

Eaton Corporation

Leading manufacturer improves collaboration and employee product knowledge by incorporating realistic, interactive 3D designs into manuals using Adobe® Acrobat® 3D software and Photoshop® CS3 Extended

Eaton Corporation

www.eaton.com



Industry

Manufacturing

Challenges

- Accelerate field staff's access to product information
- Improve product knowledge using interactive 3D designs
- Streamline collaboration across product teams

Solution

- Document collaboration
 - Employee training
- Eaton uses Adobe Acrobat 3D Version 8 and Photoshop CS3 Extended to provide its field staff with reliable, easy access to complex manuals incorporating visually compelling 3D illustrations in Adobe PDF.

Results

- Accelerated field staff access to information by as much as 99%
- Improved product understanding and productivity by communicating 3D designs in Adobe PDF
- Created more visually realistic 3D models
- Reduced costs to print and deliver manuals
- Streamlined document management
- Enhanced customer service

Systems At A Glance

- Adobe Acrobat 3D Version 8
- Adobe Photoshop CS3 Extended
- Adobe Illustrator® CS2
- Adobe InDesign® CS2
- PTC Pro/ENGINEER
- Microsoft Word
- BroadVision QuickSilver
- Microsoft® Windows® XP Professional
- Dell desktop and laptop computers

Mission-critical service and support

Eaton Corporation delivers an award-winning line of power management solutions that keep vital systems up and running at corporations worldwide. Given the essential nature of Eaton power quality solutions, the company's team of 350 customer service engineers (CSEs) is one of the most highly trained in the power industry. Central to providing CSEs with the training and information they need to provide outstanding services is Adobe Acrobat 3D Version 8 software.

"By integrating 3D models in Adobe Portable Document Format (PDF) into our maintenance manuals, we give CSEs instant insight into system components and how they function within our power solutions," says Sherman Ferguson, technical writer at Eaton. "The 3D models in Adobe PDF are excellent for training, offering CSEs a firsthand look at components that they might not have seen in the field."

Unprecedented access to 3D designs

Traditionally, understanding the company's complex products required studying lengthy hard-copy manuals containing hundreds of pages of text, pictures, and complicated diagrams. As a result, CSEs supporting Eaton's uninterruptible power supply (UPS) Powerware line traveled with box loads of technical guides in their service vans.

"No matter how much detail we provide on printed pages, we cannot come close to the immediacy of designs in 3D," explains Ferguson. "With Acrobat 3D Version 8, we can easily convert Pro/ENGINEER 3D designs to Adobe PDF files that CSEs can view reliably with free Adobe Reader® software."

Integrating 3D designs into technical manuals boosts staff productivity by better communicating complex ideas through rich content and making the manuals easier to use. Also, by including 3D animations such as assembly and disassembly instructions, the more visual manuals overcome language barriers and reduce errors from misunderstandings.

Staff can review the platform- and application-independent Adobe PDF files using free Adobe Reader software, eliminating the need for Eaton to buy and maintain expensive 3D-viewing software. Using Adobe Reader, reviewers can rotate the 3D designs to check parts and assemblies, measure the thickness of various elements, and cut cross sections to gain better insight into the product.

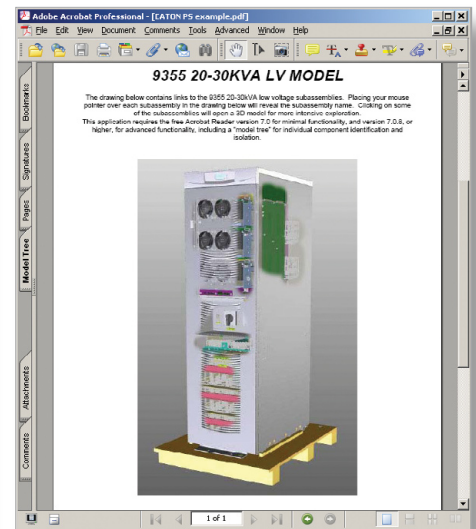
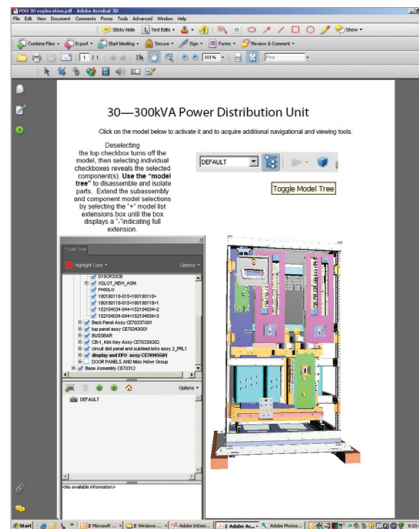
Overcoming obstacles to information sharing

Improved insight into products is only one of the many benefits Eaton realizes from using Acrobat 3D Version 8 software. Previously, the company found it difficult to regularly deliver updated service information to the field. At best, hard-copy manuals on paper were updated annually, at a cost of more than \$100,000 for printing and shipping.

Once CSEs received materials, they jotted notes on the pages to record their experiences for reference on future projects. "Our field staff had a lot of valuable knowledge sitting in paper files that were inaccessible to the larger team," says Ferguson. "We needed to make it easier for CSEs to share information and collaborate with each other."



Using Adobe Acrobat 3D software, Eaton field staff can gain instant insight into the company's complex products. Employees can use free Adobe Reader software to view parts and assemblies in 3D models in Adobe PDF from all angles, to measure the thickness of various elements, and to cut cross sections for a clearer understand of products.



“Using Adobe Photoshop CS3 Extended to apply photographic texture maps to printed circuit board components adds a higher degree of realism and definition to 3D models and gives us a seamless workflow from the original 3D models to the creation of visually compelling technical documentation.”

Sherman Ferguson,
Technical writer,
Eaton Corporation

Another benefit of using the latest version of the Acrobat 3D software is the ability to initiate web conferences directly from inside the application, enabling dispersed teams to collaborate in real time. It also delivers performance gains in terms of faster navigation of 3D computer-aided design (CAD) models and more visible workspace around models.

The more secure Adobe PDF files retain the exact formatting of text, layout, images, and other page elements in Eaton documentation. Plus, the compact files support interactive features such as digital commenting and dynamic viewing of 3D designs.

“Converting service manuals to Adobe PDF results in materials that are more useful, interactive, and easier to manage,” says Ferguson. Eaton CSEs routinely use commenting tools enabled in Adobe Reader software to make digital notes on manuals. Their comments can be saved, sorted, and searched for future reference. Equally important, the digital notes can be shared with peers and technical writers who can easily incorporate feedback into updated documents.

Leveraging Adobe Creative Suite interoperability

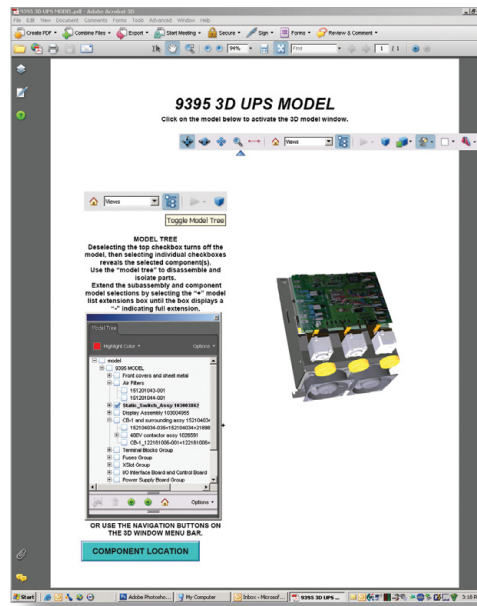
Adobe Creative Suite® products, including Adobe Illustrator, InDesign, and Photoshop CS3 Extended, tie-in nicely with the company's use of Acrobat 3D and the Adobe PDF documents the company produces. “The Adobe Creative Suite and Acrobat 3D combination give us greater functionality in the evolution of our interactive documents than either could alone,” says Ferguson.

The 3D visualization and texture editing capabilities of Photoshop CS3 Extended are particularly useful because they enable technical writers to create visually compelling 3D models. First, Ferguson exports Acrobat 3D renderings into raster format and brings the 3D models into Photoshop CS3 Extended. Next, he applies bitmap textures to printed circuit board components, which would otherwise be represented as flat planes. Lastly, he imports the Photoshop files into the technical documentation created using InDesign, which exports directly to Acrobat.

Ferguson showed the texture mapping results to a product engineer, who was very excited about the prospects of combining component photos with 3D textures in documentation using Photoshop CS3 Extended. “Using Adobe Photoshop CS3 Extended to apply photographic texture maps to printed circuit board components adds a higher degree of realism and definition to 3D models and gives us a seamless workflow from the original 3D models to the creation of visually compelling technical documentation,” Ferguson says.

In addition to using Photoshop CS3 Extended for equipment photo touch-up, cropping, and texture editing, Eaton uses layered Photoshop files as interactive menu elements for Acrobat 3D models. Overall, the compatibility of Creative Suite applications enables Eaton to seamlessly convert files, move between applications, highlight components, and create interactive 3D Adobe PDF documentation that focuses directly on the information SMEs need to do their jobs.

Eaton technical writers create more realistic technical documentation by using Adobe Photoshop CS3 Extended to apply a printed circuit board bitmap to a 3D static switch board.



“With dynamic 3D designs in Adobe PDF, we can improve the quality of information available to staff and make it easier for engineers to collaborate with groups company-wide.”

Sherman Ferguson,
Technical writer,
Eaton Corporation

For More Information

www.adobe.com/products/acrobat3d/
www.adobe.com/products/photoshop/family/

Simplifying complex processes

The company’s technical writers create and lay out service manuals using Microsoft Word and BroadVision QuickSilver software. Engineers typically use Pro/ENGINEER to create 3D designs that are forwarded to technical writers to incorporate into the manuals.

“With Acrobat 3D Version 8, we can convert a variety of application files—QuickSilver, Pro/ENGINEER, Microsoft Office, Adobe Illustrator, and Adobe Photoshop—to Adobe PDF files that can be combined into one file or linked across documents for easy reference,” says Ferguson. “Staff can access in minutes technical information that could previously have taken an hour or longer to find.”

In addition to streamlining access to information, technical writers can use the Adobe solution to easily leverage 3D design assets for use in future materials, without needing to have CAD applications installed on their desktops or requiring more input from engineers.

Transforming information sharing and collaboration

As Adobe expands opportunities for delivering interactive content, other groups at Eaton are excited about the potential for using Acrobat 3D software. For example, Eaton creative professionals can use Adobe Reader software to view 3D designs developed in virtually any 3D CAD application, clean up the designs, and create 2D vector art and raster illustrations to produce final deliverables. Adobe Acrobat 3D software also enables CAD design data to be placed directly in Microsoft Office documents to streamline production of interactive 3D PDF files.

“With dynamic 3D designs in Adobe PDF, we can improve the quality of information available to staff and make it easier for engineers to collaborate with groups company-wide,” says Ferguson. “We can also ensure that field staff always has access to rich, interactive product information where and when they need it.”



Adobe

Adobe Systems Incorporated
345 Park Avenue
San Jose, CA 95110-2704
USA
www.adobe.com

Adobe, the Adobe logo, Acrobat, Creative Suite, Illustrator, InDesign, Photoshop, and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. All other trademarks are the property of their respective owners.

© 2007 Adobe Systems Incorporated. All rights reserved. Printed in the USA.
95010127 09/07 A