(RGB)



cactus10.TGA
105x404x24(RGB)



cactus11.tga
54x404x24(RGB)



cactus12.tga
50x404x24(RGB)



cactus13.tga
52x404x24(RGB)



cactus14.TGA
108x204x24(RGB)



cactus15.tga
312x304x24(RGB)



cactus16.TGA
64x304x24(RGB)



cactus17.TGA
98x404x24(RGB)

[1]

GOLF-RELATED OBJECTS

What would a golf course be without flags, yardage markers, and other golf equipment? Use these objects to give your course a taste of the game itself.

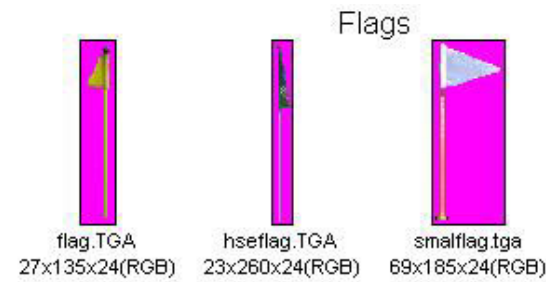
For information on how to import objects into *Course Architect 2000*, ► [Import Objects](#).

BALL WASHERS



[1]

FLAGS



[1]

GOLF EQUIPMENT

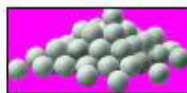
Golf Equipment



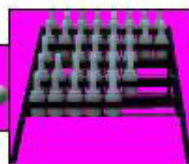
Bagholder.tga
88x260x24(RGB)



ballbukt.tga
179x210x24(RGB)



balstack.tga
437x210x24(RGB)



bottles.TGA
304x260x24(RGB)



seedbox.tga
153x150x24(RGB)



seedbukt.TGA
92x135x24(RGB)



WODBUCKT.TGA
222x210x24(RGB)

[1]

OB MARKERS

OB Markers



OBMARK01.TGA
103x460x24(RGB)



Obmarker.tga
71x550x24(RGB)



obmrk.TGA
33x135x24(RGB)



obmrk2.TGA
57x135x24(RGB)



whstick.TGA
23x135x24(RGB)

[1]

YARDAGE MARKERS



[1]

GRASSES

A wide variety of grasses that can be found on courses all over the world. These grass objects are placed as tufts on the surface of the course to add a rougher edge to the perimeter or to give the semblance of a fresh mowing.

For information on how to import objects into *Course Architect 2000*, ► [Import Objects](#).

Grasses



Grass01.tga 249x185x24(RGB)
Grass02.tga 251x185x24(RGB)
Grass03.tga 247x183x24(RGB)
Grass04.tga 202x158x24(RGB)



Grass05.tga 251x185x24(RGB)
Grass06.tga 249x185x24(RGB)
Grass07.tga 218x208x24(RGB)
Grass08.tga 154x204x24(RGB)



Grass09.tga 165x154x24(RGB)
Grass10.TGA 136x154x24(RGB)
Grass11.TGA 249x185x24(RGB)
Grass12.TGA 251x185x24(RGB)



Grass13.tga 247x183x24(RGB)
Grass14.tga 202x158x24(RGB)
Grass15.TGA 163x135x24(RGB)
Grass16.TGA 253x185x24(RGB)



Grass17.TGA 259x195x24(RGB)
Grass18.TGA 228x218x24(RGB)
Grass19.TGA 235x135x24(RGB)
Grass20.TGA 278x135x24(RGB)

Grasses



[2]

Rocks

A pile of rocks suitable for a number of geological environments.

For information on how to import objects into *Course Architect 2000*, ► [Import Objects](#).

GROUPED ROCKS

Grouped Rocks



rocks01.TGA 289x160x24(RGB) rocks02.TGA 353x205x24(RGB) rocks03.tga 411x160x24(RGB) rocks04.TGA 182x160x24(RGB)



rocks05.tga 221x139x24(RGB) rocks06.tga 264x96x24(RGB) rocks07.TGA 421x195x24(RGB) rocks08.TGA 489x195x24(RGB)



rocks09.TGA 481x195x24(RGB) rocks10.TGA 538x161x24(RGB) rocks11.TGA 551x198x24(RGB) rocks12.TGA 361x195x24(RGB)



rocks13.tga 182x154x24(RGB) rocks14.tga 100x50x24(RGB) rocks15.tga 200x154x24(RGB) rocks16.tga 264x96x24(RGB)



rocks17.tga 170x139x24(RGB) rocks18.tga 112x45x24(RGB)

[1]

SINGLE ROCKS

Rocks



rock01.TGA 262x168x24(RGB)
rock02.TGA 222x214x24(RGB)
rock04.TGA 376x214x24(RGB)
rock05.TGA 238x214x24(RGB)



rock06.TGA 400x168x24(RGB)
rock07.TGA 290x168x24(RGB)
rock08.TGA 166x141x24(RGB)
rock09.TGA 260x160x24(RGB)



rock10.TGA 145x160x24(RGB)
rock11.TGA 248x205x24(RGB)
rock13.TGA 193x160x24(RGB)
rock14.TGA 218x160x24(RGB)



rock16.TGA 133x160x24(RGB)
rock17.TGA 246x160x24(RGB)
rock18.TGA 242x160x24(RGB)
rock19.TGA 212x204x24(RGB)



rock20.TGA 226x160x24(RGB)
rock21.TGA 178x160x24(RGB)
rock22.tga 490x160x24(RGB)
rock23.TGA 228x204x24(RGB)

[1]

Rocks



rock25.TGA 239x160x24(RGB)
rock26.TGA 193x110x24(RGB)
rock27.TGA 194x160x24(RGB)
rock28.TGA 285x160x24(RGB)



rock29.TGA 366x204x24(RGB)
rock30.tga 403x183x24(RGB)
rock31.tga 180x183x24(RGB)
rock32.TGA 219x180x24(RGB)



rock33.TGA 208x117x24(RGB)
rock34.TGA 156x104x24(RGB)
rock35.TGA 228x204x24(RGB)
rock36.TGA 390x158x24(RGB)



rock37.TGA 280x158x24(RGB)
rock38.TGA 252x158x24(RGB)
rock39.TGA 212x204x24(RGB)
rock41.tga 239x150x24(RGB)



rock42.tga 246x270x24(RGB)
rock43.tga 235x125x24(RGB)
rock44.tga 221x130x24(RGB)
rock45.tga 183x130x24(RGB)

[2]

TREES

Many kinds of trees for your courses. Trees lend a sense of integration of the course into the natural environment around it. Without trees, a course can look like a giant lawn.

EA TIP Change the anchor point of trees and use aliases to expand the variety of trees available in the Object Browser. For more, ► [The Object Browser](#).

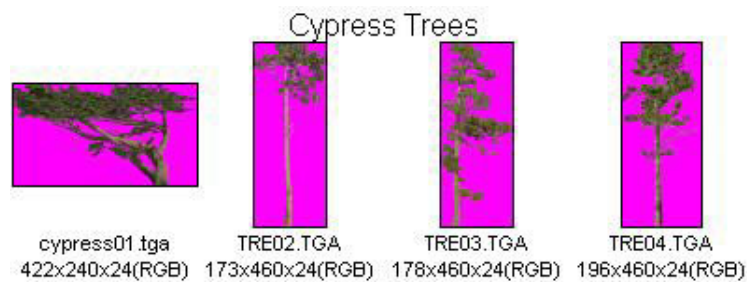
For information on how to import objects into *Course Architect 2000*, ► [Import Objects](#).

BIRCH



[1]

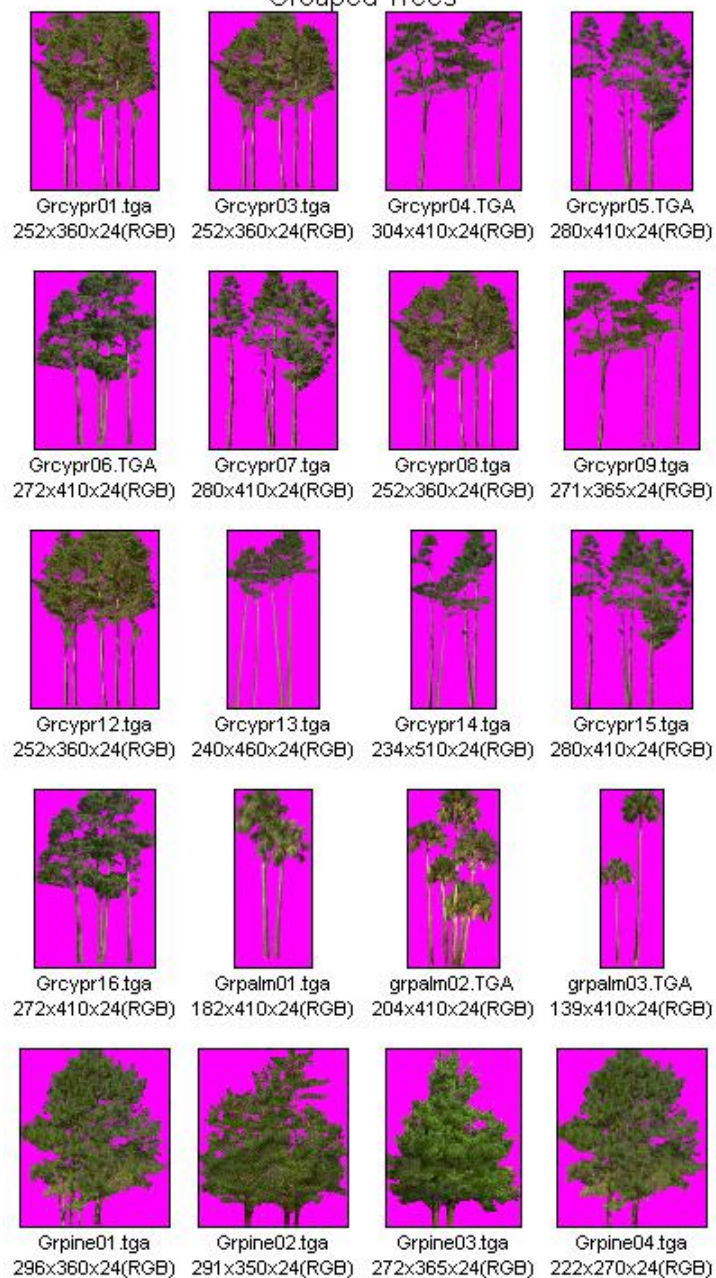
CYPRESS



[1]

GROUPED TREES

Grouped Trees



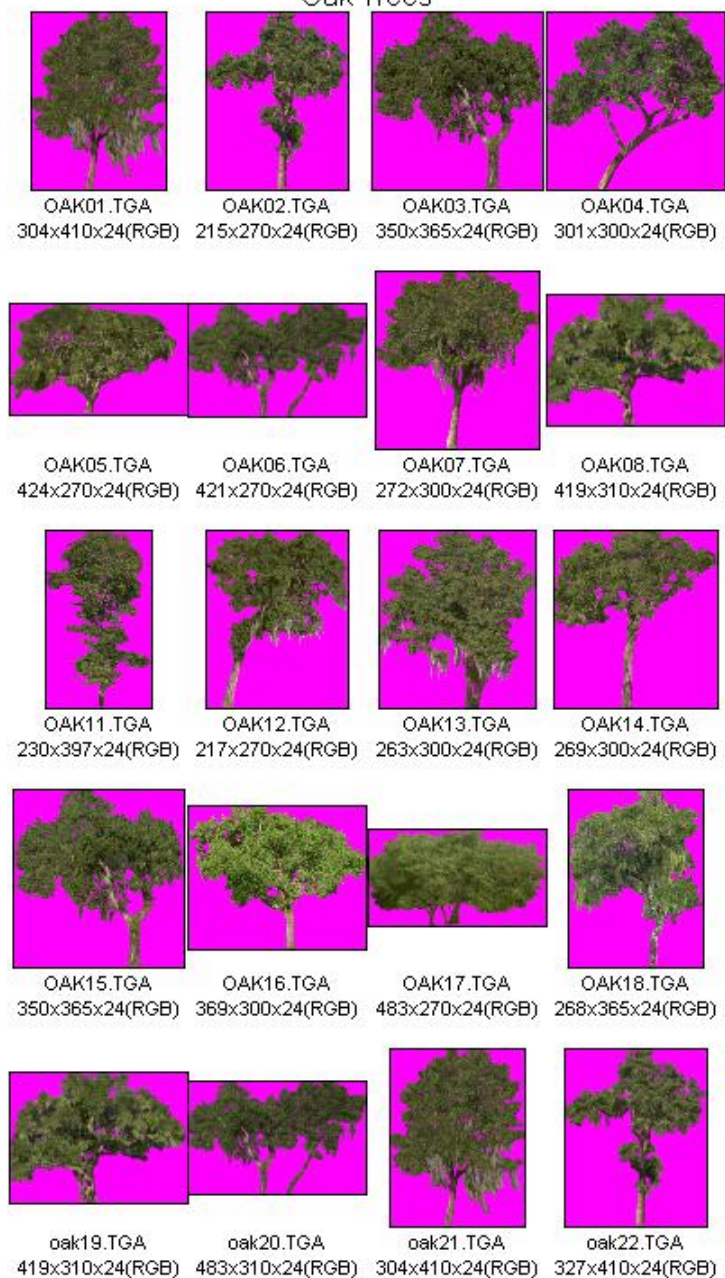
[1]



[2]

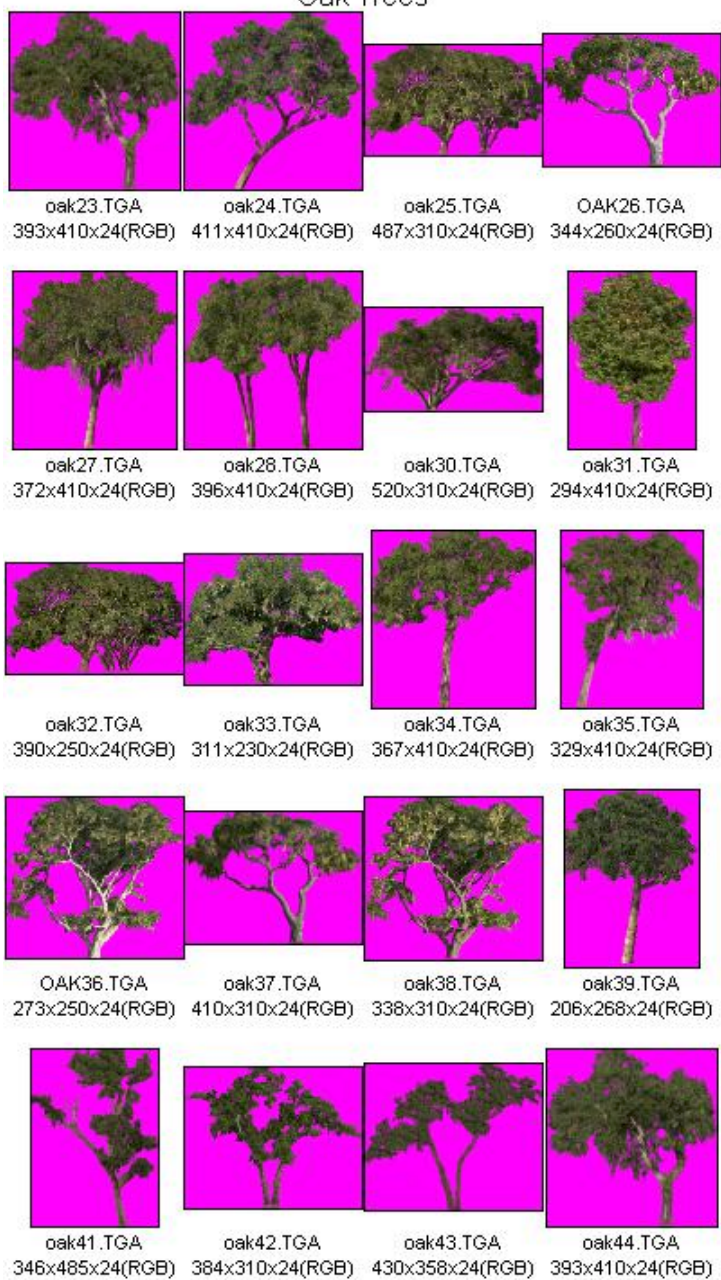
OAK

Oak Trees



[1]

Oak Trees



[2]

Oak Trees



oak46.TGA
410x395x24(RGB)



oak47.TGA
216x510x24(RGB)



oak48.tga
367x382x24(RGB)



oak49.TGA
206x268x24(RGB)



oak50.TGA
410x395x24(RGB)



oak53.tga
360x410x24(RGB)



oak54.TGA
230x397x24(RGB)



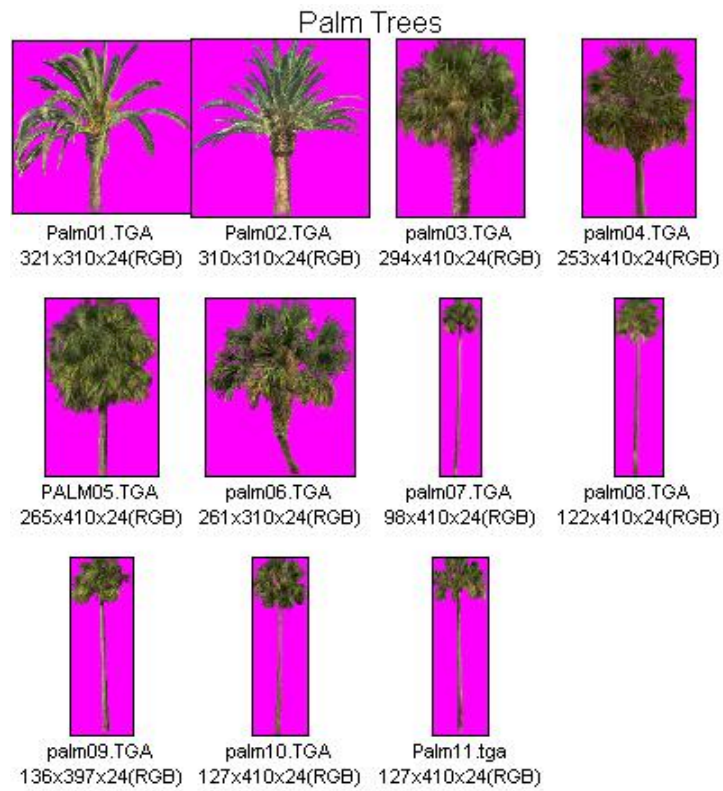
SIG01.TGA
456x240x24(RGB)



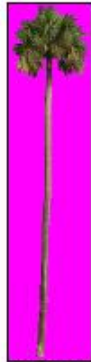
SIG3-58.TGA
428x308x24(RGB)

[3]

PALM



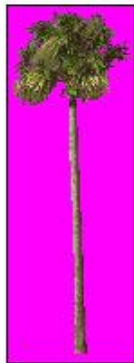
Palm Trees



palm07.TGA
98x410x24(RGB)



palm08.TGA
122x410x24(RGB)



palm09.TGA
136x397x24(RGB)



palm10.TGA
127x410x24(RGB)



Palm11.tga
127x410x24(RGB)

[2]

PINE

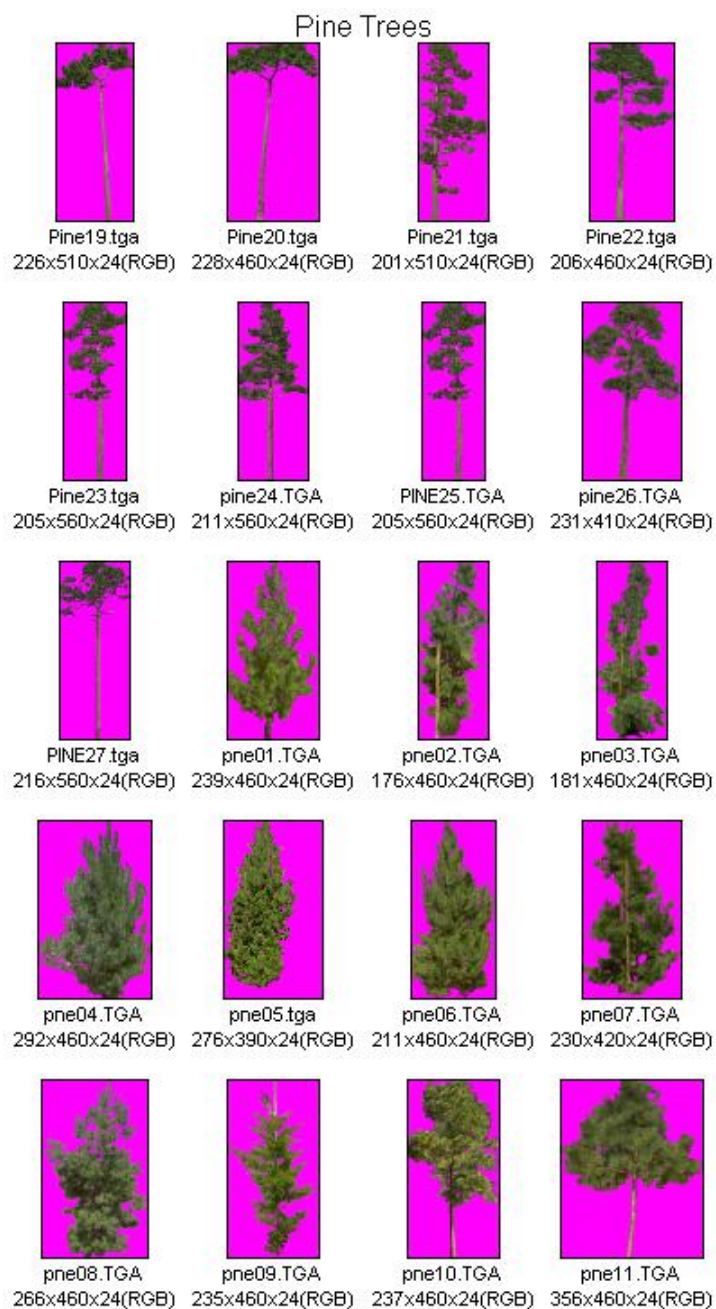
Pine Trees



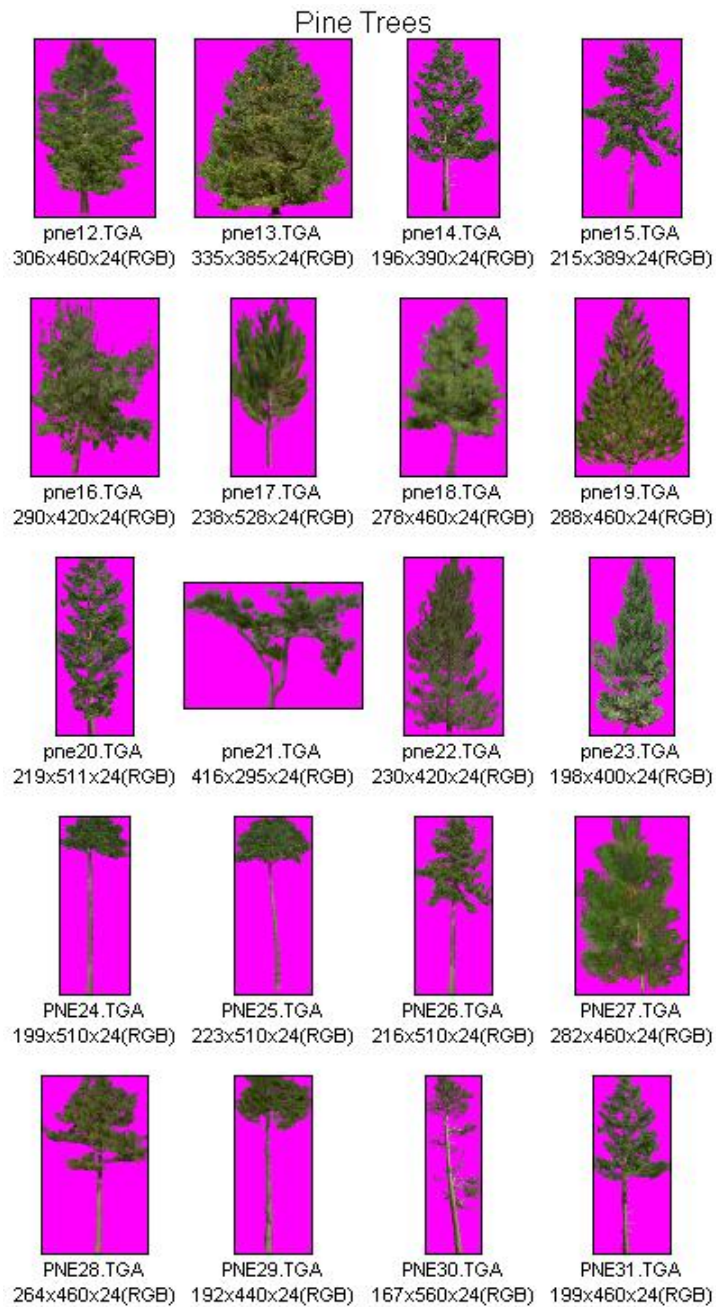
[1]



[2]



[3]



[4]

Pine Trees



[5]

Pine Trees



PNE52.TGA 302x365x24(RGB)
PNE53.TGA 304x365x24(RGB)
PNE59.TGA 237x308x24(RGB)
PNE72.TGA 347x350x24(RGB)



pne80.TGA 206x350x24(RGB)
PNE83.TGA 231x358x24(RGB)
pne89.TGA 312x290x24(RGB)
PNE90.TGA 149x308x24(RGB)



PNE93.TGA 169x308x24(RGB)
pne95.tga 282x444x24(RGB)
pne96.tga 362x429x24(RGB)
pne97.tga 212x455x24(RGB)



pnebsh.TGA 297x385x24(RGB)
SIGH01B.TGA 356x300x24(RGB)

[6]

GENERIC TREES

Trees



flwtree1.TGA
251x310x24(RGB)



flwtree2.tga
238x460x24(RGB)



redtree01.TGA
236x295x24(RGB)



redtree02.TGA
183x295x24(RGB)



redtree03.TGA
182x295x24(RGB)



tree01.TGA
441x308x24(RGB)



tree02.TGA
494x308x24(RGB)



tree03.TGA
340x395x24(RGB)



tree04.TGA
315x310x24(RGB)



tree05.TGA
374x310x24(RGB)



tree06.TGA
434x308x24(RGB)



tree07.tga
381x308x24(RGB)



tree08.tga
319x260x24(RGB)



tree09.tga
304x308x24(RGB)



tree10.tga
294x410x24(RGB)



tree11.TGA
640x279x24(RGB)



tree12.TGA
459x310x24(RGB)



tree13.TGA
353x290x24(RGB)



tree14.TGA
478x308x24(RGB)



tree15.TGA
309x308x24(RGB)

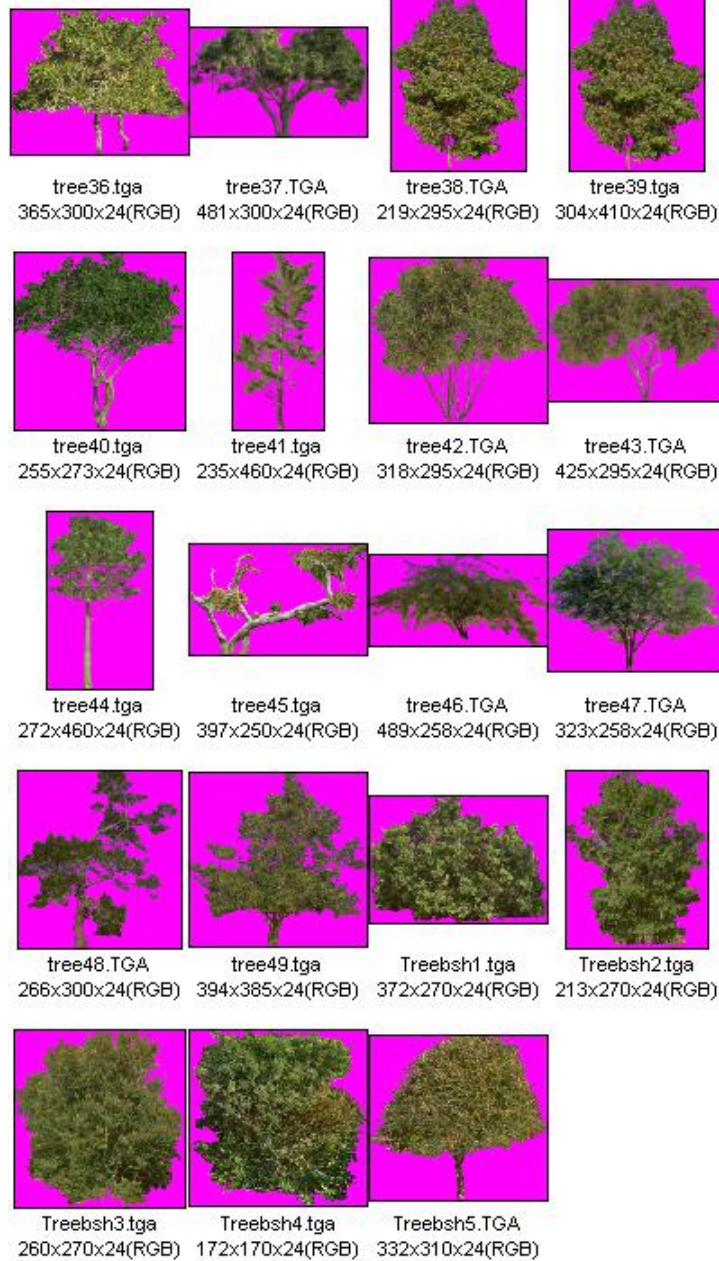
[1]

Trees



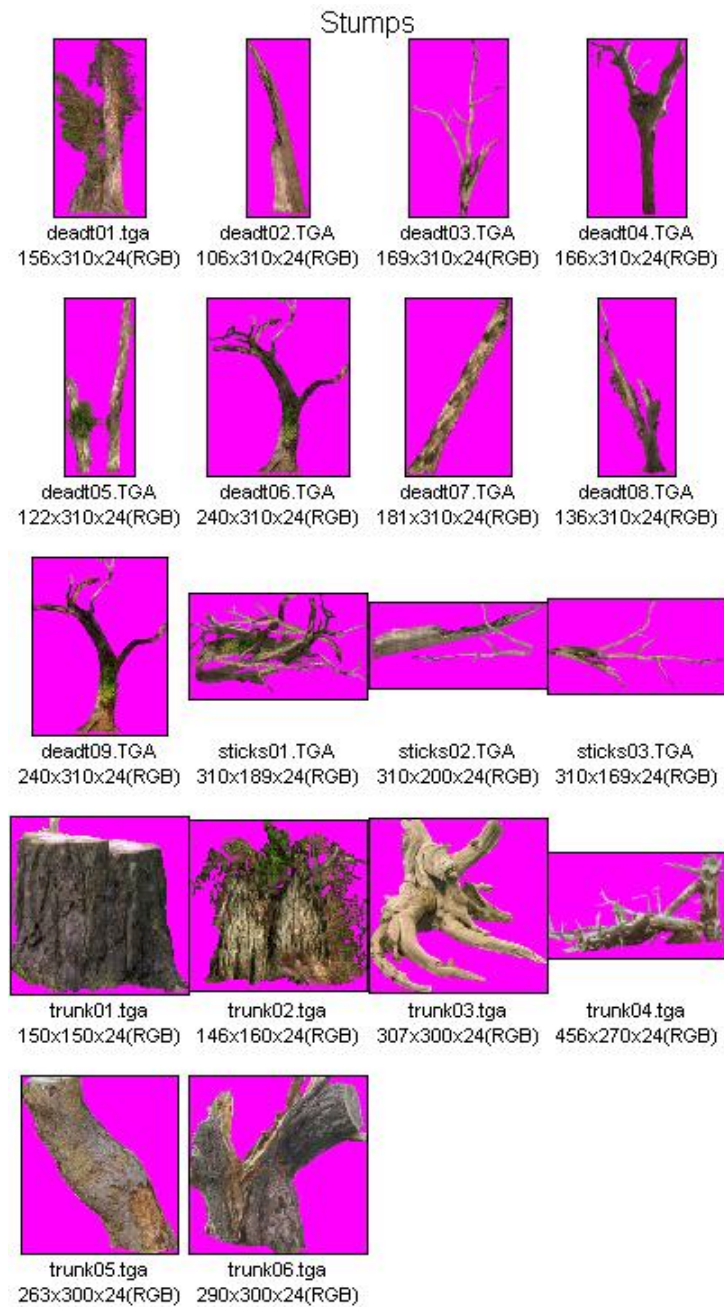
[2]

Trees



[3]

TREE STUMPS



[1]

TEXTURES

All kinds of textures—grass, sand, dirt, water and more—assist in defining varied surfaces on your course.

For information on how to add textures to *Course Architect 2000*, ➤ [Textures](#).

EXTERNAL TOOLS

To assist in developing your courses, you can use external graphics tools to build pieces for importation into *Course Architect 2000*. The following section gives some ideas and loose methodologies for external tool uses.

PHOTOSHOP

Adobe Photoshop is a professional-caliber tool for creating and editing graphic images. In *Course Architect 2000*, two-dimensional images in 8-bit format are used for objects, elevation maps, and textures.

You can use Photoshop tools to create your own images or to modify existing ones to suit your needs. Depending on the purpose of the image in *Course Architect 2000*, you need to define the file in the proper size, color depth, and file format.

Adobe Photoshop is available from Adobe Systems. You can reach them at:

<http://www.adobe.com>

NOTE: If you modify existing graphic images, save them under a different name and location. Otherwise, they override existing files and may be deleted if you need to uninstall or reinstall <i>Course Architect 2000</i>.
--

PAINT SHOP PRO

Like Photoshop, Paint Shop Pro is a graphics tool for image creation. It is considerably cheaper than Photoshop and has the tools needed to build great graphics.

Paint Shop Pro is available from Jasc Software. You can reach them at:

<http://www.paintshoppro.com>

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INDEX AND GLOSSARY

TERM	DEFINITION
<u>2D View</u>	An application window in which you see a two-dimensional overhead view of the opened course hole.
<u>3D Camera</u>	Placed in the 2D View window, the 3D Camera “photographs” the features of the hole, which are displayed in the 3D View window.
<u>3D View</u>	An application window in which you see a three-dimensional view of the opened course hole, as seen from the 3D Camera lens.
Approach shot	After a tee shot, any shot that is aimed for the green.
<u>Boundary points</u>	On an outline, the boundary points define the rectangle that entirely encloses the outline. Their default color is black.
<u>Bounding Box</u>	The rectangular box around an outline formed by lines connecting the boundary points.
<u>Bump tool</u>	A toolbar tool that shapes a rounded hump or depression on a selected piece of terrain.
<u>Bunker</u>	Another name for sand trap. For more, ► <u>Sand Trap</u> .
<u>Camera icon</u>	The representation of the 3D Camera in the 2D View window.
<u>Constrain Texture tool</u>	When applied, the Constrain Texture limits the selection of terrain to pieces on which sits the same texture that was first touched.
<u>Content Library</u>	A collection of data files for use in <i>Course Architect 2000</i> : objects, textures, horizons, skies, and more.
<u>Control points</u>	On an outline, the control points let you control the shape of the outline. Their default color is dark blue.
<u>Corral tool</u>	A toolbar tool to select a piece of terrain by tracing its outline in the 2D or 3D View windows.

Driver	The longest club in a golfer's bag, the driver is used for tee shots on lengthy holes.
<u>Export</u>	The <i>Course Architect 2000</i> facility that compiles your course into a format that can be accessed directly from the game.
<u>Facets</u>	The individual four-sided shapes that are pushed, pulled, stretched, lifted and depressed to define the mesh of the terrain.
<u>Fairway</u>	A broad strip of short grass where a golfer attempts to aim tee shots and all subsequent shots before reaching the green.
<u>Flatten tool</u>	A toolbar tool for lowering a selected piece of terrain to a defined height.
Free Cam Mode	Free Cam Mode allows you to raise the 3D Camera above the surface of the course.
<u>Freehand tool</u>	A toolbar tool that allows you to select a line of facets with a width of one facet.
<u>Green</u>	The short grass area where the cup for a hole is placed.
<u>Grid</u>	In 2D View, a grid can be laid over the hole to assist in aligning and placing objects.
<u>Grid tool</u>	The Grid tool selects a piece of terrain that is defined in the Grid Size pop-up.
<u>Hole tab</u>	In the Hole tab, you can perform file operations to your entire hole or select a new hole to edit.
Hole	In golf, it is the playable area in which a golfer hits the ball from the starting tee until he drops the ball into the cup on the green. On a standard golf course, there are eighteen holes. In <i>Course Architect 2000</i> , it is the computer representation of one of these holes.
<u>Horizons</u>	A series of 12 graphic images which, when joined and sequenced, form the appearance of a horizon around your hole.
<u>Import</u>	To bring data files for objects, textures,

	and other materials into <i>Course Architect 2000</i> for use in developing your courses.
Iron	A metal club for mid-range shots.
Layers	The stacking from top to bottom of overlapping outlines.
Lie	The position of the ball on top of the course. In the more challenging terrain areas, a ball can be partially buried, which makes the subsequent shots shorter in length and more difficult to accurately place.
Linear tool	A terrain tool, the Linear tool defines sharp peaks and valleys in the terrain.
Locked Cam Mode	Locked Cam Mode displays the 3D View from the point of view of a golfer walking the course.
Masks	The generated layers that are applied in 3D View to create the appearance of the shaped terrain of the hole.
Mesa tool	An elevation tool that lets you raise or lower selected terrain.
Mesh	The set of connected facets that, in total, describe the terrain surface of the displayed hole.
New Course Wizard	A tool that steps you through the process of beginning to build a new hole. After completing the New Course Wizard, you begin the New Hole Wizard for Hole #1 of your new course.
New Hole Wizard	A tool that steps you through the process of beginning to build a new hole.
Object	A two-dimensional representation of a living or inanimate object that stands on the surface of the course.
Object Browser	A <i>Course Architect 2000</i> feature through which you select from the standard objects, define their properties, or import objects from other sources.
Objects tab	The Objects tab contains tools for placing and manipulating objects on the hole.
Outline	A special feature in <i>Course Architect 2000</i> , an outline defines features on the surface of a course like fairways, greens,

	and sand traps. By applying special textures to outlines, you define these features.
Outline tab	The Outline tab contains tools for placing and manipulating outlines on the hole.
Pick Texture tool	A toolbar tool, Pick Texture selects all of the underlying mesh that is connected to and shares the texture of the first spot that you touch in either View window.
Pitching wedge	A golf club that produces short shots with high lofts. It is often used to pitch shots onto the green from surrounding terrain.
Points	A generic term for the three kinds of control mechanisms for outlines: boundary, control, and tangent points.
Putter	A golf club that is used for striking the ball when it is on the green and near the hole.
Rectangle tool	A toolbar tool for selecting a rectangular piece of terrain facets.
Render Flat	A Camera menu selection, Render Flat displays 3D View with textures as simple, flat colors. It is faster than the Render Textures option.
Render Textures	A Camera menu selection, Render Textures displays 3D View to the best of the computer's ability with full textures. It is the rendering option of highest quality and slowest speed.
Render Wire	A Camera menu selection, Render Wire displays in 3D View the course as a wire-frame mesh of facets. It is the fastest rendering option.
Rough	An area of a golf course characterized by deep grass that can obscure balls and complicate shots.
Sand trap	A depression in a golf course that is filled with sand. When hitting a shot stuck in the sand, a golfer often uses a sand wedge to lift the ball onto a better playing surface.
Sand wedge	A golf club used primarily to strike a ball stuck in a sand trap. High lift, short distance.
Scorecard	In a round of golf, the scorecard contains

	a golfer's officially recorded scores for each hole. In <i>Course Architect 2000</i> , the scorecard displays the length of each hole and general course information.
Shadows	In <i>Course Architect 2000</i> , you can position the sun and assign its luminance to cast shadows across the terrain and objects for realistic or dramatic effect.
Shot Path	From each tee on the hole, the shot paths indicate the optimal aiming points for each shot until the ball lands in the hole. In the game, computer-controlled players use the shot paths as aiming devices.
Skies	The heavens above. In <i>Course Architect 2000</i> , you can choose a sky texture to display and can define its characteristics: cloudy, hazy, and other properties.
Skirt	The rim around an outline can be defined as a skirt that is often used to blend the defined surface with the terrain around it.
Smooth tool	A toolbar tool, Smooth allows you to blend a selected piece of terrain into the surrounding terrain for a more natural-looking appearance.
Sun	In <i>Course Architect 2000</i> , you position the sun in the sky to create lighting and shadow effects on your course.
Tangent points	On either side of an outline's control point, the tangent points set the tangent to the control point. By changing the tangent, you can change the shape of the outline around the control point.
Terrain	The topographical features of a golf course. In <i>Course Architect 2000</i> , the terrain is represented as inter-connected facets that are joined together in a mesh.
Terrain tab	The Terrain tab contains tools for placing and manipulating terrain on the hole.
Textures	Textures represent the appearance and play characteristics of the surface of your course. To define play surfaces, you apply textures to shaped outlines.
Texture Browser	In <i>Course Architect 2000</i> , you can review, import, and apply textures in the Texture

	Browser.
Tilt tool	A terrain tool, Tilt lets you tilt the selected piece of terrain around an axis.
Tool Lock	By selecting Tool Lock, you can apply a tool until you manually turn it off.
Wood	A golf club that is designed to hit long shots from a good lie such as on the fairway or tee.
Tee	The starting point for a hole on the course. Typically, a course has more than one color-coded tee, with each tee rated for difficulty. In the game, the tees are in order of difficulty: red, white, blue, and black.
Water hazard	A body of water on the course. When a golfer hits into a water hazard, he can place the ball in front of the water without a penalty or can rehit from his starting position with a one-stroke penalty. In <i>Course Architect 2000</i> , you shape water hazards with outlines and an applied texture.