

Alibre Design 8.0

*More powerful modeling and other enhancements
makes this MCAD program one of today's best values*

When Alibre Design™ premiered almost five years ago, it was thought of, and rightfully so, as a software program with advanced collaboration capabilities, but below average mechanical modeling tools. Since then, while its developer Alibre, Inc. has continued to improve their collaboration tools, they have really worked hard at the modeling functions. So let's review the most important new and enhanced tools in version 8.0.

New Modeling Operations

In Alibre Design, all 3D objects begin with a sketch so an important addition is the inclusion of 3D sketching capabilities, which allows users to create 3D splines, arcs and lines, as seen in figure 1 (below). Drawing begins on the active plane and by simply hitting the F key (for Flip axis) it can continue on another plane. Projection into another plane can also be accomplished by snapping to an existing 3D object and users can also key-in 3D coordinates.

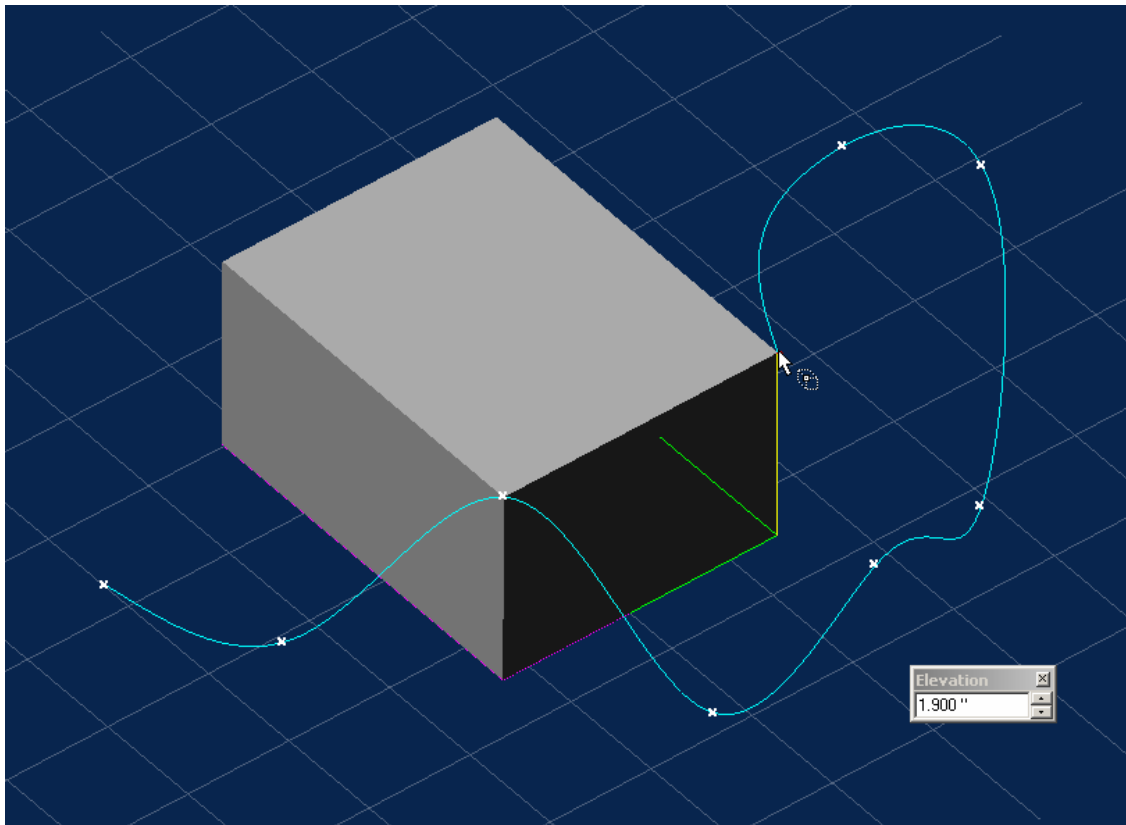


Figure 1 – 3D sketches can be accurately placed by snapping to existing points and also by using the Elevation command to key-in desired heights.

Having 3D sketching directly improves the capabilities of two modeling commands: Sweep and Loft.

Sweep can make use of a 3D sketch to create more sophisticated shapes, such as tubes and wires. I would have liked to have seen the Sweep command become a little less rigid – that is certain rules still have to be followed in order to get it to work.

The Loft command has been improved in several ways. For starters, a Loft using guide rail curves is now possible and these curves can be a 3D sketch. It is also now possible to loft to a single point, but perhaps the most powerful new option is the ability to control the tangency of the loft (see figure 2).

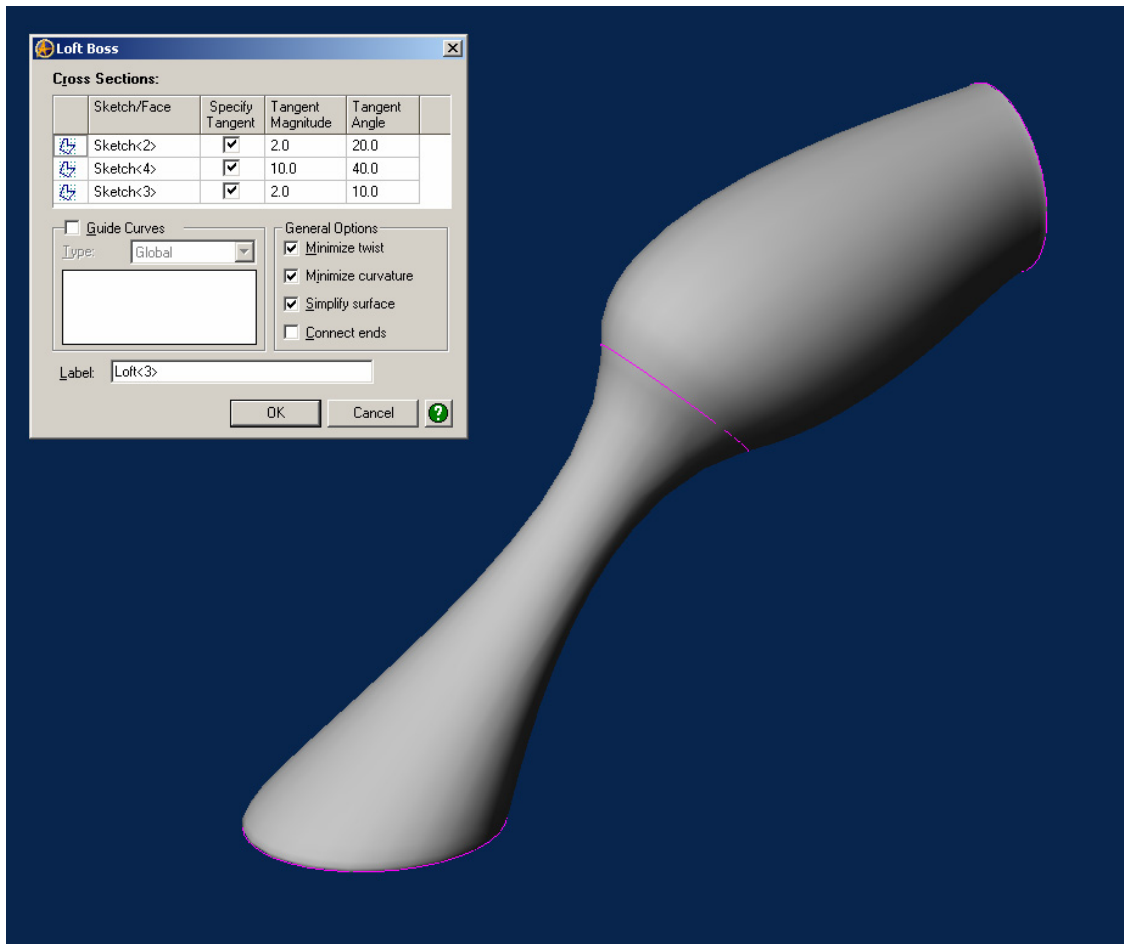


Figure 2 – While Alibre Design 8.0 now supports guide curves when lofting, this shape could be created without them due to the new angle and magnitude settings in the Loft command.

An essential modeling operation is the ability to perform Boolean operations, and this release improves on the Alibre Design software's capabilities by making them associative and history-based. The former means that if one of the components changes, the resulting Boolean operation updates, as seen in figure 3 (below). The latter means that it is possible to go back and edit the Boolean operation – for instance, replace one part with another or move and/or rotate a part.



Figure 3 – The first two images above show a phone part and the mold cavity created from it. After more buttons were added to the part the cavity was automatically updated due to the new associative Booleans in Alibre Design 8.0 (image below).



There are also other improvements that help with modeling. One is a new technique for managing assembly constraints on a component basis. In version 8.0, users can simply highlight a part and see all its related constraints in a much more organized fashion than in previous versions. Another key enhancement is the support for importing of surfaces. With this new capability, users can import a surface model from a program like Rhino, for instance, and then thicken it into a solid. Or, as another example, a single surface can be imported and used to trim a solid to help create a styled body.

Other Enhancements

Perhaps the area of the program that has improved the most since the initial release is drafting. In version 8.0, Alibre Design now has support for importing images in the drawing templates, useful for adding items like logos, as seen in figure 4 (below). Also enhanced are how ordinate dimensions work when measuring to center lines and marks, and how text associated with rotated surface finish symbols now displays better. However, for sheer productivity, I like the improved flexibility Alibre Design 8.0 offers when defining line styles and color definitions.

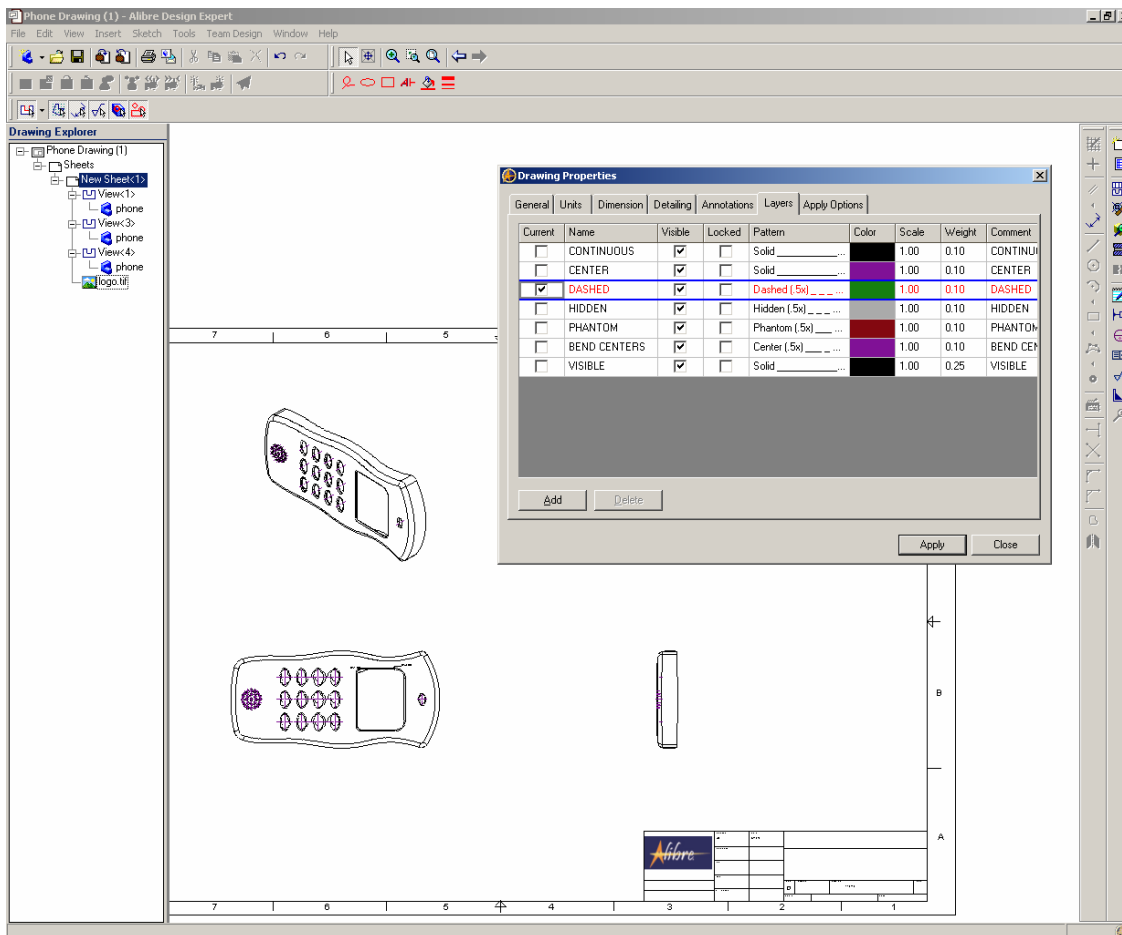


Figure 4 – This image shows some of the new drafting features of Alibre Design 8.0, including the ability to place a bitmap and the improved flexibility when defining line styles and color definitions.

In general the user interface has stayed the same but Alibre did make one change that makes the program more intuitive. When selecting, the program now assumes the picking of multiple objects. This means it is no longer necessary to hold the Shift key when picking the two lines required for a fillet, for instance.

While a relatively small percentage of users fully understand the importance of APIs (Application Programming Interface) the fact that Alibre Design now has them is a big plus. They will help users automate and customize repetitive operations, as well as improve the integration with third-party add-ons such as FEA (finite element analysis), CAM (computer-aided manufacturing), part libraries and others applications.

Other Packages

Speaking of FEA, CAM and other applications, everything discussed so far is all part of the Alibre Design base program which costs only \$795. However, for only \$1295, users can purchase Alibre Design Professional. It includes an easy to use and fairly powerful sheet metal module (see figure 5, below), photorendering capabilities and data management tools. They also get a copy of MecSoft's VisualMill Basic 3.0, a CAM application for creating the toolpaths needed to handle 3-axis milling. In addition, Alibre Design Professional includes a limited version of DesignCheck, FEA software from ALGOR.

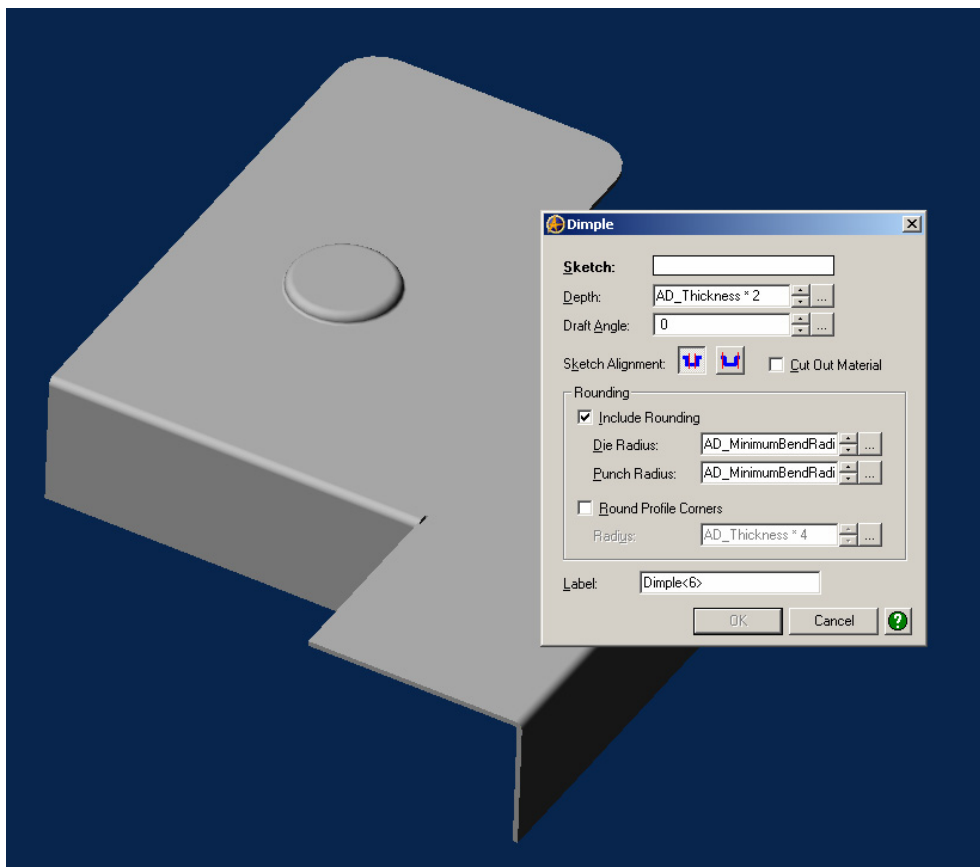


Figure 5 – Alibre Design Professional offers powerful and interactive sheet metal design capabilities.

For another \$500, there is Alibre Design Expert. It offers motion analysis capabilities via one of the most respected products on the market, MSC.visualNastran Motion. Users also get a 3.5 axis CAM program called SprutCAM. Manufacturers will also like the inclusion of a tool called the Machinist ToolBox which is like a mini Machinery's Handbook, complete with calculators and other machining reference data. In addition, Expert users receive improved rendering via the Alibre PhotoRender Industrial Pack and a server-based repository for storing project data. Finally, all packages come with a least an hour of training, via program's online collaboration system, which proves to be a unique training system no one else offers.

Conclusions

No matter which Alibre Design package you choose, it is clear that the software is one of the best all-around values in CAD/CAM/CAE today. Some programs may offer another option or two on this tool or that one, but for most users, what Alibre Design offers is more than enough to get just about any job done.

Joe Greco has spent the last 20 years working with and writing about CAD software. In addition to CAD, his expertise covers related topics such as CAM, CAE, rapid prototyping, reverse engineering, Web collaboration, and interoperability. He is a regular contributor to popular industry magazines including Desktop Engineering, CADALYST, and Design Product News and he has written for Machine Design magazine and other publications.