

design-build with Archicad

For complex, high-end homes, New Hampshire design-build firm Noldesign counts on the Graphisoft Archicad Virtual Building solution.



New Hampshire Lakeside Residence

The Graphisoft® Archicad® Virtual Building™ solution helped the design-build team at Noldesign, LLC push the limits of design by enabling them to

- Easily model the complex, intersecting geometries of a lakeside home built from wood, glass, and stone
- Spend more time on design and less on tedious manual tasks
- Cut sections anywhere in the Virtual Building, anytime
- Significantly improve design accuracy and minimize unnecessary changes
- Make complex information easily accessible to non-design professionals
- Quickly make last-minute design changes

Noldesign is an architectural design-build firm based in Hampton, New Hampshire. Its talented professionals specialize in creating inspiring homes that incorporate both the beauty and rugged strength of the natural world. Many of its high-end creations integrate trees, stone, boulders, and glass, all coming together in an array of intersecting geometries that dazzles the eye—and stuns fellow architects and designers. It's no surprise that the firm's services are in high demand throughout New England and the northeast United States. "Because our projects are often very complex, we needed software that could step up to the plate," says Roger Nold, Principal. "Whatever we chose had to help us understand and control the geometry of what we draw. It also had to work on a Macintosh platform."

A Promising Direction

Nold's son, Byam, was given the task of finding the new design platform. "My first exposure to the Graphisoft Archicad Virtual Building solution was on the Apple website," says Byam. "Right away, it looked promising. And after trying it out, I knew I'd found our solution."

Beautiful Lakefront Property

The firm's first project with the new software was a luxury home in the lakes region of New Hampshire. "It's a waterfront home on a long, narrow lot," says Nold. "The clients let us know what views they liked, and also told us they'd like the home to be private and made from logs, stone, and glass."

“When you have something as powerful as **Archicad**, it raises the bar for all other aspects of the business. There's no part of our business that shouldn't be as good as this software.”

Roger Nold, Principal, Noldesign

Magnificent Views

"We decided that a radial geometry would be the best way to provide the most views of the lake, given the long, narrow nature of the lot with the narrow dimension toward the lake view" says Nold. "As we worked through the initial stages of the design, we began to realize the power of this software. In fact, given the scope of what we wanted to do, it soon became clear that this project would have been unthinkable without Archicad."

Complex Geometries

"For example, the entire house is built in a series of swirling circles," says Nold. "In the center is a room shaped like a giant, 12-sided polygon. Along each of the 12 radiants in the roof, a real, naturally tapering tree radiates outward from the chimney. We also incorporated full-size tree logs—complete with root flares—throughout the structure. There's no library for stuff like that. We had to create all of it ourselves."



The Solution

Graphisoft Archicad enabled the architects to spend more time finding creative solutions to these complicated design challenges by streamlining and automating many of the tedious and repetitive tasks involved in documentation and coordination.

Design Better

Archicad comes with a rich set of design tools. "For example, unlike our old CAD system, Archicad has a designated wall tool," says Byam. "It lets us easily define everything we need—thickness, type, even the layer. We can also make it into a composite and quickly extract material takeoffs."

Do It Once—Then Multiply

Another tool enabled Noldesign to quickly and accurately model the complex geometries of the central room's rafters. "Using traditional CAD tools, that would have taken me a couple of days," says Byam Nold. "With the Archicad Multiply tool, it probably took me one hour to get the first section perfect. After that, I just took it and radiated it. It saved me so much time by duplicating and multiplying roofs, rafters, walls, doors—everything."

Cut Sections Anytime, Anywhere

"The Section tool is also priceless," says Nold. "Because this project contained so many roof overhangs and intersecting geometries, it was very difficult for us to predict where certain roofs were going to terminate and where others would begin. The Section tool enabled us to easily do that."

Think It Through

"And because Archicad forces you to describe the building in detail before it will show up in the 3D model, you can't get sloppy," says Nold. "You have to really think about what you want the design to look like."

Get It Right

That attention to detail early in the project paid off. "To avoid bad weather, we had to build whole sections of this house off site in our fabrication plant, fit everything, disassemble it, take it to the site, and reassemble it under favorable conditions," says Nold. "We couldn't just put the logs up there and hope they fit. Using Archicad, we drew every single log individually, checked and double-checked, and then built them exactly according to the drawings."

Rotate. Zoom. Understand.

Archicad also helps everyone on the project team—including the client—better understand the design process. "In Archicad, we use actual 3D objects to represent complex situations, such as MULTIPLE-level foundations set into stone on a steep grade," says Nold. "As a result, we're able to show all of those shapes from any angle on a single working drawing. And best of all, we can put the designs on a CD, email them, or even upload them to our website, where anyone can access them, including the client – a real advantage where clients have difficulty in 3-D visualization."

Make Complex Information Accessible

Even non-technical users had no trouble understanding this 3D information. "For instance, our log expert has been in the forestry business for almost 30 years," says Nold. "He's very good at what he does—but he's not very comfortable with technology. Using Archicad, he was able to sit down in front of a Macintosh, open a file, and within minutes be twirling the model around in the air, zooming in, and telling us how we could improve our design."

Easily Make Changes

"Using traditional methods, incorporating his feedback would have been tedious and time-consuming," says Nold. "With every change, we would have had to manually update every plan, section, and elevation. There's so much room for error that way." Archicad handles that process automatically. "When one of our subcontractors—a designer draftsman—saw that, his jaw dropped."

“I believe **Archicad** will take us anywhere we want to go. And because we've definitely pushed the limits, there's no question in my mind about that.”

Roger Nold, Principal, Noldesign

The Result

"Currently, the house is closed in and we're starting on the interior trades," says Nold. "It's not fully sided or roofed, but it's weather tight. That may not sound like a lot after two years, but this house is very complex. It's been a very rigorous test of Archicad—in all of the traditional ways, but also in very intense and unique ways. At this point, I believe Archicad will take us anywhere we want to go. And because we've definitely pushed the limits, there's no question in my mind about that."

For more information about Graphisoft Archicad, visit www.graphisoft.com/products/archicad. Or, to learn more about Noldesign, go to www.noldesign.com.

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