Case study

Larson & Darby Group

HP Z Workstations enable small company to do big things in AEC

Industry
Architecture/Engineering/Construction

Objective
Deliver fast, reliable 3D design and Building Information Modeling

Approach
Larson & Darby has standardized on HP Z Workstations for Autodesk® solutions

IT matters
- The HP Z2 Mini for CAD users provides maximum performance for single-threaded applications; is built with Intel® Xeon® or Intel® Core™ i7 Quad Core processors; and offers a choice of next generation NVIDIA® Quadro® M620 graphics, flexible I/O options, integrated HP Z Turbo Drive, up to 32 GB DDR4 memory, support for up to 6x 2K displays, and is VESA mountable to HP Z Displays
- HP Z Turbo Drive SSDs deliver fast performance for sequential read/write operations
- HP Performance Advisor enables rapid workstation optimization

Business matters
- HP Z2 Mini Workstation offers full, unthrottled performance in a footprint that is 10x smaller than the HP EliteDesk 800 G2 Tower* and 5x smaller than the HP Z240 Small Form Factor**
- HP Z Workstations run complex renderings and animations overnight, unattended, to help deliver projects on aggressive deadlines

"Technology is a major investment for a firm like ours, but the cost we pay for the power we get using HP Z Workstations is quite reasonable. The HP Z2 Mini Workstation is a great example."

– Gedeon Trias, Director of Design, Larson & Darby

Larson & Darby Group
Architects Engineers Interiors

Larson & Darby, a full-service architectural, engineering, interiors, and technology design firm based just west of Chicago, has served a wide variety of customers, large and small, since 1963. Larson & Darby uses Autodesk® AutoCAD® with HP Z Workstations, enabling it to compete effectively with larger firms in the tech-heavy Architecture/Engineering/Construction (AEC) industry.

Larson & Darby has worked on some amazing projects in nearly every market sector. Its practice was founded on corporate industrial work.

"We have a particular expertise in helping companies with highly technical, complex manufacturing facilities," explains Gedeon Trias, Director of Design for the firm. L&D has also developed significant expertise in high-precision manufacturing, which requires specialized foundations with incredibly tight tolerances. "The president of our company is an expert in machine foundation design. His expertise has taken him to assist on projects around the world."

A prime example of the company's expertise is development of the Woodward Systems Test Facility. Woodward is one of the premier manufacturers of aerospace energy controls in the world. The Systems Test Facility is a state-of-the-art facility with 12 blast-resistant test cells, a vibration lab, thermal and pressure testing for fuel control systems, fabrication, assembly, lab, and office areas all under one roof.

Like all of L&D's major projects, the Woodward Systems Test Facility was designed using Autodesk AutoCAD running on HP Z Workstations. "We used AutoCAD to study the numerous possible configurations for this project and the complex relationships of the different program elements involved," Trias explains. "We also used it throughout construction documentation, coordinating the huge electrical service and literal miles of process piping and wiring for this project."

Visualization was an important part of understanding how the project was developing. Numerous 3D models were built in AutoCAD and rendered in Autodesk 3ds Max® Design. "HP Z Workstations were critical to us in providing both the construction documents and the visualization needed to understand this complex project."

Focus on performance, reliability leads to HP

Trias says Larson & Darby looks for two things in a workstation: performance and reliability.

"We need high-performance computing because the software demands are very high. Our bread-and-butter is doing 3D modeling and drawing in AutoCAD and Autodesk Revit®, and we do 3D rendering in Autodesk 3ds Max Design to put design options in front of our clients. Those are all highly demanding tasks," he explains.

In the AEC world, better workstation performance isn't just about reducing a momentary lag in otherwise real-time design work.

"If your computer isn't up to operating your 3D software, it cuts into design time. You have to wait for drawings to regenerate when you make changes or try to navigate in a file," Trias explains. "With our HP Z Workstations, we don't have to worry about that."

Reliability is critical in the AEC industry because workstations don't just run from 9-to-5. On many projects, rendering can take hours. A hardware failure can mean losing a full day's productivity. That's why L&D chooses workstations over traditional desktop technology.

"Frequently we're going to let something run overnight to do a complex 3D rendering or animation, and having stability is critical. I don't want to even think about a hardware or application crash in the middle of the night when I've got a 20,000-frame animation processing," says Trias. "The speed of our HP Z Workstations has also greatly reduced the time needed for other types of rendering as well," Trias added. "What might have taken a day or half a day previously now takes only hours or even minutes."

Upgrading from standard desktops to HP Z Workstations may cost a few more dollars per designer, but over time, Trias sees the gains in productivity more than offset the difference, he adds.

Having a stable workstation becomes critical to moving ahead. "Clients aren't interested in hearing about your technology problems. They just want to know you can meet the deadline."

HP Z2 Mini balances price, performance in small package

Larson & Darby recently introduced the HP Z2 Mini Workstation into their portfolio. Its small size and price has proven a refreshing surprise.

"It's definitely very convenient in terms of desktop real estate," Trias says. The Z2 Mini is 5x smaller than the HP Z240 Small Form Factor (SFF) and is HP's most flexible workstation ever, with the ability to be mounted behind displays, or under desks. "At first, you wonder how the Z2 Mini can contain everything we need. It's doing everything we need it to do."

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HP Z Turbo drives, developed by HP in conjunction with Samsung, are small, extended capacity solid state hard drives with a PCIe interface.

"The boot speed is still amazing to me," Trias says. When he had to boot up an older workstation recently he was amazed by the speed difference in booting up AutoCAD. "Just opening these files took time on our older machines, and they were easily handled by the workstation with the Z Turbo drive. Faster opening seems like such a small thing, but when you jump in and out of programs like we do, it can make a real difference. You just feel like things are moving along so much faster."

He said the Z Turbo drive will also help the firm power through large renderings and animations in significantly less time.

The Z2 Mini Workstations at L&D are configured with NVIDIA Quadro M620 graphics cards, which match the workstation's value-oriented design philosophy. "The M620 card does remarkably well for its price point," Trias says. "It is robust and easily handles AutoCAD and 3D graphics. It does exactly what we need it to do."

Whenever the company adds a new workstation, the Larson & Darby staff generally configures the hardware in-house. It uses HP Performance Advisor, which comes with every device, to make sure the workstation is optimally configured to operate key applications, and is loaded with the most up-to-date drivers. "HP Performance Advisor gives us a level of certainty that everything will run as smoothly as possible," Trias says.

If the firm decides to customize or upgrade an HP Workstation, staff members are happy to handle the task themselves. "I've been impressed with the upgradability of the Z-series Workstations," Trias says. "What would have been a major operation in years past is amazingly easy."

Rising expectations demand more of technology

Trias says client expectations continue to rise, year after year. "When I started in this industry, doing a rendering was a big deal. You might have to go out of house for it," he recalls. "Now, that's a routine expectation. When a client is going to evaluate a design, they expect to see a 3D rendering."

Tools evolve to meet those expectations. Building Information Modeling (BIM) solutions like Autodesk Revit, which is also used at L&D, provide all project stakeholders greater clarity and visibility into a project, and create a constantly evolving database for the project. When a client walks through the door for a meeting, L&D can call on Autodesk Revit software to show them the most recent, up-to-date models for a project.

Customer at a glance

Application
3D modeling, BIM

Hardware
- HP Z2 Mini Workstation
- HP Z230 Small Form Factor Workstation
- HP Z600 Workstation
- HP Z800 Workstation
- HP Z Turbo Drive SSD
- HP Designjet T1500 printer

Software
- Autodesk® AutoCAD®
- Autodesk® 3ds Max® Design
- Autodesk® Revit®
- HP Performance Advisor

*HP EliteDesk 800G2 Tower volume = 28.1317 cubic L; Z2 Mini = 2.71 cubic L volume, or 10.38x smaller than the Tower
**HP Z240 SFF volume = 13 cubic L; HP Z2 Mini volume is 2.7 cubic L, or 1/5 the volume of the Z240 SFF

"The concurrent evolution of hardware and software—our HP Z Workstations along with Autodesk software—enables us to deliver more to our clients in less time," says Trias. "It's staggering how much things have changed, and how much more capability technology has given us," Trias says.

To generate high-quality output of 3D renderings or models, Larson & Darby uses the HP Designjet T1500 printer. It offers web-connected printing, enabling users to literally print from any internet connection. The six-color, thermal inkjet printer produces 1200 x 1200 dpi output in sizes up to 36-inches wide.

The T1500 replaced a previous generation Designjet printer, so users at L&D are accustomed to the output quality and size. But they're still getting used to the T1500 print speed. "We would expect to wait 15 or 20 minutes for full-sized large-format output in the past," Trias says. "Now, at the quality we want, it's under two minutes. At its fastest setting, the T1500 can produce a full-size rendering in under a minute."

The excellent output quality of the T1500 is key to success in the architecture world, where visual impact is critical to selling clients on a project design. And he is very happy with the printer's economical use of ink. "We've run a shockingly large number of renderings on it and still have ink from our original cartridges."

A continuing relationship with HP

Larson & Darby chose HP as its primary technology provider many years ago. Trias says the company expects to continue that relationship far into the future.

"HP has given us the power and reliability that we need," he says. "Technology is a major investment for a firm like ours, and the cost we pay for the power we get using HP Z Workstations is quite reasonable. The Z2 Mini Workstation is a great example of valuable performance."

Looking back, Trias says the only thing he would do differently is plan on faster technology refreshes to take advantage of ongoing advances. "Our first-generation HP Workstations were so reliable we kept them far longer than expected or recommended," he recalls.

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>
> – Gedeon Trias, Director of Design, Larson & Darby

Now the company has chosen to implement a three-year lifecycle for its workstations, based largely on continuing advances in 3D modeling and BIM software, and ever-increasing client demands.

"The time we're allotted for a project gets shorter and shorter, even as the complexity of 3D modeling grows," he says. "The only way we can deliver on schedule and with the quality our clients need is by using leading technology like we get from HP Z Workstations and Designjet printers."

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