

## Case Study

# MCB Engineering Consulting, LLC

Gerry Dail founded MCB Engineering Consulting after 30 years with Alcoa, a global leader in lightweight metals engineering and manufacturing, and 28 years with the Active Army and the Army Reserves. His company serves a wide range of clients including multinational corporations looking to tap his deep experience in aluminum extrusion and small companies that need occasional engineering expertise but lack the scale to hire a full time engineering staff.

MCB Engineering has largely focused on finite element analysis (FEA), but clients have relied on Dail's broad experience and knowledge of engineering concepts for a wide range of services that call on all of his talents. Since starting his company in 2012, he's provided services to companies manufacturing bearings, heavy trucks, and consumer goods, working in composites, aluminum, steel, and more doing machine design, practical plant engineering analysis, and concept design.

Before he retired from Alcoa, Dail spent most of his time managing the work of others. Starting out on his own, he was looking forward to getting back to the business of engineering. He knew the right mix of modeling and analysis software was an important factor in his success.

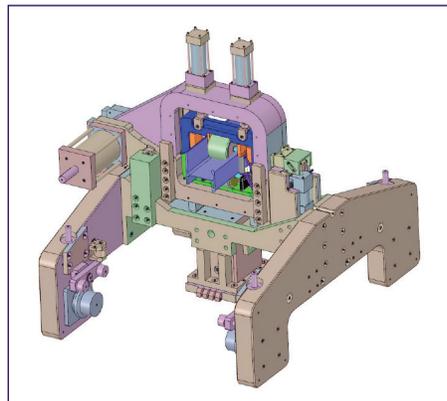
### Finding Software that Is Flexible, but Won't Break the Bank

Providing expert FEA services to clients large and small requires the ability to easily and quickly edit geometry. In his work with Alcoa and the Army Reserves, Dail had the opportunity to work with several 3D modeling packages. He is familiar with the relative merits of each but knew he needed more flexibility than the big parametric software packages could provide, and Dail needed the software to be intuitive enough

for occasional use. He didn't have the time to struggle with an overly complex user interface.

In addition, Dail needed a software program that was powerful enough to handle large assemblies, which is often required by his clients. Software that brought his computer to a crawl when he tried to open clients' files was unacceptable.

Dail was encouraged to start his business with software he could afford before he generated revenue. Ideally, he would be able to equip himself with tools that were ready for any client request without having to take out loans.



Contour yield forming roll machine.

## About MCB Engineering Consulting, LLC

- Independent engineering consultancy led by 35-year veteran of machine design, plant project engineering, research and development, and military, manufacturing, and engineering leadership.
- Offers custom mechanical engineering solutions to clients of all sizes in a variety of industries.

### Goals

- Find a 3D modeling system that enhances the primary FEA focus of the consultancy.
- Create and edit any 3D model without becoming a CAD expert in multiple CAD packages.
- Respond quickly to client needs with modeling and analysis services.

### Results

- Quick ramp up for the new business without costs associated with parametric CAD software.
- SpaceClaim paid for itself in a manner of a few weeks.
- MCB relies on a single solution that provides the 3D modeling functionality needed to support model prep for analysis and all other geometry-related client work.

[www.mcbengineering.com](http://www.mcbengineering.com)

*"With SpaceClaim as my principle 3D modeling package, I don't think there's anything that I've come across that it can't do. The power that SpaceClaim offers for its price is really remarkable."*

— Gerry Dail, President, MCB Engineering Consulting

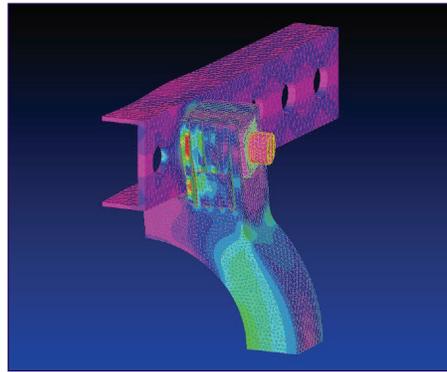
## "It Works the Way an Engineer Thinks"

Several years earlier, Dail had brought SpaceClaim into a major manufacturing facility. He found that maintaining licenses for software used at the plant was becoming burdensome from a cost perspective and believed that other software he tested was too cumbersome to be useful to his team of analysis and project engineers. SpaceClaim's intuitive interface and total cost of ownership was a good fit in this situation.

While Dail thought SpaceClaim might be a good fit for MCB, as well, he still needed to see how it would perform with large assemblies. Dail tested SpaceClaim Engineer with the most complex assembly he ever had to edit and found it performed flawlessly. Also, creating 2D drawings for machine shops and importing STEP files intact was no problem at all for SpaceClaim. The software handled every demanding situation he could devise and did so with ease.

Since starting out, Dail's experience in FEA has been in high demand, and he spends the majority of his time using NEi Nastran to test models and provide expert analysis. However, to provide the kind of service his clients need, he also needs to be able to edit the models on demand. That's where SpaceClaim's intuitive interface becomes most important to Dail.

Unlike his experience trying to learn other 3D editing tools, Dail was self-taught in SpaceClaim Engineer and finds he can dive in quickly to easily manage any work he needs to do. He can change features of the model for retesting or even create entirely new models, as the situation requires, without getting lost in the software. He can create solids from 2D drawings in SpaceClaim Engineer, conduct his analysis in NEi Nastran, and share the final 3D models in any format the client needs. Dail can also easily move back and forth between editing/repairing a model and running the simulation. As Dail says, "it works the way an engineer thinks."



Complex machine structure undergoing z-axis loading of 1 million pounds—quarter symmetry showing distortion energy stress.

He also gives high marks to SpaceClaim's customer service. When he runs into trouble, he says the support team rapidly comes to his aid and works with him on the model to resolve the issue. It's a service that he can appreciate as a small business owner; any lost time is not only lost money, but also potentially a lost client relationship.

SpaceClaim Engineer allowed Dail to ramp up MCB quickly. Within weeks, SpaceClaim had paid for itself in billings. Without SpaceClaim, Dail says, he wouldn't be in business for himself today.

## The Final Analysis

Dail finds SpaceClaim Engineer to be powerful and intuitive enough to handle any model creation and editing he needs to do and quickly get him back to testing and analysis. He can work with any files his clients send him to make all of the changes needed to thoroughly analyze the design.

In his previous experience, Dail encouraged each engineer to work with the software he or she was most comfortable using, but now that he's on his own, he finds he only needs one. SpaceClaim Engineer meets every need and allows him to push his analysis to the full scope of his substantial experience.

## About SpaceClaim

SpaceClaim, the leading provider of 3D Direct Modeling software, develops the best direct modeling solution for engineering and manufacturing. SpaceClaim's acclaimed software is easy to learn and use and is completely CAD-neutral. It enables engineers and other manufacturing professionals to rapidly create new designs or manipulate and edit existing 2D and 3D geometry, without the complexity of traditional CAD. Customers include Toyota Motor Corporation, Nokia Siemens Networks, Bosch, TE Connectivity, BorgWarner, Medtronic, Lotus Cars, Sharp, Ford Motor Company, LG Electronics, Eaton, K2 Medical Systems, Emhart Glass, GE Aviation, Carl Zeiss, General Dynamics, and the U.S. Navy. SpaceClaim is privately held and backed by Borealis Ventures, Kodiak Venture Partners, North Bridge Venture Partners, and Needham Capital.

*For more information on SpaceClaim, please visit [www.spaceclaim.com](http://www.spaceclaim.com).*



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