

The ANSYS logo, with 'ANSYS' in white and a registered trademark symbol, and 'ANSYS' in yellow.

SPACECLAIM + 4D RD&D

"I learned how to draft the old-fashioned way, but don't even start with a pencil and paper any more. I just start in SpaceClaim."

Waylan Elmenhurst

Waylan Elmenhurst Engineers a Second Career with SpaceClaim



About 4D RD&D:

- 30 years working with blueprints, the production items they detail, the processes to get there, and helping to make them better
- Specializes in virtual iterations, including large assemblies with integrated materials lists and documentation
- Recently added dynamic simulation and photo realistic rendering capacities
- <http://www.4drdd.com/>

Goals:

- Find an easy to learn and use modeling software for 3D model creation
- Manage large assemblies and reduce errors with automated model fixes
- Keep costs down to maximize profitability

Results:

- Saved hours of modeling time and error correction with digital 3D modeling
- Works in assemblies with tens of thousands of parts and create lifelike renderings for bids and final designs
- Able to start his own business with cost-effective software that provides all of the design power he needs

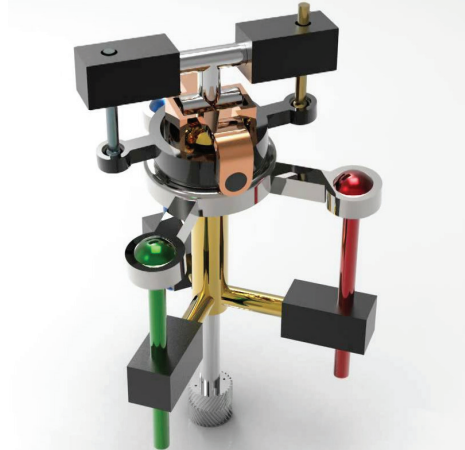
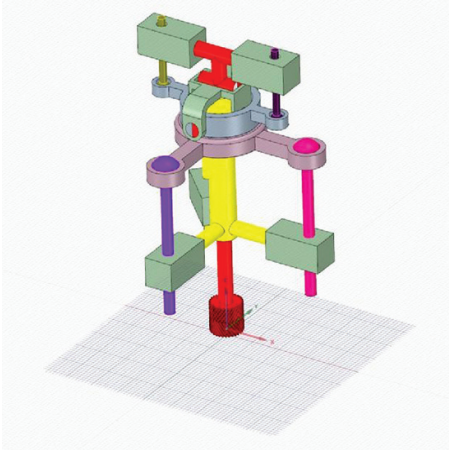
In 2011, Waylan Elmenhurst had been a heavy equipment and fabrication technician for decades, and always found himself interested in concept design. He had an idea for a product that he could design himself and, as a new father, wanted to explore a career that allowed him to work in a less dangerous environment and spend more time at home.

With his years of reading and drafting of blueprints, he had a front row seat for the kinds of issues traditional design creates in execution. “You could tell the engineers that work on the blueprints don’t always get together. When you have the water heater in the same place that the air duct is supposed to go, someone has to figure out what has to move, and that was usually me.”

With his inventions providing the motivation to dive into concept design, he tried several software options through the trial period including Solidworks™ and AutoDesk™, but found SpaceClaim was easiest to learn and did everything he needed at a price that allowed him to start his own concept design business.

Pencil and Paper Replaced By 3D Software

Elmenhurst successfully designed his first product in SpaceClaim – a shop vac attachment in the shape of a shepherd’s hook that allows users to clean gutters and other elevated surfaces without climbing a ladder – and was on his way to end-to-end 3D design. “I learned how to draft in high school the old fashioned way when blueprints were still blue. We drew the title blocks with a pencil and a ruler. I don’t even start with a pencil and paper any more. I ended up throwing the paper away. I just start in SpaceClaim now.” Once he had a satisfying design, he sent it to a 3D printer for creation of multiple prototypes, including a clear model so the user could see when the work is done.



calling out his work in dynamic simulation – adding time as a fourth dimension to his designs thanks in part to the Algoryx and KeyShot SpaceClaim plug ins.

He uses SpaceClaim every day, primarily in his work designing buildings for his largest client. “The project engineer gets an RFQ from the client and we work up a bid model, and once it’s approved, it ends up on my desk for the final details. I add every nut, bolt and washer – everything the shop needs to see in order to build it and assemble it.”

He taught himself how to use the software without any previous experience in CAD. He used the online tutorials and applied his experience with blueprints to find his way to every feature he needed, and quickly found it wasn’t only a time-saver. SpaceClaim produced better drafts than were possible with pen and paper. “For instance, putting together an assembly and telling it to spin here and hinge there, using pencil and paper, you are depending entirely on your imagination, which can be flawed. In SpaceClaim, if a part’s going to hit, it shows up red.”

From 3D to 4D RD&D

Over the past several years, Elmenhurst has successfully built his own business providing concept designs for project bidding and final designs for production. He named his business 4D RD&D,

It’s SpaceClaim’s ability to handle assemblies with tens of thousands of parts that allowed him to choose the software that works best for him. Easy to learn and cost effective are very useful attributes, but it wouldn’t have mattered if he couldn’t please his clients. He was particularly pleased with the way SpaceClaim helps him develop the bills of materials.

Beyond his work on building design, he still pursues his own projects and other one-off projects. He finds there is significant demand for a concept designer with his years of ground-level experience, validating his decision to start his own business decades into his career in another field. “It was unnerving, I wasn’t sure I was going to be able to pull it off, but the work is there and I have experience that is valuable.”