

# Features & Benefits

Today's competitive business environment requires project team members to efficiently share complex project information across teams in different locations and coordinate design reviews within tight schedules. **Autodesk® DWF™ Composer** software is an all-digital way to review, mark up, and revise 2D and 3D designs without the original design creation software.

Members of the design-review team can easily view and print AutoCAD® DWG and Autodesk DWF (Design Web Format™) files with accuracy and resolution. Use complete sheet set organization, powerful status tracking capabilities, and flexible measurement, redlining, and annotation tools to communicate changes electronically. "Round-trip" the DWF file, overlaying digital markups onto the original CAD file to streamline the review and editing process.

Throughout the digital design review process, Autodesk DWF Composer improves the review, markup, and revision phases, providing the following features and benefits:

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Autodesk DWF Composer includes workflow and productivity enhancements, AutoCAD® and Autodesk® Revit® product integration, as well as the ability to derive, extract, and view 2D and 3D design data. Specifically the April 2005 release of Autodesk DWF Composer includes:

- Markup features that are integrated with AutoCAD family of products and Autodesk® Revit® Building 8 and Autodesk® Revit® Structure.
- Markup browser, listing all markups for ease of navigation and review of markups.
- Status-tracking capabilities, including the ability to change status and add timestamps and comments.
- Complete sheet set organization, enabling you to manipulate DWF sheet sets to create subsets and supersets with discipline-specific information.
- Ability to directly measure and dimension to scale in the DWF file to maintain design intelligence in the sheet set.

## Accelerated Reviews with Non-CAD Users

### PROBLEM

2D and 3D designs need to be reviewed by the entire project team, many of whom do not use CAD. They may be located remotely within the same company or in outside companies. According to Autodesk research, there may be as many as 7 to 10 additional team members for each CAD user who need to review the design information across the lifecycle of a project.

Typically, design review is a paper process. Designs are printed on large-format paper and distributed via overnight courier services to project team members, who review and mark up drawings with pencil, red pens, and highlighters, and then ship marked-up designs back to the CAD user.

Design review software can accelerate this process and help reduce costs. Members of the project team need easy-to-use tools that don't require them to purchase or learn a CAD application. These tools need to provide easy access to designs for review and markup, along with the ability to easily send marked-up documents back to the CAD user.

**DWF Composer speeds design reviews with non-CAD users.**

### SOLUTION

Autodesk DWF Composer improves the design review process with easy-to-use tools to review, mark up, and revise 2D and 3D drawings, maps, and models. The DWF Composer interface is easy for anyone to learn. You can easily browse sheet sets and 3D models, navigating through sheets with thumbnail, list, bookmark, or markup views. You can also jump between sheets with hyperlinks, access rich details about objects, and show or hide layers and objects in a drawing, map, or model.

Feature	Benefit
<b>Easy-to-Use Interface</b>	Autodesk DWF Composer is built on the same technology as Autodesk DWF Viewer, with the same easy-to-use interface offering real-time pan and zoom, layers, and access to object sheet properties.
<b>3D Pan, Zoom, Orbit</b>	Use real-time pan, zoom, and orbit to view 3D models published to DWF from Autodesk design applications. 3D DWF files can be published from the following software applications: <ul style="list-style-type: none"> <li>– AutoCAD® 2006</li> <li>– Autodesk® Architectural Desktop 2006</li> <li>– Autodesk Inventor 9 and 10</li> <li>– Autodesk® Mechanical Desktop 2006</li> <li>– Autodesk Revit Building 8</li> <li>– Autodesk Revit Structure</li> <li>– Autodesk® VIZ 2006</li> <li>– 3ds max® 8</li> <li>– Autodesk® Civil 3D™ 2006</li> <li>– Autodesk® Building Systems 2006</li> <li>– Autodesk® Land Desktop 2006</li> </ul>
<b>Multisheet Navigator</b>	Intuitively navigate sheet sets in the Sheet Set Navigator window. Select from thumbnail, list, bookmark, and markup views to browse a multisheet sheet set faster and more easily than on paper.
<b>Hyperlink Support</b>	When hyperlinks are used, jump between sheets and views to browse as easily as you browse a website.
<b>Sheet and Object Properties</b>	Access properties of objects in a drawing and review status in the Properties pane, which lists sheet properties like sheet name, drawing author, and timestamp; object properties like door size, height, and materials; component and mass properties such as part number, dimensions, materials, and manufacturer; and markup properties displaying reviewer name, status, history, and notes.

Feature	Benefit
<b>Layer Control</b>	Turn layer visibility on or off to see only the information you need. Note: The AutoCAD user must enable this option when publishing the DWF file.

## High-Fidelity 2D and 3D Viewing and Printing

### PROBLEM

Project teams need a comprehensive solution for publishing, distributing, reviewing, and printing engineering data. Companies work with multiple file formats and need an easy-to-use solution to deploy throughout their workforce.

Designers invest tremendous time in their engineering and architectural designs and need to protect them from unauthorized viewing and editing. They need a file format that securely protects their intellectual property.

In addition to security, designers need a file format that preserves the rich information contained in their designs. For viewing and printing, it's essential that the designs are presented with the full fidelity of the original CAD drawing.

### SOLUTION

Autodesk DWF Composer is built around the DWF file format, an ideal format for sharing engineering drawings, maps, and models. It is the fastest, easiest way to communicate design information while ensuring secure and efficient collaboration at any stage of the project or product lifecycle.

Autodesk DWF Composer supports the high-fidelity viewing and printing of 2D and 3D DWF files. When viewing DWF files, you see the design as the designer intended—it's essentially an electronic plot. DWF files include rich design information, such as layers, views, sheet properties, units, and scale. When printing DWF files, users see an accurate rendition of the original design. You can also print to scale with precision. Autodesk DWF Composer also provides access to other printing features to print to any Microsoft® Windows® -compatible printer and accommodate available hardware.

For users who need to view or print designs in the native AutoCAD or Autodesk Inventor file formats, Autodesk DWF Composer comes with a DWG Viewer that enables viewing, plotting, and publishing to DWF format from DWG files, as well as Autodesk Inventor View to view and plot Autodesk Inventor files. To view a raster, simply drag the image into Autodesk DWF Composer.

**To view, plot, and publish DWG files use the Autodesk DWG Viewer that ships with DWF Composer.**

Feature	Benefit
<b>Autodesk DWG and DXF File Viewing</b>	A stand-alone DWG Viewer lets you view, print, and publish DWG and DXF files. Because the DWG Viewer is built on the same viewing technology as AutoCAD 2006 software, you are assured full fidelity and the ability to view the latest file format.
<b>DWF Viewing</b>	The DWF file format is more compact and easier to distribute than a DWG sheet set, enabling easy distribution and communication of design information over the Internet or via email. Unlike JPG, TIF, or PDF files, DWF files preserve design intelligence from the original CAD drawing and ensure that you are seeing what the designer intended.
<b>Autodesk Inventor File Viewing</b>	A stand-alone Autodesk Inventor View application lets you view and plot Autodesk Inventor files in IPT, IAM, and IDW file formats.

Feature	Benefit
<b>Open and View Raster Images</b>	Use Open Raster Images command to scale, measure, and mark up raster images. Raster images can then be saved as DWF files in the sheet set. Standard raster file formats supported include: .flc, .flic, .fli, .bmp, .cal, .cals, .cg4, .gp4, .mil, .rst, .gif, .ig4, .jpg, .jpeg, .jpe, .jff, .pcx, .pct, .pict, .png, .rlc, .tga, .tif, tiff (including multisheet TIFF)
<b>Flexible Print Options</b>	Choose from flexible printing options for full visual and printing fidelity. You can print files to scale or specified scale, fit to page, print selected views, tile across multiple pages, and print multiple pages or page ranges.
<b>Print Preview</b>	Preview the printable area and coordinate with paper sizes before printing.
<b>Accurate DWG Plotting</b>	Use the same plot technology as AutoCAD 2006 software, ensuring that plots look exactly like those made from AutoCAD.
<b>Printer Hardware Integration</b>	Autodesk partners with large format printer vendors including HP® or Océ® to speed the performance and ease of printing DWFs.

## Direct Measurement Tools

### PROBLEM

For design review, engineering design data must be accurate. If the measurement of a door, part, or map coordinate is off, the entire project is at risk. To access this information, project team members need easy-to-use tools to accurately measure and confirm distances, areas, and other design information.

### SOLUTION

Autodesk DWF Composer is built on the DWF file format, developed by Autodesk to address the specific needs of the design industry. DWF files contain the same design intelligence as the original CAD file, including design coordinates on an x, y, z axis.

For measurement purposes, Autodesk DWF Composer provides dimension tools with the AutoSnap™ feature to help project team members determine lengths, polylines, and areas. Furthermore, the Precision Display tool allows users to determine the number of significant digits displayed for measurement. In a fully electronic process, they can review the designs and provide feedback, helping finalize the sheet set.

Feature	Benefit
<b>Object and Sheet Properties</b>	Access object and sheet properties from the Properties window, for more data about the designs. Detailed information about each sheet can be published Autodesk® Architectural Desktop 2004 and later versions, AutoCAD 2006-based products, and Autodesk Inventor.
<b>Dimension Tool</b>	Perform quick and easy measurements using the Dimension tool to easily determine lengths, polylines, and areas.
<b>AutoSnap Feature</b>	The AutoSnap feature improves accuracy by snapping precisely to drawing geometry, ensuring a point-to-point measurement.
<b>Precision Display Tool</b>	Determine the number of significant digits displayed and determine the precision of the measurement, whether 0 or 6 decimal points.

## Comprehensive Markup and Annotation Tools

### PROBLEM

You don't want to overhaul a process that already works. In the electronic process, team members want to walk through a review set just as they do with paper, adding markups and annotations throughout the process. You need tools that are easy to access and use, with familiar features like the ability to change font sizes, colors, and formatting.

### SOLUTION

Autodesk DWF Composer speeds the review process with markup objects that provide smart shape and snapping technology for easy creation, placement, and editing of comments. The product includes easy-to-use shapes, text, freehand, stamp, and custom symbol tools in addition to assisted markup tools. Autodesk DWF Composer also keeps track of all markup information through an easy-to-navigate Markup browser, with information on who noted what, and when. A list of status and comments helps organize action items.

Feature	Benefit
<b>Markup Tools</b>	Easily mark up drawings with markup tools, adding comments to sheet sets electronically. Choose from smart shapes and freehand forms. All markups snap to fit the geometry in the underlying drawing.
<b>Text Tools</b>	Supports rich text capability, including bold, italic, underline, text color, and font size.
<b>Shape Tools</b>	Add shapes, including lines, polylines, rectangles, ellipses, and freehand sketching.
<b>Stamp Tools</b>	Select from preconfigured stamps to quickly change the status of the design review from Preliminary to Final.
<b>Custom Symbols</b>	Annotate and markup information in the office or out in the field with symbols. Create a custom catalogue of symbols from any source including block object data created in AutoCAD 2006, any DWF file, and raster images.
<b>Highlight Cross Selection</b>	Improve the tracking and management of markups, with a graphical highlight of the selected markups, much like highlighting markups on paper.
<b>Markup Browser</b>	Markups are automatically recorded in the Markup tab of the Sheet Set Navigator, where they can also be viewed by status.

**“With DWF Composer you can put your comments within the context of the design, which makes things so much easier for both the engineer and the contractor.”**

## Single File for all Design Data

### PROBLEM

Final sheet sets include more than drawing sheets; they often contain information like takeoffs, bills of materials, photographs, images, product specifications, project timelines, and more. The design review team needs to be able to add this information and update it throughout the design review process until the designs are final. Project managers also need to be able to organize this information, or reorganize it, to present it in a comprehensive manner to their project team.

### SOLUTION

Autodesk DWF Composer enables team members to work with multiple document types in one multisheet DWF sheet set, compositing images, sketches, project timelines, specifications, bills of materials, and other project information. Think of the DWF file as a super-zip file. With DWF Composer you can add raster images and files of any type, once converted to DWF with the Autodesk® DWF™ Writer. With the new Snapshot Tool, users can capture any onscreen information and bring it into their DWF file. The result is a single file with all the information needed for that project.

Feature	Benefit
<b>Add Sheets or Files</b>	Add new DWF files by dragging DWF files or individual sheets into the Sheet Set Navigator window from another instance of DWF Composer or from Windows Explorer.
<b>Delete Sheets or Files</b>	Delete sheets simply by selecting and deleting the sheet from the Navigator.
<b>Reorder Sheets</b>	Reorder sheets by dragging the sheet from the Navigator window.
<b>Autodesk DWF Writer</b> <b>-Create DWF files from any application</b>	Use the free Autodesk DWF Writer to create DWF files from any printing application. The DWF Writer is a certified Microsoft Windows printer driver that enables you to publish DWF files by selecting Autodesk DWF Writer from the standard printer name drop-down list in any Windows application. Once the file is converted to a DWF file, it can be combined into the sheet set in DWF Composer and resaved as a new sheet set for distribution. (Autodesk DWF Writer ships with the full seat of Autodesk DWF Composer and requires a separate installation.)
<b>Snapshot Tool</b> <b>-Capture graphical information from any application</b>	The new snapshot tool allows users to capture any onscreen information and bring it into their DWF file. The snapshot tool provides a fast, simple-to-use way to capture graphical information from anything on a users display and automatically publish that information into DWF.
<b>Open Multiple Instances of Autodesk DWF Composer</b> <b>-Create subsets</b>	Create new, discipline-specific sheet sets from larger ones simply by opening multiple instances of Autodesk DWF Composer and dragging selected sheets into the Sheet Set Navigator window.
<b>Save As</b> <b>-Resend DWF files</b>	Once the review and comment phases are complete, you can resave sheet set and markup changes by selecting Save As from the File menu. You can then email the DWF file or post it to the Internet or the Autodesk® Buzzsaw® service for another reviewer to add comments, or send it directly to the CAD user for changes.
<b>Drag and Drop</b> <b>-Create subsets of drawings</b>	Create subsets of sheet sets, including discipline specific sets, by highlighting multiple sheets and dragging them to your desktop or a designated folder.

## Powerful Status Tracking

### PROBLEM

Project managers and project team members need to track status throughout the design review process. They need to understand what issues need to be resolved before the sheet set can be finalized. They also need to be assured that all markups are accounted for and incorporated into the final version.

Today, a project manager distributes multiple copies of the design drawings, collects feedback, and provides changes to the CAD user. Aggregating the markups is a complex process, with markups occasionally overlooked or misinterpreted.

Project managers and the project team need a comprehensive process for gathering markups, reviewing the status of changes, and ensuring that all changes are incorporated into the design.

### SOLUTION

Autodesk DWF Composer was built to improve the design review process. Beyond review and markup capabilities, DWF Composer keeps track of all markups and redline information through an easy-to-navigate markup browser in the Markups tab of the Navigator window. Information on who added markups or annotations, and when, is

**“Writing down 30 comments could take us 4 hours or more... With DWF Composer we can do the same amount of work in half an hour or 45 minutes.”**

displayed in the Markup Properties section. Furthermore, a list of notes, including the history of communication, is tracked along with the status of the reviews, helping to organize what action items are under review, open for question, or closed. Enhanced features like highlighting cross selections and assigning colors to markup status will improve communication through visual queues to the markup status.

Further facilitating project management and status tracking of projects throughout the design review process is the integration of Autodesk DWF Composer with the Autodesk Buzzsaw service. Buzzsaw provides a secure, online collaboration, workflow, and project management service to help keep project teams connected by enabling them to store, manage, and share documents using an Internet connection. The functionality of Autodesk DWF Composer is fully integrated into the Buzzsaw viewing capabilities.

Feature	Benefit
<b>Markup Tab</b>	Track comments and status in the Navigator window Markups tab, easily accessing comments that have been made throughout the review process. You can instantly jump to the marked-up sheet by clicking the markup selected in the Markups tab. The markup will be highlighted, to help keep track of and manage markups with a graphical interface.
<b>Markup Properties</b>	The Markups tab in the Properties window provides an easy-to-use mechanism for communicating status and comments throughout the design review process.
<b>Status</b>	Change review status and quickly address open issues by selecting Question, For Review, or Done in the Markup Properties dialog box. Status information is preserved and presented to the recipient of the reviewed DWF file.
<b>Markup Color Status</b>	Users can assign markups different colors to provide a graphically reference for the markup's status. For example, a markup changed to Done can be highlighted in yellow.
<b>History</b>	Track the history of comments for more fluid communication using the History section of the Markup Properties dialog box.
<b>Timestamp</b>	Automatically track markups with timestamps, enabling reviewers to see time and date of the markups and comments.
<b>Notes</b>	Add notes in the Markup Properties dialog box that accompany the markups and the status change throughout the review process to supplement and iterate the discussion.
<b>Integration with Buzzsaw</b>	Use Autodesk DWF Composer with Autodesk Buzzsaw to help your team stay connected and work at the peak of their capabilities. DWF Composer works within Buzzsaw, for design review and document management.

## Integrated Review with Autodesk Design Applications

### PROBLEM

Reviewing and marking up engineering drawings are only part of the challenge. Comprehensively collecting these changes and making design updates in the CAD application is the next step in the review process.

CAD users need an easy way to get the markup information back into their CAD files. They need to be able to respond to questions and address status changes at various points in the review.

### SOLUTION

Autodesk DWF Composer in conjunction with AutoCAD-based products, Autodesk Revit Building and Autodesk Revit Structure help reduce errors and cycle time by integrating markups and annotations made in DWF Composer back into the design applications. After changes have been made in DWF Composer, the republished DWF file and the markups can be reopened and loaded into AutoCAD and Revit. A markup set is a collection of individual markups, contained in a single DWF file that has been resent from the DWF Composer user (design reviewer) to the AutoCAD user (designer, architect, or engineer).

AutoCAD and Revit users can view a markup set in their design software using the Markup Set Manager, accessible from the Markup command or the Open Markup DWF dialog box. The Markup Set Manager displays the list of markups so the CAD user can systematically walk through the design set, reference markups in the DWF file, make design changes in the DWG file, change the markup status, switch between views of the published, marked-up drawing and the up-to-date DWG design file, and republish the DWF file for redistribution and communication of status updates to the project team.

### INTEGRATED AUTOCAD and REVIT FEATURES

Feature	Benefit
<b>Markup Set Manager</b>	Quickly review and respond to changes, navigating comments across sheet sets in AutoCAD, Revit Building, and Revit Structure. The design software's Markup Set Manager enables the CAD user to systematically walk through a review set, navigating markups presented in a tree view. From the Markups tree, the user can jump directly to the sheets with markups, change the markup status, and more.
<b>Toggle Markups On or Off</b>	AutoCAD and Revit users can turn markup views on or off in the Markup Set Manager, jumping to and reviewing the markups in the on position and turning them off when making changes in the native CAD file (DWG).
<b>Toggle Between Markup Overlay / DWF Sheet View</b>	In the Markup Set Manager, AutoCAD and Revit users can also view markups as an overlay of the DWG file or as separate DWF sheet views, choosing the ideal format for revisions.
<b>Markup Tree Views</b>	In the Markup Set Manager, AutoCAD and Revit users can view details about a particular sheet or markup, and switch between a detail view and a preview of the markup.
<b>Markup Status</b>	Using the markup functionality, AutoCAD and Revit users can change the markup status, republish the DWF file, and then redistribute it.
<b>Digital Signatures and Passwords</b>	Share designs with confidence using password-protected DWF files. Before publishing a DWF file, AutoCAD users can select a password, requiring the DWF Composer or DWF Viewer user to enter this password before opening the file.

Feature	Benefit
<hr/> <b>Publish DWF Files</b>	Perform electronic review iterations, retransmitting DWF files across the project team through drawing review, markup, and revisions, streamlining workflow and helping to increase productivity. The electronic design review process can continue until the sheet set is finalized and approved.
<hr/> <b>Redistribute DWF Files</b>	By using the DWF file format, you save money (no cost for shipping hard copy) and time (instant delivery) while protecting the integrity of your designs. Autodesk has developed the DWF file format to meet the specific, complex needs of the engineering design community.

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