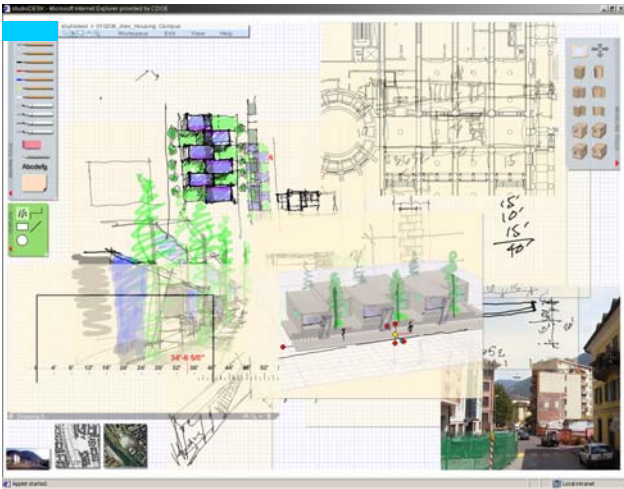




Preview Guide

Executive Summary

Autodesk® Architectural Studio addresses some of the technocultural concerns within the architecture profession. As software becomes more complicated, more architects, often seasoned senior staff, become exiled from the digital production of architecture. Likewise, those who are less experienced but technologically savvy are forced to learn more about the software than the profession. Autodesk Architectural Studio takes the architectural design process out of the computer and puts it back on the boards.



Autodesk Architectural Studio is a multimedia, direct-manipulation and collaboration environment supporting freehand sketching, hardline drawing, modeling, collaging, and other design tasks.

Contents

Executive Summary	1
Product Use	2
High-Level Benefits	3
Autodesk Product Fit	3
Components	4
User Interface	4
Conceptual Design	5
Trace	6
Freehand Sketching	7
Hardline Drawing	12
Modeling	14

Presentation.....	20
Design Site Service	21
Interoperability.....	24
Conclusion	26

Product Use

Autodesk Architectural Studio is a multimedia conceptual design, presentation, and collaboration environment for architects and their project team. It focuses on conceptual design tasks in all phases of design and construction, but it is likely most effective during the predesign, schematic design, and contract administration phases.

Design Tasks—Autodesk Architectural Studio can be used to facilitate a wide array of design tasks, as illustrated in the list below.

Site analysis	Programming	Massing studies
Marketing	Client presentations	Agency review
Consultant coordination	Internal coordination	Desk critiques
Charrettes	Redlining	Client review
Option generation	Interactive presentations	Remote presentations
Study models	Context analysis	Program analysis
Instruction	Existing conditions records	Multimedia collages
Bubble diagrams	"Sketching up" details	Blocking elevations
Schematic design docs	Presentation boards	Marketing boards
Stacking diagrams	Parti generation	Diagrammatic plans
Org charts	Shadow studies	Shop drawing review
Multioffice conferencing	As-built records	"On-the-road" work
User program interviews	Dummy/cartoon sets	Figure grounds
Punch lists	Code analysis	Supplemental instructions
Field report documentation	Occupancy diagrams	Exiting diagrams
Smoke area definition	Circulation diagrams	Zoning analysis
Material boards (digital)	Proximity diagrams	Furniture layouts
Bay analysis	Modular analysis	Landscaping concepts
Hand rendering	Single-line diagrams	Base models
Photomontaging	Scratch calculations	Storyboarding
Tile patterns	Fenestration studies	Sketchbook
Life safety diagrams	Spec markup	Report illustrations
Color schemes	Signage studies	Competition boards
Conferencing	White boarding	Shadow and light studies

High-Level Benefits

Components—Flexibility of purchase options allows individuals and firms to custom tailor their cost and design software needs.

User Interface—Simple interface means more productivity, less time struggling with the technology.

Conceptual Design—Architectural Studio provides familiar conceptual design tools.

- Use digital tools based on familiar tools of the trade.
- Design freehand and draw creatively—free from technology barriers.
- Digitally capture conceptual designs/sketches early in the design process.

Presentation—Design and present in the same environment, saving time, coordination effort and money.

Collaboration—An efficient collaborative environment (requires purchase of Architectural Studio Design Site service)

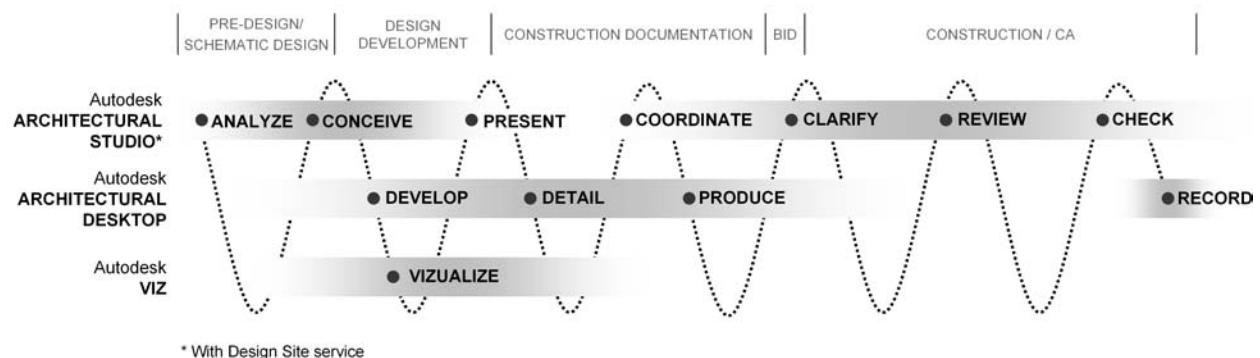
- Share and explore ideas simultaneously.
- Resolve design issues faster, saving time and money.
- Reduce coordination cycles, increasing productivity and profitability.
- Present design ideas and information in a visually compelling way.

Interoperability—Sketches and conceptual models integrate with Autodesk® Architectural Desktop and AutoCAD® software.

Media aggregation provides exciting new ways to present and communicate your ideas

Autodesk Product Fit

Autodesk Architectural Studio complements Autodesk's line of products that are used throughout the building design process. Sketches and conceptual models created in Architectural Studio integrate with Autodesk Architectural Desktop and AutoCAD software. For example, you can create loose, conceptual drawings and models in Architectural Studio and then bring them into Architectural Desktop for further refinement during design development and construction documentation. Then you can return to Architectural Studio and view, annotate, and sketch on top of your drawing.



Benefits of Architectural Studio within an Autodesk Solution—Interoperable with Autodesk Architectural Desktop and AutoCAD software, it enhances an iterative design approach and the communication of design intent among your project team. Your initial conceptual design data enters the digital workflow from the outset, so it's more tightly integrated with design development and construction documentation. It also means that ongoing drawing revisions and commentary—in short, all the communicative back and forth among the design team—remain digital, increasing efficiency and reducing drawing errors.

Components

There are three purchase components to Autodesk Architectural Studio software:

The Autodesk Architectural Studio software product. When purchased and downloaded from the Web, the software is installed on the desktop and runs locally. Customers can use Autodesk Architectural Studio software for conceptual design, sketching, modeling, and presentations.

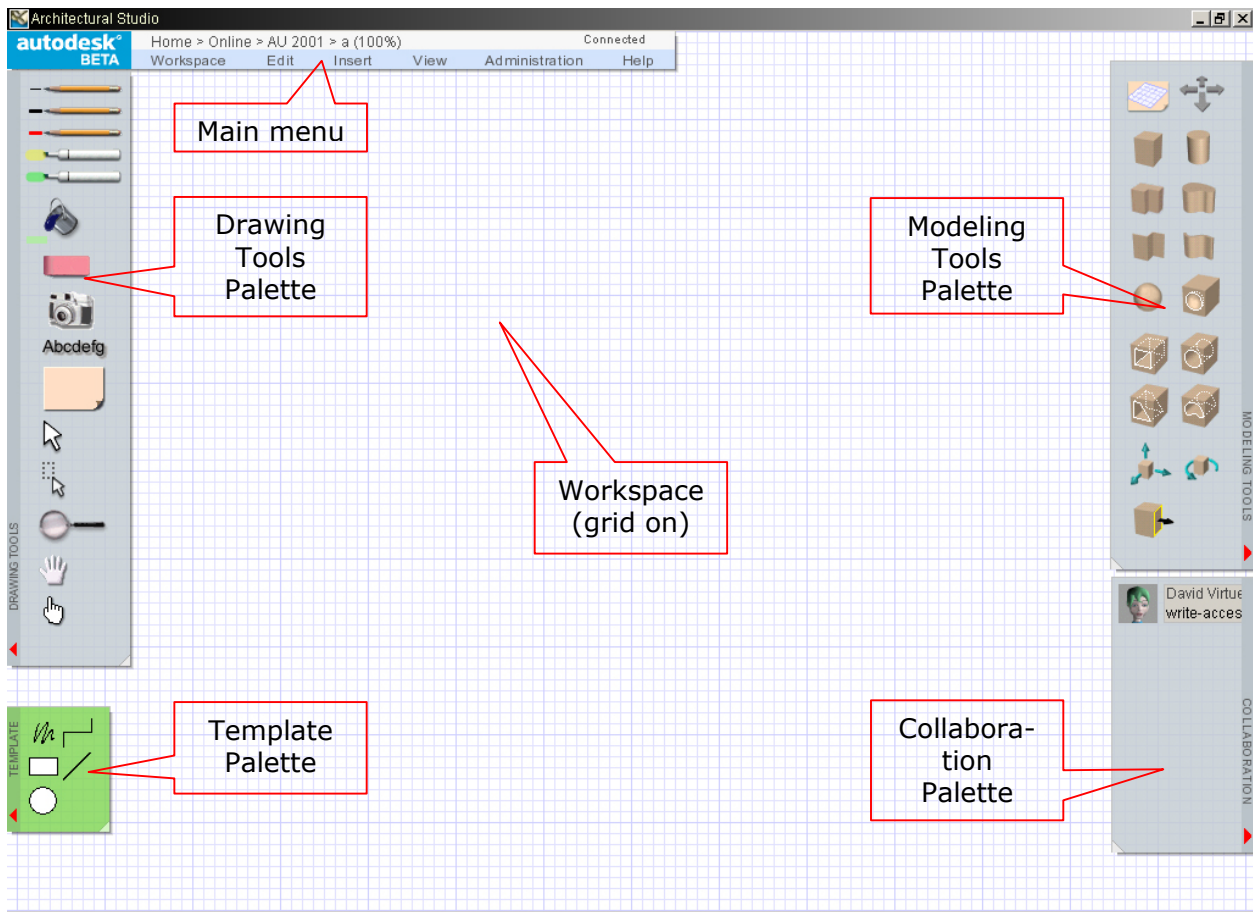
Architectural Studio's Design Site service—an optional hosted service. In addition to the functionality and benefits of the product, this Internet-based service enables Autodesk Architectural Studio customers to collaborate and share design ideas with colleagues in real-time via a private and secure website.

Subscription—A one-year subscription contract is required with the initial purchase of Autodesk Architectural Studio software.

When describing the functionality of Architectural Studio, this document assumes that all components have been purchased.

User Interface

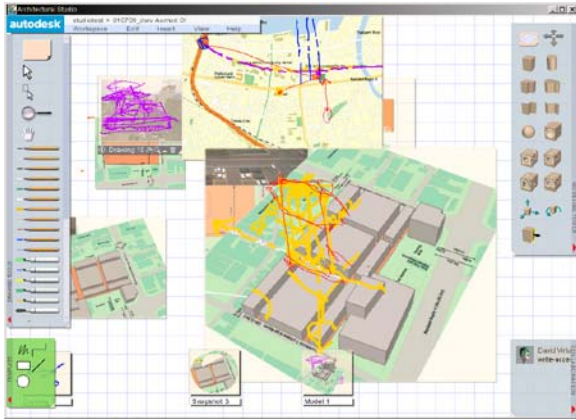
Autodesk Architectural Studio draws its inspiration from the architect's traditional workspace before the advent of the computer. There you see a variety of media—including sketches on trace, hard-line drawings, study models, and photographs—all arranged for immediate access and reference. And there is a set of simple tools, such as pencils, markers, and erasers. Autodesk Architectural Studio re-creates the tools and methods of the traditional design studio and combines them with the power and reach of digital technology.



Benefits of a simple user interface—Likely you will begin drawing and sketching in Autodesk Architectural Studio with minimal training. The virtual elimination of a learning curve translates immediately into productive work (saving time and money). You can implement Autodesk Architectural Studio on any project, even if the project is well under way or up against a deadline.

Conceptual Design

With Autodesk Architectural Studio, you can bring your conceptual design ideas to life with simple, direct-manipulation tools, such as colored pencils, markers, erasers, and fill, that lend a supple, tactile experience to the design process. These tools feel best when used with pen-based input devices and LCD tablets, but they can also be used with a standard mouse and PC monitor. The advantage of a digital environment over pen and paper is that you can easily modify, move, copy, paste, and export your design data to other applications for further development and production. In addition to creating original drawings and sketches in Autodesk Architectural Studio, you can use the conceptual design tools to draw and annotate directly on top of CAD drawings from other applications, 3D models, renderings, or even photographs.



Preliminary site analysis investigations created with Architectural Studio

Trace

Like its real-world inspiration, digital trace is a transparent medium that allows you to overlay any number of sheets over others. This feature of Autodesk Architectural Studio lets you iterate and thus clarify your ideas.

Traditional tools:
trace (also known as
flimsy and canary
paper)



Tasks—Trace can be used for a wide variety of tasks. This medium is core to the versatility of Architectural Studio. The following is an abbreviated list of potential tasks:

Site analysis diagrams	Coordination	Redlining
Conceptual sketches	Collages	Option generation
Bubble diagrams	Parti generation	Code analysis diagrams

Transparency—You can change the transparency of trace and the sketches, drawings, or images on them. This is very useful for creating collages or changing the visual focus of your work.



Identical images: Left at 0 percent and right at 50 percent transparent

Benefits of Trace—You can easily create multiple iterations of digital designs directly over imported images using any number of sheet overlays.

Feature	Function	Benefit
Creating overlays with trace	Drag layers of transparent paper over any image, drawing, or 3D model and sketch directly on trace.	Digital trace allows iteration of ideas on any number of sheet overlays.

Freehand Sketching

Sketching is an essential part of the design process. It allows you to think out problems, clarify ideas through iteration, and present those ideas to others. Autodesk Architectural Studio continues this tradition and enhances it within a digital environment. With the aid of pen input devices, you can sketch naturally on a surface, not with a mouse. Draw on any medium in Autodesk Architectural Studio's environment, whether it be trace, photos, drawings, models, or the workspace itself.



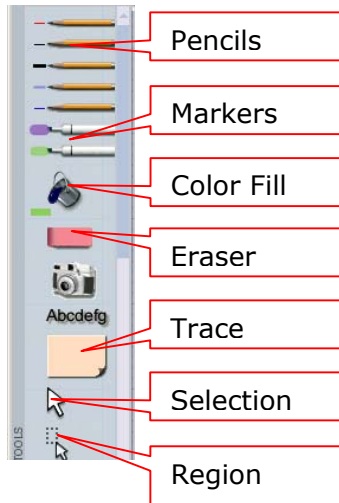
The first sketch created by Michael Graves after using Autodesk Architectural Studio for only ten minutes. (Image courtesy of Michael Graves Associates.)

Freehand sketching can be used for

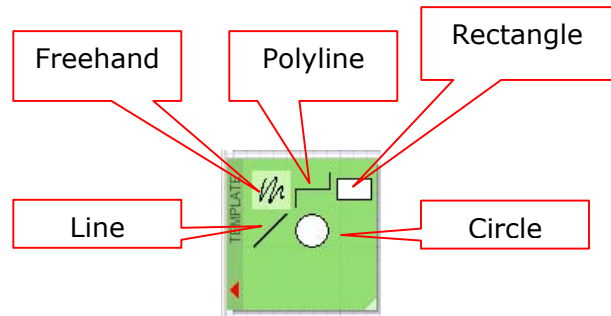
Concepts	Desk critiques	Interactive presentations
"Sketching up" details	Cartoon sets	Circulation diagrams
Drawing	Internal coordination	Hand rendering

Drawing tools—Several tools are provided for sketching. These tools are located on the Drawing Tools Palette. Most tools can be modified and copied to suit the designer's preference. The Template Palette controls the behavior of these tools.

Tool palette, with primary sketching tools indicated.



The template palette controls how the sketching tools are used.



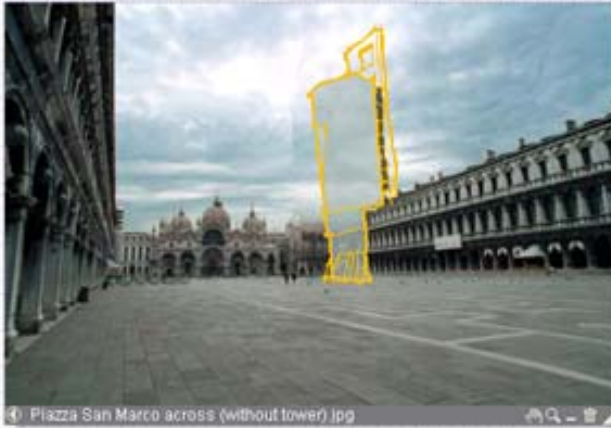
Traditional tools: Colored pencils Markers



Templates



Pencils and Markers—With these traditional, yet digital tools, you may sketch on workspaces, trace, images, or even 3D objects; basically any surface in the application will do. Sketches made with these tools can also be copied or drawn in a 3D document and extruded.



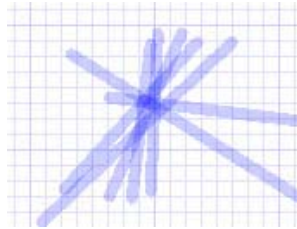
Sketch on image

Qualities—The tools in Autodesk Architectural Studio begin to emulate the qualities of their analog counterparts. Overlapping color strokes with any tool that supports transparency will build on the density of that color.

Color Fill—The color fill tool applies fill to a selected region in 2D (or geometry in 3D). The tool works for any combination of freehand or hardline strokes, though they must be closed. Selecting any area that is not enclosed will fill the entire document with color, thus allowing one to change the color of that document.



Digital exploration:
Creating an urban
figure ground diagram
with the color fill and
eraser tools.

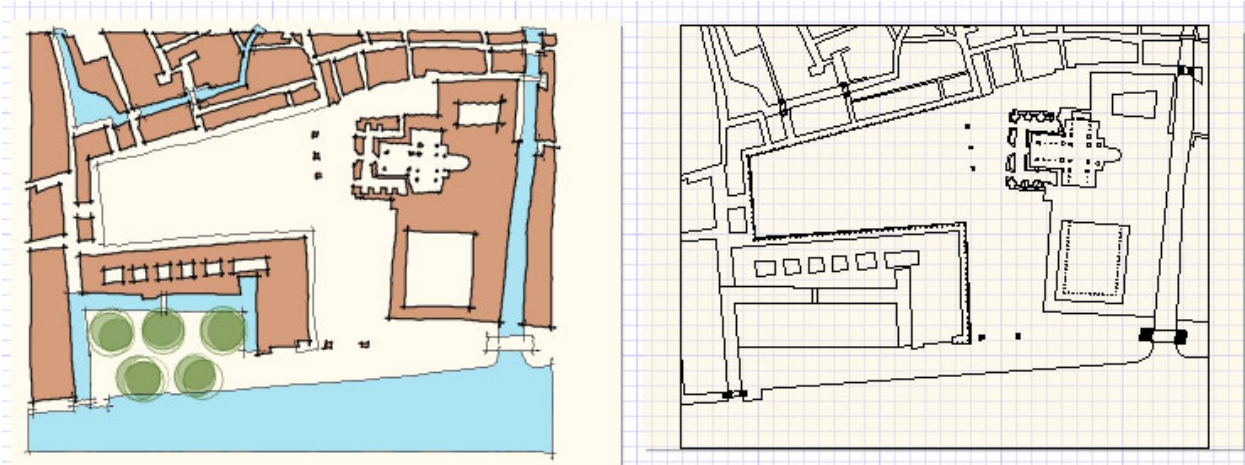


Qualities: Overlapping
marker lines build up
color.

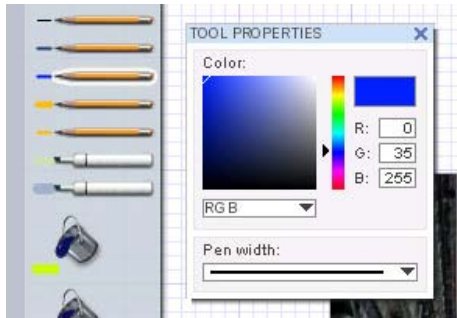
Eraser—Use the eraser tool to remove portions or entire lines or 2D color fill.

Using Vector Files as Underlays—Use inserted vector files, such as AutoCAD DWF files, as underlays (bases) on which to overlay trace to create diagrams or other iterative drawings. For example, the diagram on the left below was sketched from an inserted plan of Piazza San Marco in Venice with the template set to freehand. After the geometries were drawn, the color fill tool was used to complete the building, canal, and vegetation areas.

Creating a freehand-sketched diagram from a .DWF underlay.



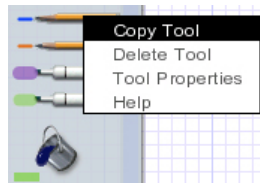
Changing Tool Properties—Easily set the color, lineweight, and transparency of each of these tools simply by double-clicking on the tool.



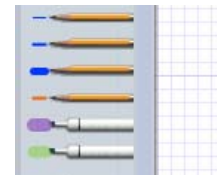
Double-click on tool to change its color, lineweight, or any other property. This example shows the tool properties “sheet” for the pencil tool. This sheet may be left open, and will change to display the current selected tool’s properties.

Create Individualized Tools—Easily create individualized tools by copying them and changing aspects of their qualities. For example, you may create several markers with the same color but varying line weight, same lineweights with multiple colors, or same color and lineweight with differing transparencies.

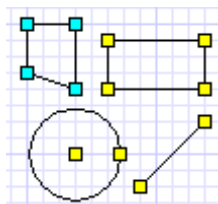
Hold down pen or mouse on tool for a moment to copy tool. Here the first blue pencil is selected.



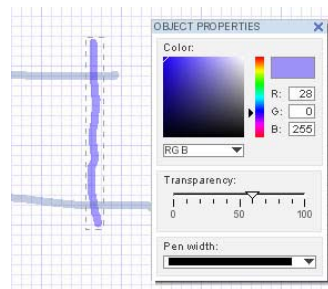
Copied blue pencil with multiple lineweights



Changing Sketched Elements—Modification of sketched elements includes the basics such as deleting, erasing all or part of an object (except 3D solids or images), moving, copying, and pasting. One can also change lineweight, color, and, in some instances, transparency of sketched items. Edit these properties as you do tools, simply by double-clicking on any element. Make your changes in the properties sheet that appears.



Editing handles for changing size or location of lines



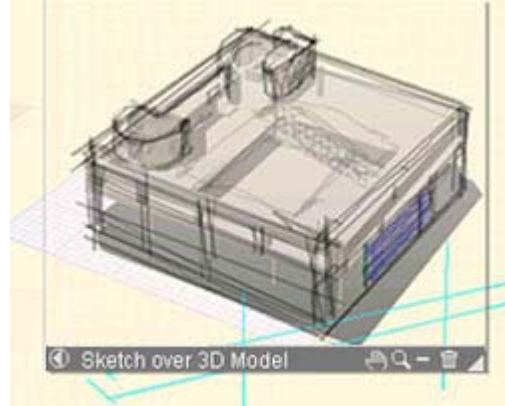
Double-click on any line or fill to change its properties. Note that this is the same way you change tool properties.

Digital Flexibility—Because your sketches are digital, they can be moved, copied, modified, and published to Autodesk Architectural Desktop or exported via DXF™ to other CAD applications (see Interoperability), where they can be immediately put to work as bases or underlays for development and production.

Trace placed over image



Sketch over 3D model



Benefits of Freehand Sketching—Digital sketches can be modified, manipulated, transmitted, and used at will for a multitude of purposes, including presentations, manipulation in other software, and reports. No matter what you draw, it is vector and digital and can be effectively used as your process demands. There is no redundancy of one person working in digital and another in analog. You save time by retaining design data at the start of a project and using it in subsequent phases and other applications.

Feature	Function	Benefit
Sketching	Use any of the drawing tools—pencils, pens, markers—and draw freehand and freeform in a digital environment.	Gets information into digital form from the start. Incorporates most traditional and familiar method of working for architects.
Sketching on images	Sketch directly on an image or select a piece of trace as an overlay to the image.	Easily create multiple iterations of digital designs directly over imported images.
Creating overlays with trace	Drag layers of transparent paper over any image, drawing, or 3D model and sketch directly on trace.	Digital trace allows iteration of ideas on any number of sheet overlays.
Erasing	Use eraser to remove partial or whole entities.	Fast and flexible method to break, shorten, trim, or delete lines.
Edit line properties	Change line properties—color, width, transparency.	Modify basic properties of vector-based lines and shapes at any time.
Importing images	Import <i>.jpg</i> , <i>.gif</i> , and <i>.png</i> files into workspaces to create multimedia documents.	Include information from multiple sources and media (e.g., site conditions or aerial photos).
Vector sketches	All sketching and drawing modes create vectors.	These vectors have associated with them length, width, color and other properties that can readily be exported to other CAD applications for immediate use. This saves time and coordination efforts.

Hardline Drawing

Though much of early design requires one to be loose, there are very important instances where more precision is needed, such as massing studies, site analysis, and programming. It also becomes important when you know others will use your drawings in “downstream” applications such as AutoCAD or Autodesk Architectural Desktop. Precision drawing in Architectural Studio is designed to work side by side with freehand “nonprecise” tasks.

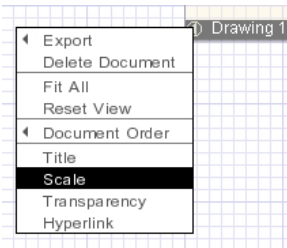
Tasks—Architectural Studio can facilitate several tasks when using it in a hardline drawing capacity. Some of these are listed below:

Programming	Massing studies	Blocking elevations
Presentations	Modular analysis	Line diagrams
Structural grids	Schematic plans	Fenestration studies

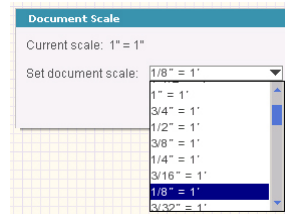
Levels of Precision—Various levels of precision are required during a building’s design development. Architectural Studio supports these conceptual levels as outlined below:

Architectural Studio Method	Level of Precision
Sketching on an unscaled (1:1) 2D document	Proportions
Scaled 2D document on workspace grid	Approximately 1'-0"
Scaled 2D document with snaps to grid	1'-0"
Scale ruler in 2D	1"

Document Scale—You can set the display scale of a document in imperial architectural and engineering scales. Note that any display scale still retains the understanding of the vector data in real-world (1:1) units behind the scenes. The default display scale for all documents, including trace is 1:1, but you can change this via the documents options menu.

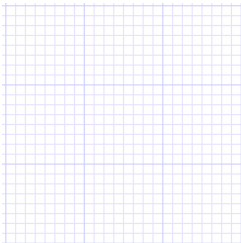


Select the Scale menu item from the trace document options menu to set its display scale.



The document scale dialog box

Workspace Grid—The workspace grid will help you decide where to place lines and shapes. The workspace grid is set to 8 minor grid lines per major grid line, thus emulating standard imperial grid paper. This 8x8 grid is adaptable to 1/16", 1/8", 1/4", 1/2", 1", and 1:1 scales.



The workspace grid is divided into an 8x8 grid, facilitating standard architectural scales.

Grid and Geometric Snaps—To allow for the precision placement of elements, we have provided optional snap modes (located in the Edit menu) that allow you to snap to geometry or to a 3D document grid or a 2D workspace grid.

Having Snap to Grid activated causes most major points in a shape to snap to a grid intersection. They are available regardless of the number of layers of trace you are drawing through and regardless of whether you are passing the cursor over any document.

As you draw with a geometric shape, you can use geometry snaps to connect one shape to another precisely. You can connect to any point on a shape's contour, or you can connect to a particular key point (such as endpoints, intersections, and midpoints).



Snapping to workspace grid thru trace.

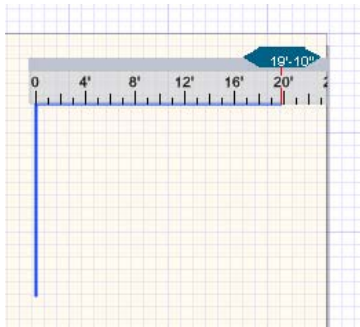


Snapping to the endpoint (geometry).

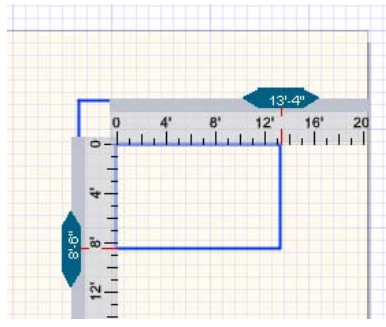


Traditional tools: triangular and flat scales

Scale Ruler—The scale ruler provides the highest level of precision available in Architectural Studio. Toggle the tool on from the View menu. When using all but the freehand template, the ruler will follow all strokes created. During rectangle creation, two rulers will appear to help you determine the size of the object.

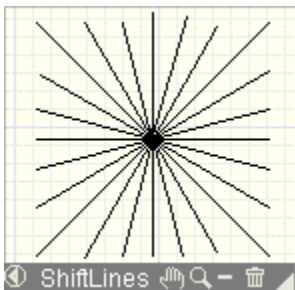


The scale ruler tool during hardline creation.



The scale ruler tool during rectangle creation

Constraints—Hardline drawing can also be constrained to orthogonal or angular. Hold down the shift key while moving or drawing a line, and it will “snap” to the nearest 15-degree increment relative to the gesture of your hand.



Creating a radial pattern using hardlines and the shift key.

Benefits of Hardline Drawing—Hardline drawing supplements freehand sketching and provides more drawing control. You can easily create straight lines, circles, and rectangles. Geometry and grid snapping enable precision placement of elements in your drawing. Scale is another important factor for printing and display of information. By assigning scale digitally, you can change plotted and display scales “on the fly” depending on your needs, whether for small-scale presentation drawings or large-scale detail studies.

Feature	Function	Benefit
Snapping to geometry and grid	Snap to workspace grid and imported drawing geometry with snap cursors.	Precision placement of elements provides control of your drawing.
Hardline drawing	Allows for more drawing control by creating straight line, circles, and rectangles.	Supplements freehand sketching capabilities with basic vector-based drawing templates.

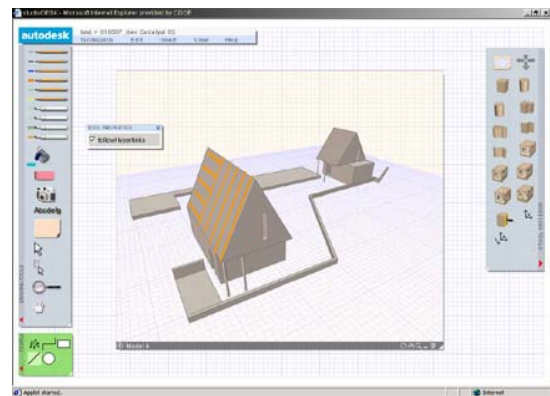
Modeling

The Architectural Studio environment allows you to create 3D models with precision and rotate them to any view. You can work with the Architectural Studio modeling media in a similar manner to that of chipboard or clay.



Traditional tools:
Plasticine (a special
nondrying Italian clay
for modeling)

Quick study model of a
house and garden
pavilion constructed with
Architectural Studio 3D
modeling tools.



Tasks—Modeling tools can be used for

Study models

Programming

Massing studies

Context analysis

Site analysis

Initial shadow and light
studies

Stacking diagrams

Parti generation

Base models

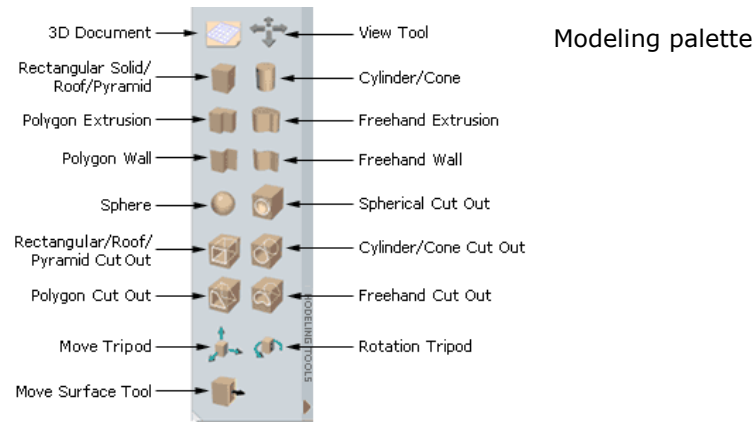
3D Trace—All 3D modeling occurs in the specially adapted 3D trace. This trace provides a 2D grid on the ground plane, providing implied vanishing points. You can manipulate your

aspect to the vanishing points by using any of the viewing tools such as orbit, dolly, pan, or zoom. The grid can also be turned off.

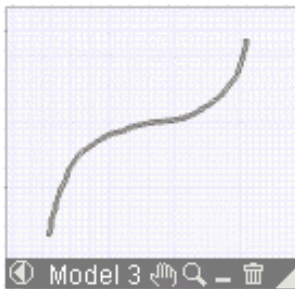
As with other document types, you can adjust the transparency of both the trace and the image in the 3D Trace.

The solid modeling tools render models for you, meaning that they apply fundamental lighting (and shadow) characteristics in accurate perspective.

Forms—Several basic solid forms, as well as equivalent voids, are provided on the modeling palette:

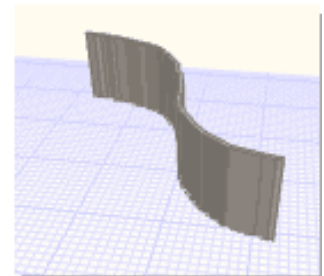


Wall tools—Architectural Studio provides two wall tools: polygon and freehand. Although a wall is at first created as a very thin solid, you can control its width.

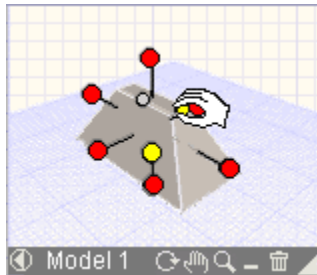


Freeform wall in plan view

Freeform wall in perspective

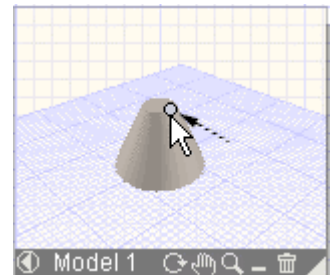


Advanced Forms—The Architectural Studio form primitives can also be modified into more advanced shapes. For example, by manipulating the cube you can create a prism or pyramid. Manipulating a cylinder will give you a cone.



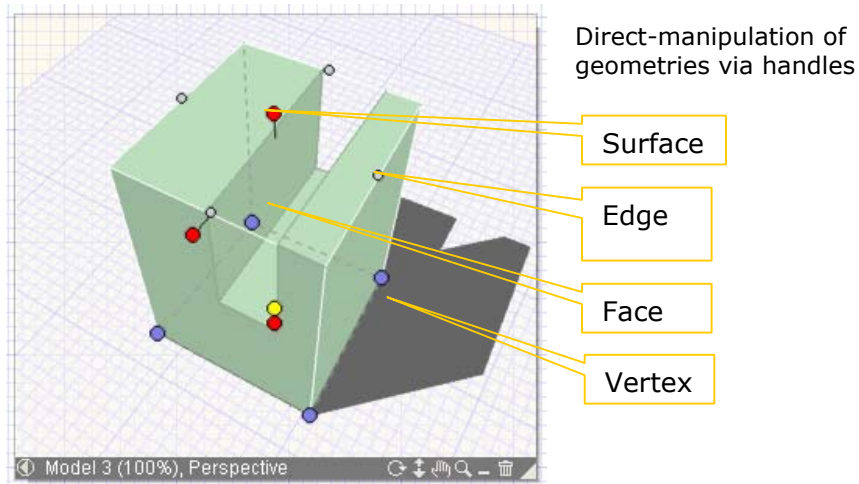
Creating a roof form from a cube.

Creating a cone from a cylinder

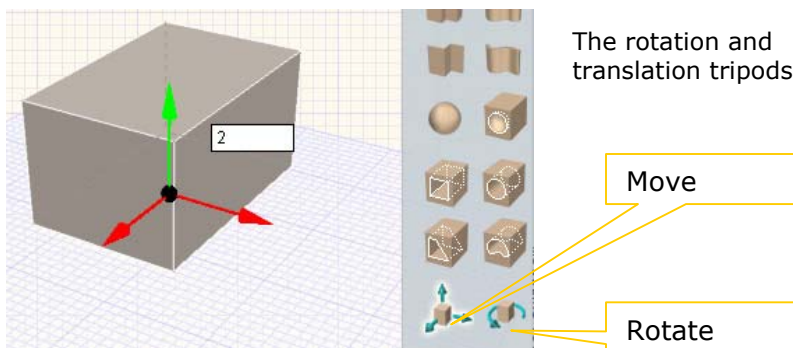


Direct Manipulation—It's all about direct manipulation. There are no commands to remember. Select the desired 3D form, and the options available to you will appear. Push, pull, or nudge the handles to create the form you want. Voids can be manipulated in the same way.

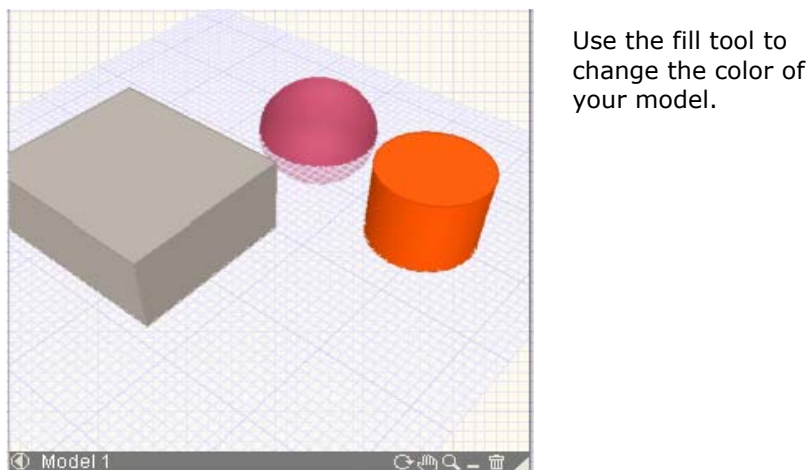
Through direct-manipulation methods, you can mold several geometric properties, including surface, faces, edges, and vertexes.



Modification—3D objects stick to the surface you create them on. However, you can move or rotate the object in any direction by using the tripod tools. If you want to, you can input a dimension manually.



Color Fill—By default, the color of your model is chipboard/Plasticene gray and can be changed by setting the fill tool to the desired color, and dropping the color on the model.

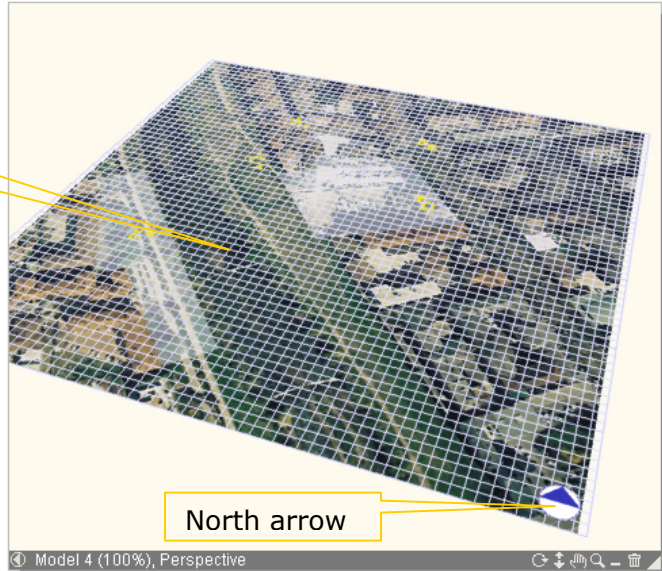


Ground Images—Any image (raster) file can be used as a ground image in the Architectural Studio 3D environment. Simply copy and paste the desired document from the workspace to the desired 3D trace document. You can retain the grid or turn it off for more clarity in the underlying image.

Aerial photograph inserted into the ground plane.

Inserted ground plane

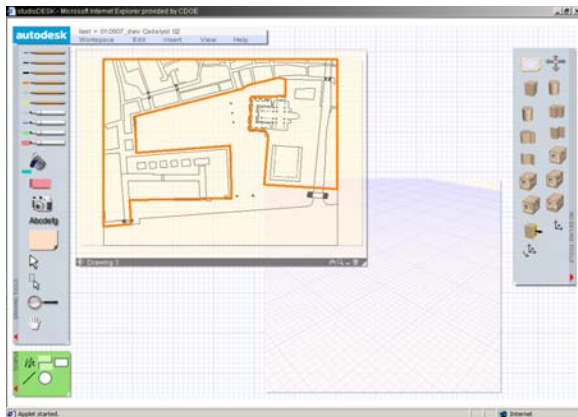
North arrow



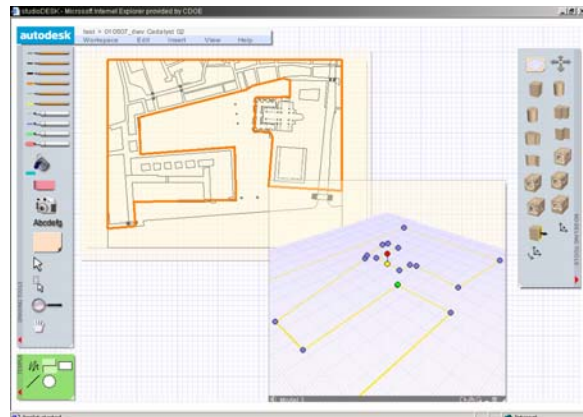
2D Geometry in 3D—You can bring any 2D geometry created in Architectural Studio into its 3D modeling environment for continued 3D development or as a reference.

For example, suppose you have a 2D sketch that you want to bring into 3D. Simply copy the desired element and paste it into the 3D document. Pull to extrude. This works with all types of freehand or hardline elements. If the 2D shape was created with the rectangle or circle template, the forms will extrude as a solid.

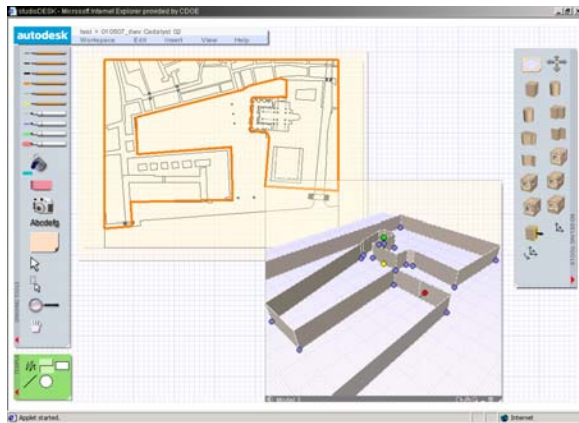
2D outline from imported plan



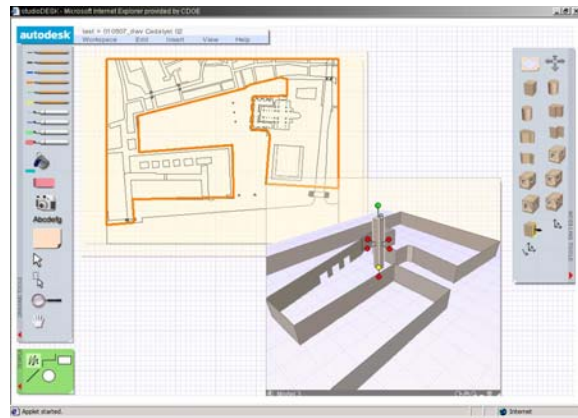
Outline copied and pasted into 3D trace



Pull vertically on red handle to extrude.

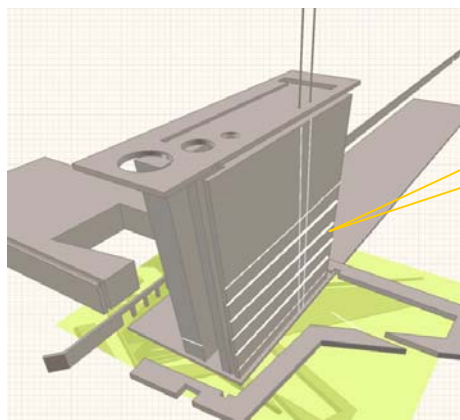


Continue modeling.



Sketching on Models—You can sketch directly into any 3D document or form. This is great for fenestration studies or for creating shapes not directly available on the modeling palette. These sketches can be selected and modified as any 2D sketch. Additionally, if you pull up on the appropriate handle, the sketched line is extruded into 3D.

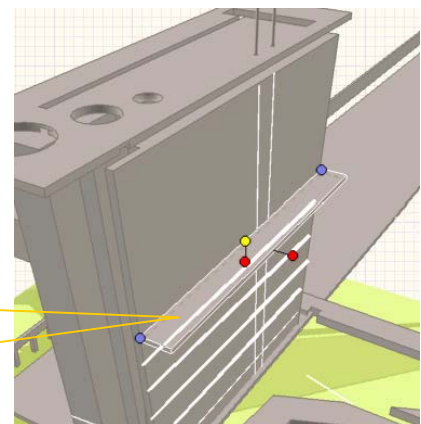
Sketching fenestration lines (in white) on 3D surface.



Sketched fenestration lines.

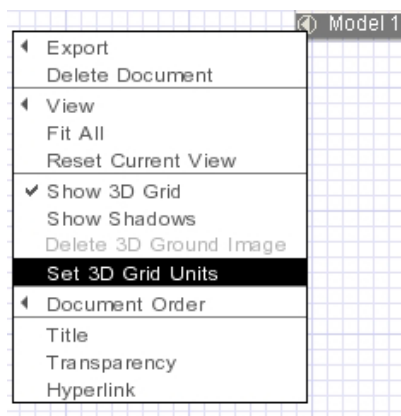
Extruded fenestration lines creating brie-soleil.

Extruding sketched line.

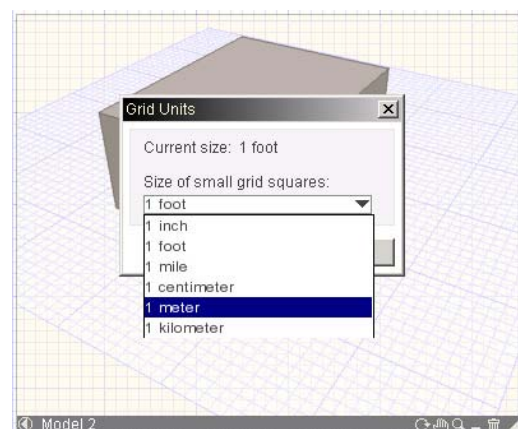


Precision—As in the 2D space, you may also create geometry with precision. The document's menu allows you to set the 3D grid units.

Set the 3D grid units via the document options menu.



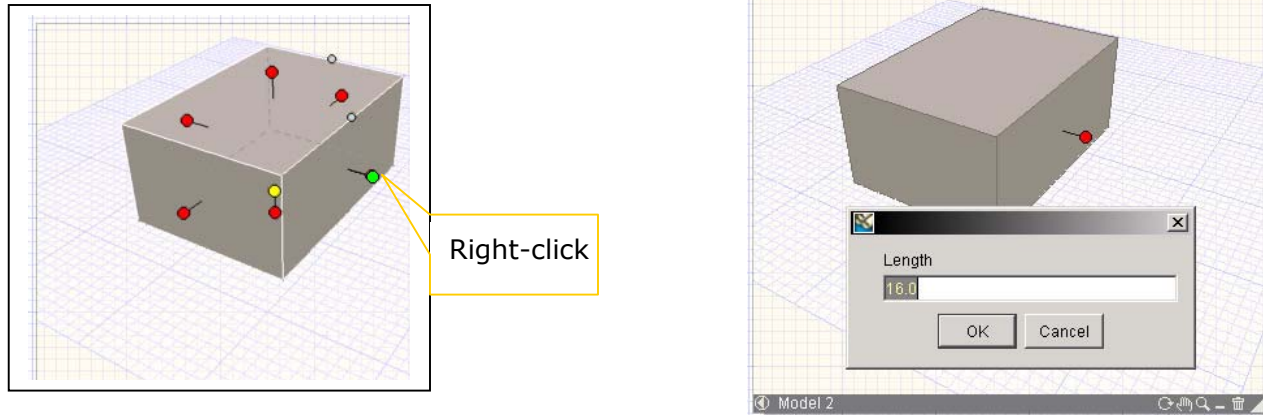
Select desired units.



If you want a bit more control than the snaps can give you, you can alter the size of any 3D object by right-clicking on the handle controlling that dimension.

Right-click on handle to set dimension

Dimension dialog



By having precision tools, one can also communicate more effectively with other production-oriented products such as Architectural Desktop.

The simplicity of these tools saves time during the design process. This timesaving can be used for studying more options or for increasing the project's bottom line.

Benefits of 3D Modeling—Use the Architectural Studio “direct manipulation” modeling tools to create study models faster than you could with chipboard or clay. Though not seen as a replacement of these media, it does augment your current design processes. As with digital sketches, you and your design team around the globe can easily view, manipulate, and modify the 3D model.

By exporting these models out to colleagues using Autodesk Architectural Desktop, you can use these study models as a base for production documentation. No steps are lost between schematic design, design development, and construction documentation.

The flexibility of the digital model also allows for on-the-fly changes to color and articulations of forms. All this can be done without knowing complex modeling programs, but through an elegant direct manipulation interface that saves you time and frustration .

Feature	Function	Benefit
3D conceptual models	Simple direct-manipulation solid modeling tools provide basic forms and voids.	Easy-to-use conceptual modeler lets you build study models quickly and allows you to work in similar fashion to clay or chipboard.
2D strokes in 3D	Use pencils and markers to draw directly on 3D surfaces. +	Sketch directly into any 3D document or form. Great for fenestration studies. Sketched lines can be extruded into 3D by pulling the appropriate handle.
3D standard views	Allows for full 360-degree viewing and rotation.	The 3D grid provides accurate perspective viewing that you control. Work with plan, elevation, and even axonometric views.
Shadows	Uses one standard light source to apply shadows to 3D models.	Turn on the shadows for a 3D model and quickly simulate lighting and shadow studies in any view.

Presentation

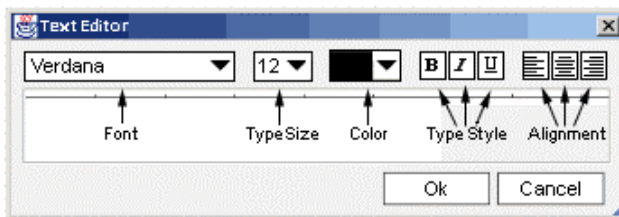
Autodesk Architectural Studio is a forum where different applications, different design phases, and even different media come together, which is great for creating compelling presentations for staff or clients. Within a single workspace, you can combine your original Architectural Studio sketches and models, precision CAD drawings, digital photographs, 3D renderings, and animations. And for a competitive edge during a presentation, you can even interact with various media using Architectural Studio's conceptual design tools. So more than just displaying your design, you can instantly and interactively incorporate team feedback to further investigate design options.

Multimedia Presentation Environment—You can combine sketches, images, animated .GIF files, DWF files created from AutoCAD drawings, text, screen shots, and 3D models to communicate various design options, to create a collage, or for presentation. Dragging and dropping several pieces of tracing paper allows you to trace over another drawing, image, or 3D model or to sketch suggested changes or additions. Changing the transparency level of a paper or image, taking snapshots of drawings and images, or changing the document order of the various pieces creates more options for communicating your ideas. Incorporating Real Player or Windows Multimedia creates a complete presentation.

Text—Text is an essential part of presentations and communications. In Architectural Studio, text can be used for both of these purposes. Drawings, images, models, and text can all be designed and presented in the same environment, saving time and resources. It will not be necessary to design in one space, hand images off to another person and have them compose various media in another location. This not only saves time but also reduces the number of people required to complete a presentation.

With the text editor, you can write text as a stand-alone block on the workspace or add it to a drawing and image. Text created on images or 3D documents will be on a separate 2D layer, the annotation layer, and will be selected, moved, or deleted separately from the image or objects in the model.

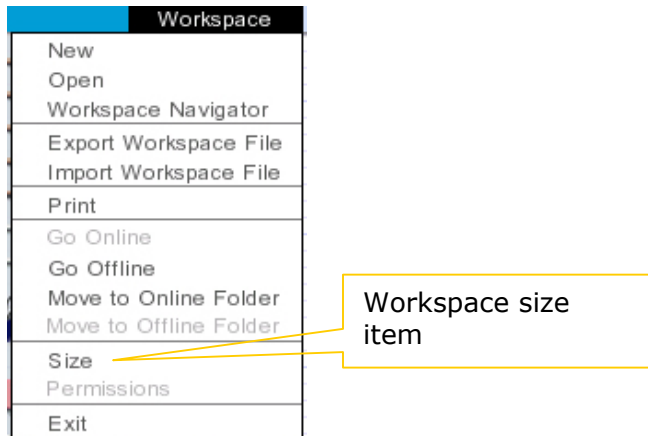
Like other items you wish to edit or modify, simply double click on the desired text and see all of its changeable properties.



Text editor

The text editor supports all Windows fonts and basic colors; styles such as bold, italic and underline; and right, left, and center justification.

Workspace Size—You can think of your workspace as a presentation board with a size that you have decided. On that presentation board are drawings of various scales. Not only can you present these boards via the Internet with the optional Design Site service, but you can print or plot them as you would traditional boards.



Set the workspace size via the main menu: Workspace>Size. The default size for the United States is an E-size sheet (34x44 inches). You can select from any predefined size, or enter your own (up to 500' x 500').

Hyperlinking—To expand the possibilities of presentations—whether they be in-house, with clients, or with any other group—Architectural Studio also has a hyperlinking tool to connect any document with another workspace. With documents and workspaces linked, you can begin to jump between presentation workspaces in any fashion you wish.

Because the underlying technology of Architectural Studio includes optimization for the Internet, the workspaces you are creating are essentially web pages. By using the hyperlink tool you can connect these “pages” as you would a website.

This exciting capability allows you to create dynamic presentations or even presentations that connect to other presentations or process work.

Printing—Architectural Studio supports the printing of workspaces. There is no need to configure special printers or plotters because Architectural Studio uses your predefined Windows printers.

Benefits of Architectural Studio’s Presentation Tools—Collaging images and animations is not the only way to create a presentation in Architectural Studio. All documents—whether they be drawings, sketches, images, animations, or models—can be incorporated into multimedia presentations. No work is lost or needs to be repeated. That sketch you drew a month ago is still available to be integrated with a movie of the site.

It is possible to present your ideas across the Internet (using Architectural Studio’s optional Design Site service) rather than with boards in person. This can save tremendous amounts of time and expense printing and mounting boards. If you choose to present remotely across the Internet, you can also save the time and expense of travel (this can be particularly beneficial for lump sum contracts).

The same can also be true for internal presentations and critiques. The process and time required for printing, mounting, and pinning up drawings could also be reduced or eliminated.

No longer do you need to jump around several applications to pull a presentation together. All documents are in the same environment. This can not only save time but also reduce the number of persons required to work on a project.

Design Site Service

Efficient communication is critical to the success of any design project. Autodesk Architectural Studio offers an optional service that gives you a new, richer kind of

communication that is interactive and takes place in real time. The communication process begins when two or more people open the same Architectural Studio workspace (via the Internet). For example, you're in Chicago reviewing plans from your San Francisco-based landscape architect. You can view, annotate, and sketch right on top of the drawings, and team members will see the changes as you make them. This service is useful for

Contract administration	Consultant coordination	Remote meetings
User-group program interviews	Field report documentation	Marketing
"On-the-road" work	Multiple office collaboration	Punch lists

Initiating Collaboration—The collaboration process begins automatically when two or more people have opened the same online workspace. As you are collaborating, the collaboration palette, on the lower right side of the workspace, will be your guide to communication.

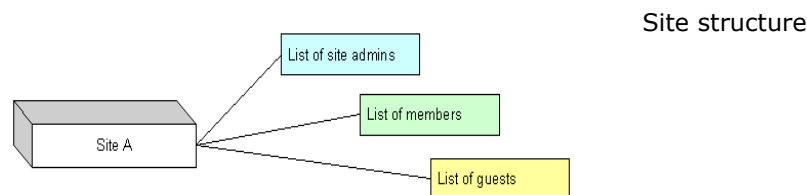


Collaboration Palette

All members participating in a design collaboration session will be able to see all design action on the workspace, such as sketching, modeling, and annotating or changing of views. They will be able to see actions to a selected stroke or 3D object, as well as work on a document. Creating, moving, minimizing, and drawing on documents and rotating a 3D model are all actions that will be seen by everyone.

Online and Offline Modes—When Internet connectivity is not available or desired, you can work offline with your locally stored data. This is similar to the way Microsoft Outlook works in online and offline modes.

Roles and Permissions—Autodesk Architectural Studio uses access and permission controls to limit an individual's access to sites, folders, and workspaces. There are three types of roles and three levels of access in Autodesk Architectural Studio. Each role allows the user to accomplish different tasks. A Site Administrator can add or delete members to their Architectural Studio site.



Site Administrators—When a site is created, the Autodesk Architectural Studio team also creates a site administrator account. This site administrator is responsible for granting or

revoking access and defining roles, as well as adding additional site administrators. The site administrator may access any part of the site.

Members—Members may create, edit, and delete data in any folder or workspace to which they have access. Members have access to all folders and workspaces unless permission is set otherwise.

Guests—Guests may view information only in the folders or workspaces to which they have access. A guest cannot access anything in the site until the permission set for a folder or workspace has been explicitly modified to grant the guest access.

There are three levels of access for members and two levels of access for guests. A user may have Admin access, Edit access, or View access.

- **Admin.** A user with admin access may use the Permissions dialog box to change the access setting for folders and workspaces for which he or she is an administrator. Guests may not have admin access. Administrators can also unlock anyone's locked workspace.
- **Edit.** A user with edit access may create, edit, and delete data. By default, a site member has edit access for the entire site.
- **View.** A user with view access may only view data. By default, a guest has view access.

Benefits of Architectural Studio's Design Site Service—Architectural Studio is a powerful design and presentation tool. When combined with real-time Internet collaboration your team and ideas can expand across the globe. Inspired during your trip to Italy? Link via your wireless service, hotel, or Internet cafe back to your office to review design changes with your team. This of course can save time, but more importantly it allows you to capture productive ideas immediately.

With your approval, consultants, clients and contractors alike can share ideas in the same workspace. No longer do you need to be surprised by the content of your consultant's submittal set. Coordinate and collaborate with them as the job progresses.

It is possible to present your ideas across the Internet, rather than with boards, or perhaps even in person. This can save time and expense printing and mounting boards. If you choose to present remotely across the Internet, you can also save the time and expense of travel (this can be particularly beneficial for lump sum contracts).

The same can also be true for internal presentations and crits. The process and time required for printing, mounting and pinning up drawings could also be reduced or eliminated.

Feature	Function	Benefit
Real- time design collaboration and communication	Design collaboration service over the Internet in real time.	Explore design ideas with other team members in real time. Save time and money by sharing information with remote locations during all phases of a project.
Asynchronous collaboration and communication	Online and offline choices allow for asynchronous file and data sharing (similar to working offline in Microsoft® Outlook®).	When Internet connectivity is not available, move files offline for editing. Then move information online to allow others to view.

Feature	Function	Benefit
Integrating e-mail and instant messaging systems	Combine other media, phone, instant messages, and videoconferencing to enhance real-time collaboration for meetings and presentations.	Leverage Autodesk Architectural Studio with other voice and video technology to communicate remotely in all media.
Private and secure Internet site	Sites are located on high-performance servers in a secure, state-of-the-art data center with strong encryption that meets industry security standards for hosted products.	Work with colleagues online with the same privacy as your firm's conference room.
Flexible administration tools	Set roles and permissions for varying levels of interactivity within your site.	As your project team changes, easily add new users to your site. Lets you control the level of access granted to members of your site.

Interoperability

Autodesk Architectural Studio is the perfect complement to your existing Autodesk software. Interoperable with Autodesk Architectural Desktop and AutoCAD software, it enhances an iterative design approach and the communication of design intent among your project team. For example, you can create loose, conceptual drawings and models in Architectural Studio, and then bring them into Architectural Desktop for further refinement during design development and construction documentation. Then return to Architectural Studio where you can view, annotate, and sketch on top of your drawing. This means your initial conceptual design data enters the digital workflow from the outset, so it's more tightly integrated with design development and construction documentation. It also means that ongoing drawing revisions and commentary—in short, all the communicative back and forth among the design team—remain digital, increasing efficiency and reducing drawing errors. Interoperability with other file formats is important for:

Interoperability with CAD (vector) and image (raster) files

File formats that Architectural Studio EXPORTS

Drawings	DXF™, JPEG
3D Models	DXF, JPEG
Images	JPEG
Arch Studio Workspace	ASW

Note: Autodesk Architectural Studio lets you directly publish your 3D models into Autodesk Architectural Desktop using the Export>Architectural Desktop feature

File formats that Architectural Studio IMPORTS

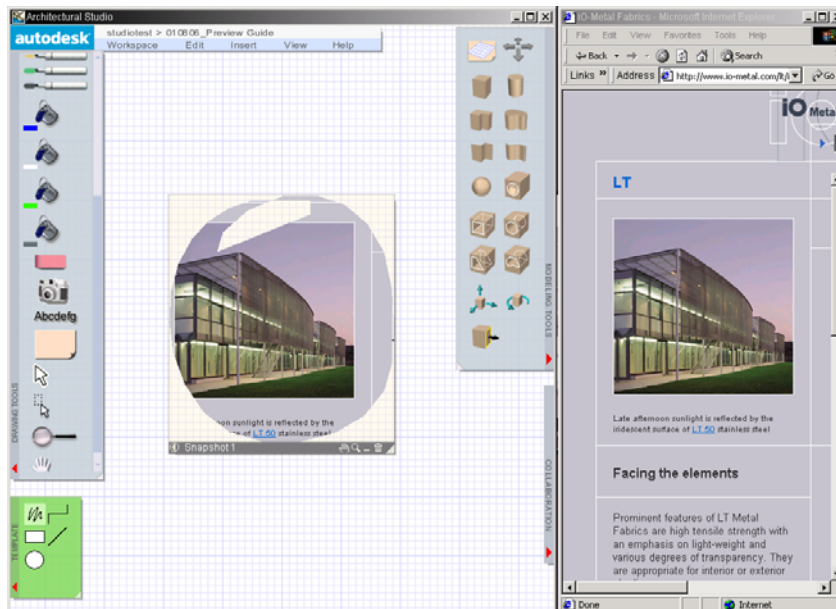
Drawings	DWF
3D models	DWF
Images	GIF, JPEG, JPG, PNG

Note: Architectural Desktop lets you directly publish your 2D drawings and 3D models into Architectural Studio using the Export>Architectural Studio feature

Please refer to the DWF creation guide for additional file creation information.

Animations – Architectural Studio supports the viewing of animated GIF files within its multi-media environment. These animated files can be used as part of a presentation, for reference or even as part of an animated collage. Once again, the tools of Architectural Studio expand the possibilities of design and presentation not only with the interoperability of vector CAD files, but animated files as well.

Snapshot Tool - You can use the Snapshot tool to take snap shots in Autodesk Architectural Studio or in other programs. This feature takes advantage of traditional processes (such as the taking of site photographs) while putting a digital spin on it. It is an entirely new media that you can use to your creative advantage. The Snapshot tool is very effective for saving images of your current thoughts, collaged documents or overlays. You may use these snapshots as new bases for options, or thumbnail them for future use.



Using Snapshot tool, with freehand template, to capture image from website (left) or with the circle template from within Architectural Studio (below):



Benefits of interoperability: First and foremost, Architectural Studio is a multi-media design environment, and allows for import and export of many applications that you use everyday. With Architectural Studio's "Export to Architectural Desktop" functionality, one doesn't even need to create an intermediate file to communicate ideas to others on your team. This saves not only time, but learning the intermediate program. Project teams may be able to be reduced during early phases because of the reduction in "rework" or models in other applications.

Image file formats supported are industry and Window standards. Share these image files with your other applications such as Photoshop, Illustrator and Freehand. Architectural Studio 's DXF export allows you to share with non-Autodesk applications.

Feature	Function	Benefit
Incorporating animation	Import animated <i>.gif</i> files into workspaces.	Enhance presentations with multimedia images such as animated GIFs right in your workspace.
Working with Autodesk Architectural Desktop	Import DWF information directly from Autodesk Architectural Desktop with Publish to Architectural Studio command. Also export Architectural Studio files directly into Architectural Desktop.	Direct import eliminates barrier between schematic design and design development. No intermediate file means simplified workflow.
Importing drawings and 3D models	Import DWF files from AutoCAD® 2000, AutoCAD® 2000i, and AutoCAD® 2002.	Import DWFs of existing drawing files to use as a read-only base for design iterations, similar to grabbing a plot of a drawing file and sketching over it. DWF is lightweight so it will load quickly into your Architectural Studio workspace. It maintains full drawing integrity, enables snapping to geometry, and supports layout and model space views.
Exporting drawings and images	Create <i>.asw</i> , <i>.dxf</i> , and <i>.jpg</i> files with Export command. ASW file format is an export of a workspace.	Allows for easy import of drawings and sketches into AutoCAD and Autodesk Architectural Desktop. JPG files can be shared with other desktop applications.
Capturing images	Create a window with the Snapshot tool to capture images from within Autodesk Architectural Studio or any other application.	Take a "snapshot" of current design or bring in an idea from a web page or views from your desktop.

Conclusion

Autodesk Architectural Studio re-creates the tools and methods of the traditional design studio and brings them into the digital world for enhanced workflow and productivity. Providing a digital suite of familiar creation and communication tools for conceptual design, sketching, 3D modeling, and presentation, Architectural Studio captures the essence of how designers worked in the days before CAD, using sketching, layers of trace, and quick

conceptual models. At the same time, designers can integrate freehand sketches and conceptual models with precision drawings generated by other Autodesk products, including Autodesk Architectural Desktop and AutoCAD software, within Autodesk Architectural Studio multimedia workspaces. Using Architectural Studio, you can bring your creative design information into the digital realm from the outset, increasing productivity and improving communication of design data.

In addition, Architectural Studio's Design Site service facilitates thinking visually about complex design problems and speeds the exploration of design alternatives with an Internet-based, collaborative design environment. Building on the benefits of Autodesk Architectural Studio software, this service takes the traditional designer's pin-up space.



Autodesk, Inc.
111 McInnis Parkway
San Rafael, CA 94903
USA

Autodesk and AutoCAD are registered trademarks of Autodesk, Inc., in the USA and other countries. All other brand names, product names, or trademarks belong to their respective holders.

© Copyright 2002 Autodesk, Inc. All rights reserved.