

# NECTAR PRODUCT DEVELOPMENT

Developing innovative, award-winning products using SolidWorks

*With SolidWorks Premium design and SolidWorks Simulation Premium analysis software, Nectar optimized the support structure for the world's largest pedestal-mounted solar panel, reducing manufacturing costs by 24 percent while maintaining performance.*



Nectar Product Development has helped clients create innovative, market-expanding products for more than two decades. The award-winning product development consultancy's collaborative approach combines industrial design, mechanical engineering, and brand management into a streamlined, comprehensive process. Nectar's team-based development philosophy consistently delivers products that not only exceed client expectations but also succeed in the marketplace.

When CEO Darren Saravis founded Nectar in the early 1990s, he embraced the idea of combining industrial design and mechanical engineering services within a single consulting firm, providing clients with a complete product development solution.

"Our firm is not developing the typical clamshell electronics enclosure, but creating innovative, revolutionary products for the medical device, clean technology, industrial equipment, and consumer products markets," Saravis explains. "To be successful, we need to foster design creativity as well as technical competence."

Nectar's 7,000-square-foot facility in Long Beach, California, provides a creative environment that integrates concept development with sound engineering and design-for-manufacturing techniques. In addition to providing the firm's professionals with an open, inviting team environment, Nectar is committed to using advanced 3D design and engineering technologies.

"Leveraging effective tools is an important factor in our success," Saravis notes.

"We started with 2D, and then tried a variety of 3D CAD packages. Over time, we've used them all. However, we eventually standardized on SolidWorks® software.

SolidWorks has an intuitive user interface, incorporates advanced surface modeling tools, and supports integrated analysis. Our clients use SolidWorks, as do our external partners. SolidWorks is simply the design system with the most momentum."

Nectar relies on SolidWorks Premium design and SolidWorks Simulation Premium analysis software to support its product development work.

## Challenge:

Support a team-based, creative development environment that combines multiple disciplines and areas of expertise to produce innovative, cost-effective product designs.

## Solution:

Implement SolidWorks Premium design and SolidWorks Simulation Premium analysis software.

## Results:

- Developed products five to 10 times faster
- Cut manufacturing costs for one client by 24 percent
- Accelerated tooling development
- Streamlined interaction with customers

## Collaborative, multidisciplinary design

Using SolidWorks software, Nectar can more efficiently execute the collaborative, multidisciplinary development process that has become the trademark of its success. Saravis says the firm develops products five to 10 times faster with SolidWorks solutions.

"The diversity of disciplines on our teams demands a flexible, accurate modeling tool for pushing projects through to production," Saravis stresses. "We need to move from contextual research and industrial design to mechanical and electronics engineering, and then interact with mold developers, sheet metal fabricators, and tool makers. SolidWorks enables us to do this more quickly and more accurately. We can more effectively communicate across disciplines while maintaining greater control over the entire process."

"We used to need different programs for specific tasks, such as surfacing and analysis," adds Vice President of Engineering John Duval. "With SolidWorks, surfacing and analysis tools are directly integrated inside the CAD system, providing higher levels of flexibility and efficiency."

## Simulating largest pedestal-mounted solar panel

An example of how integrated SolidWorks Simulation Premium analysis software pays dividends for Nectar is the development of the Amonix® 7700 CPV solar power system—at 77 feet by 49 feet, the largest pedestal-mounted solar panel in the world. Amonix directed Nectar to reduce the production costs for its MegaModule® support structure by at least 20 percent, with no falloff in performance.

Using SolidWorks Premium Simulation software, the firm performed more than 100 structural, fatigue, buckling, and deflection studies to optimize the panel's support structure. The project was particularly challenging because Nectar's redesign had to account for wind, snow, seismic, humidity, and temperature loads while ensuring the exacting stability required to concentrate the sun's rays through the panel's large CPV lens onto a one-fourth-inch-square solar cell.

"The load cases are extreme and multidirectional, and any slight misalignment can compromise performance," recalls Engineer Evan Kress. "The analysis work was rigorous, requiring many plug-and-chug-type assembly simulations. Having the analysis software inside the CAD system is extremely efficient for guiding the design to completion. In the end, our redesign reduced the amount of material, number of components, and weld requirements, cutting production costs by 24 percent."

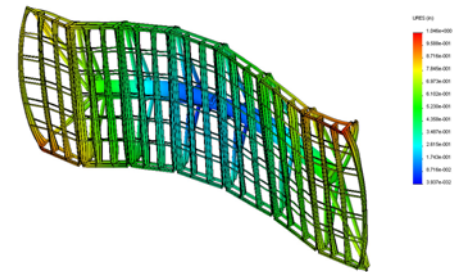
## Functional can be beautiful

In addition to providing engineering muscle, SolidWorks provides Nectar with the advanced modeling tools required to develop aesthetically beautiful designs like the SolarFlora™, a 15-foot-tall plantlike structure with solar panel leaves that's installed outside the Long Beach Convention Center. By combining functionality with art—the SolarFlora produces 1.2 kW hours of electricity daily, enough to charge several dozen laptops while providing external ambient lighting—the design is emblematic of Nectar's melding of industrial design and mechanical engineering.

"At Nectar, we strive to find elegant solutions to complex challenges, and SolidWorks resides at the core of what we do," Saravis says.

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Darren Saravis  
CEO



*Nectar used SolidWorks Simulation Premium software to perform more than 100 structural, fatigue, buckling, and deflection analyses to redesign the MegaModule support structure for the Amonix 7700 CPV solar panel, cutting material usage while ensuring stability under wind, snow, seismic, humidity, and temperature loads.*



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