

# Why You Need 3D Modeling

It lets you quickly create virtual designs then fine-tune them to deliver the experience your clients want. This keeps you in the driver's seat and helps sell homes.

**B**UILDERS WHO HAVE used 3D modeling software say it's a game changer. "Today you need this technology to stay ahead of the competition," says Michael Strong, COO of Los Angeles-area Structure Home. "Shortly, you will need it to keep up."

Structure is one of the first U.S. stick builders to incorporate Dietrich's 3D CAD/CAM software into its business. The company builds 10-15 custom homes per year, averaging 5000 square feet of floor space, all of which are architect designed and engineered for performance. It's a complex building process and Dietrich's has given them firmer control over it.

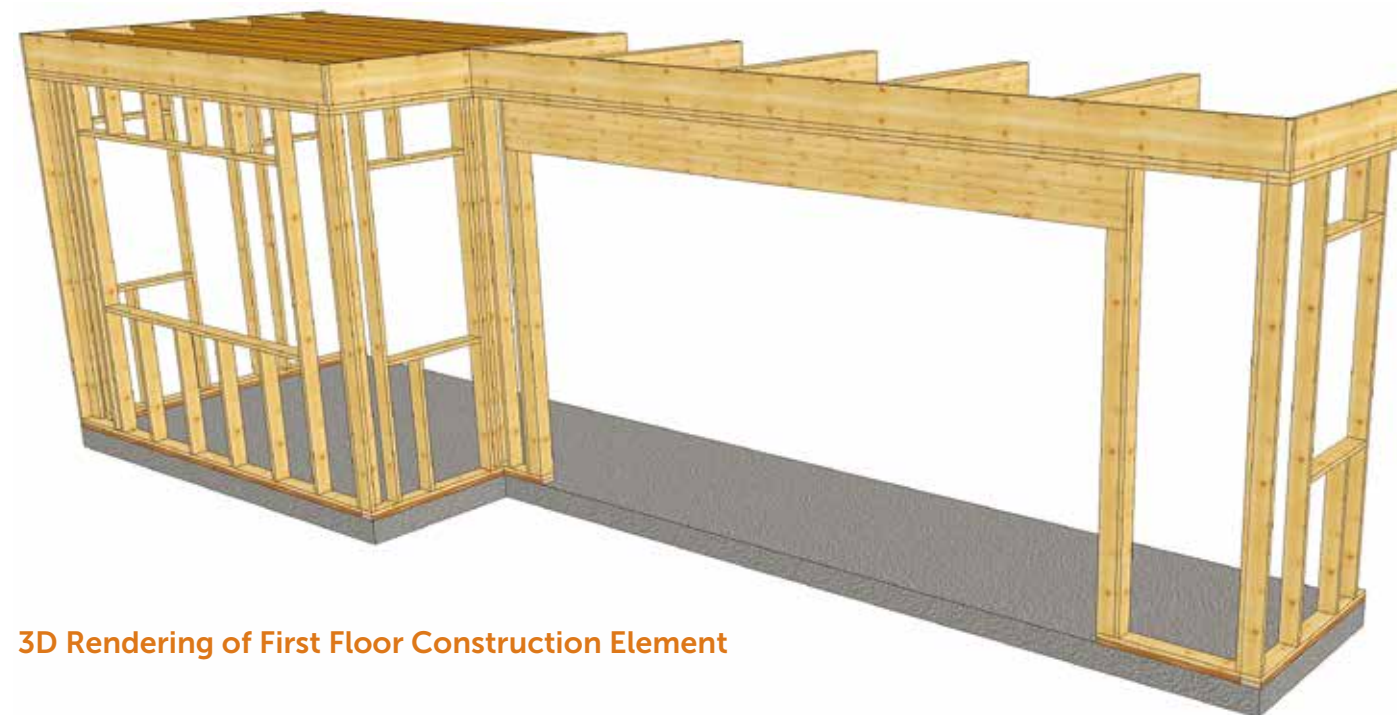
That's not surprising. After 30 years in Europe (where it's the leading wood frame CAD program) and 12 years serving North America timber framers and SIP builders, Dietrich's has earned a loyal following. Those builders' challenges are the same ones faced

by custom builders like Structure, but two challenges highlight this technology's power: the limitations of two-dimensional drawings, and performance expectations that seem to get tougher each year.

## SOLVING THE DESIGN CHALLENGE

Most homeowners have difficulty picturing the inside of their new home from a set of blueprints. This increases design time and can lead to expensive changes once the project gets under way and the spaces aren't exactly what clients imagined.

Builders and designers use a variety of tactics to prime clients' imaginations, from photos of finished jobs, to home tours, to renderings and models. Now, many of them are also using visualization software. As clients come to expect this technology, builders can beat the competition by exceeding those expectations.



3D Rendering of First Floor Construction Element



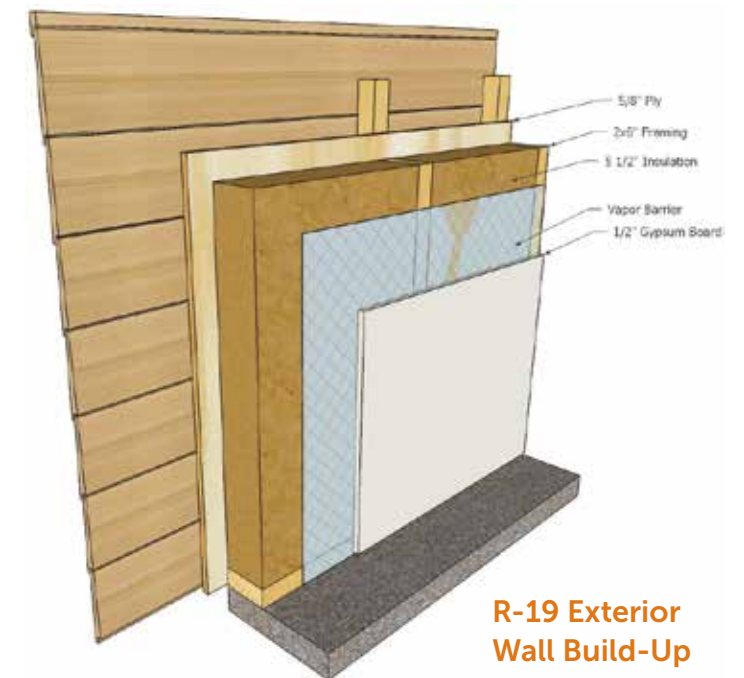
DESIGN COURTESY OF STRUCTURE HOME

Dietrich's makes that possible. It's a parametric CAD program linked to a deep product and materials database. It lets designers generate realistic 3D renderings of a home's interior spaces then move through those spaces on the screen with clients. Google Earth can even be used to place the virtual home on the lot, showing the views out the windows. Clients get a better feel for the home, so they make most of their changes at the design stage and request fewer change orders after work starts. "By using Dietrich's full modeling capabilities, my clients quickly see their ideas come together and they gain a sense of ownership," says Scott Miller of Miller Post & Beam in Crivitz, Wis.

## THE POWER OF 3D MODELING

Changes do more than revise the renderings. When a wall is moved or a roof reconfigured Dietrich's automatically updates the construction and connection details while keeping track of the materials associated with each change. The software also ensures that everything stays in compliance with local codes.

Dietrich's also does fast, accurate energy modeling. This is a big deal in states with oppressive summers like Florida and Texas, or those with frigid winters like Minnesota and Maine. Homeowners

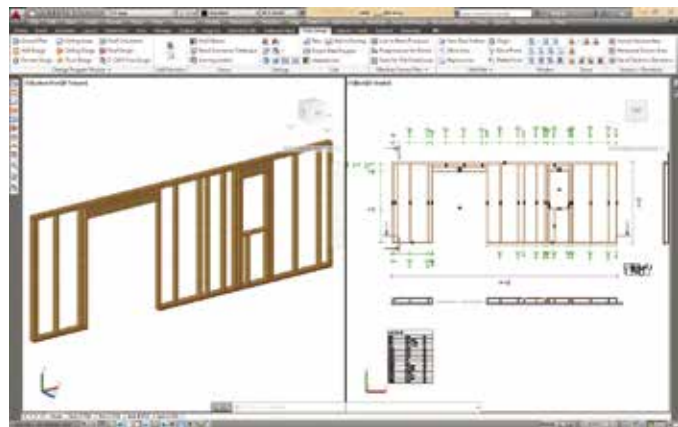


R-19 Exterior Wall Build-Up



in these regions prioritize comfort but also want value for their money, and builders who can show the exact cost of that thicker insulation package or those upgraded windows, along with the monthly energy savings, will be ahead of the game.

Even in mild climates like California, energy codes are forcing builders and designers to sweat these details. The International Code Council recently voted to let builders show energy code compliance using the Residential Energy Service Network's Home Energy Rating System, or HERS. The HERS score, which has been described as a "miles-per-gallon sticker for houses," is based on a computerized simulation done by a qualified rater. Dietrich's includes the U-values and volumetric data needed for these simulations, and makes it easy to transfer that data to the HERS rating software.



## Automatic 3D to 2D Dimensioned Drawings

### THE BOTTOM LINE

Of course the thought of adopting new CAD software creates understandable anxiety. Many builders and designers have invested time and money in AutoCAD. The people at Dietrich's understand this, which is why they engineered the program to run inside AutoCAD. Users can work with their existing files, and an experienced AutoCAD user can be up and running with Dietrich's after just a three-day training class.

The rewards include unprecedented control over the building process. Designs can be changed without calling the estimator back because the database updates the numbers. The energy rater only needs to be called back for the final plan check. Because the 3D model shows exactly how the structure will be built, the engineer can identify structural problems quickly at the design stage, before they show up on the jobsite. Meanwhile, the builder stays in the driver's seat.

The bottom line? Happier clients and better profits—thanks to a sophisticated design and management tool that's configured for the nuances of each builder's business.

Of course it's impossible to fully convey the power of a sophisticated software program in a short article. That's why we have created a resource page to help you take the next step. To learn more about Dietrich's Software, scan the barcode or visit [www.greenbuildermedia.com/dietrichs](http://www.greenbuildermedia.com/dietrichs), to access a comprehensive product movie.

## Features and Benefits

Dietrich's was the first company to make design software specifically for wood construction. It began in 1982 when German Master Carpenter Josef Dietrich wrote a program to calculate roof shapes, compound angles and cuts. That seed has grown into a sophisticated 3D CAD/CAM system, and Dietrich's has grown into Europe's largest provider of wood construction software with more than 10,000 installed systems. It also has been gaining the confidence of North American SIP builders and Timber framers for more than a decade. Now it's available to the stick framing market.

**To understand why Dietrich's has earned such a loyal following, consider what it offers:**

**Powerful 3D Modeling:** The designer starts by creating a 3D model of the home with all of the information needed for the project. The model can be used to generate dimensioned drawings and materials lists; cost, performance, and other information can be extracted from it with just a mouse click. This slashes design and estimating time by 50% to 90%.

**A Deep Database:** Dietrich's has the industry's largest materials database focused on wood construction products, with libraries of generic and manufacturer-specific products: rough cut beams, dimensional lumber, doors, windows and countless other items. These libraries include material properties such as ISO 6946 traceable U-Values for walls, ceiling and roofs, as well as accurate build-up and connection details that make sure designs are code compliant.

**Realistic Renderings:** Because the available material properties include realistic colors and textures, designers can create virtual house tours that show clients how the home will actually look and feel. As a result, clients make firmer decisions up front and fewer changes later on.

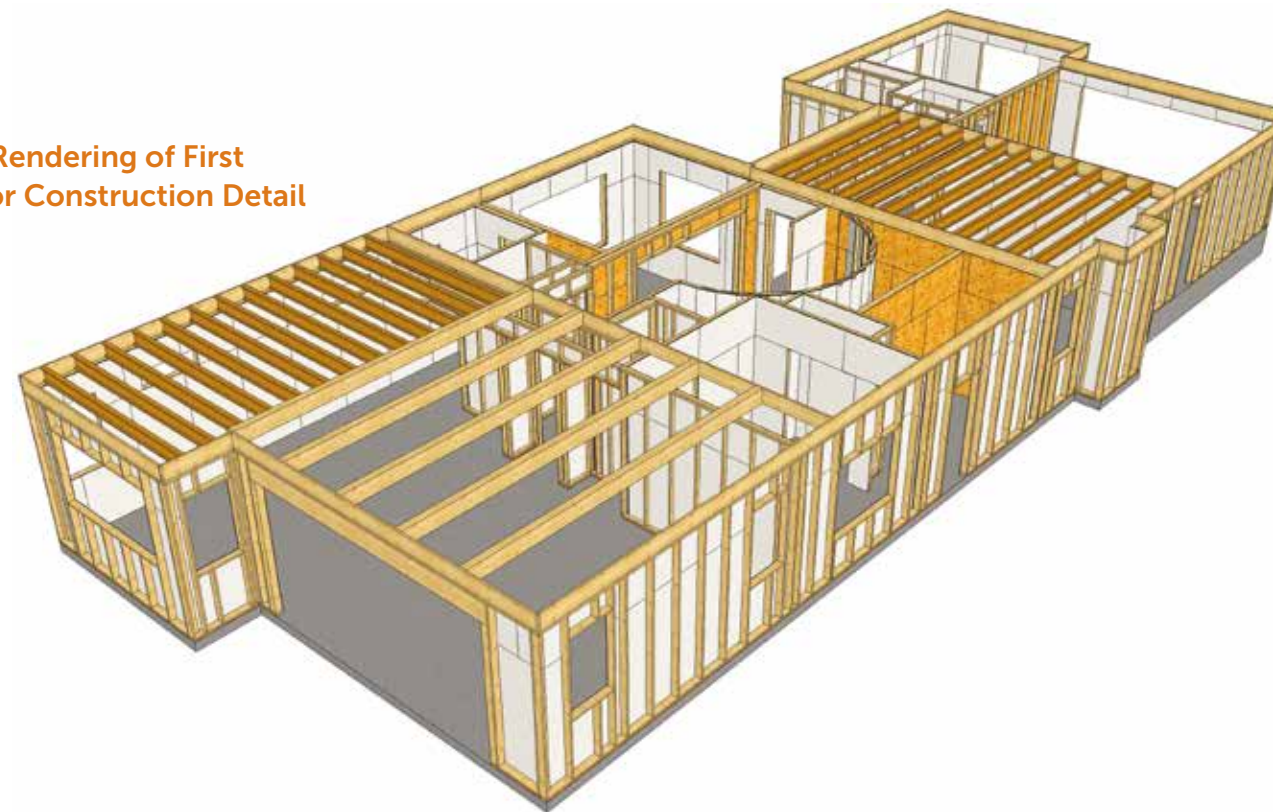
**Better Trade Communication:** Software viewers can be downloaded by subs and suppliers so that the 3D model, or any of the information behind it, can be viewed on site. The ability to convey exactly how things need to be built or installed reduces build time and potential warranty issues.

**Customization:** Dietrich's engineers can pre-populate the database and construction guidelines with the specific products and materials that will be used on a project, as well as with code-compliant build-ups and construction definitions that ensure the project meets local codes.

**Expert Support:** Customization and problem solving are done by a support staff that includes construction engineers, master carpenters and software engineers who have helped build some of the world's most advanced wood-frame structures. These include people with hands-on experience with a variety of construction technologies – from stick framing to ICFs to SIPs.

**Easy Implementation:** Customers can choose to run Dietrich's either as a standalone product or seamlessly inside AutoCAD. If an AutoCAD application is needed then the customer has access to all of the functionality of AutoCAD, along with the powerful automation CAD tools of Dietrich's. It's the best of both worlds.

## 3D Rendering of First Floor Construction Detail



## Problem Solver

Structure Home's first experience with Dietrich's 3D CAD/CAM software was a 5000-square-foot high-performance home in Brentwood Calif. The company's managers wanted to compare the software to its architect's current process. Structure does lots of customization, and it soon became clear that Dietrich's would make that process more efficient and more profitable.

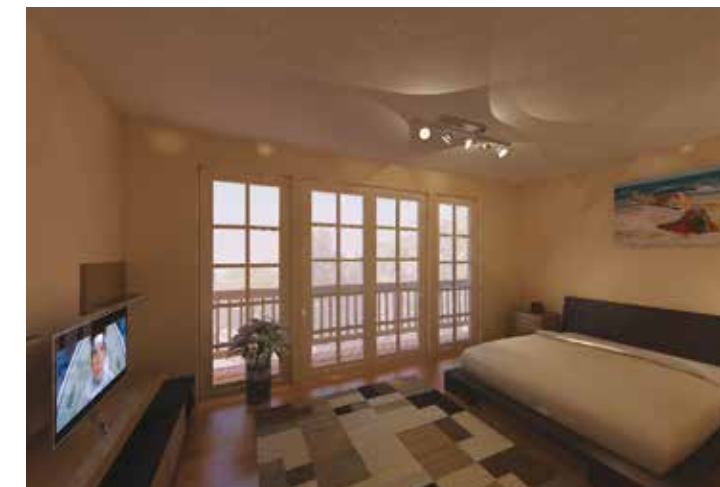
After about 20 hours of conceptualizing and generating rough drawings, the architect spent an additional 100 hours creating a full set of conventional blueprints using AutoCAD. By contrast it took just 20 hours to create a set of 2D dimensioned blueprints and a 3D model using Dietrich's. The model linked to an underlying material database with all the information needed to manage the project, including all the necessary data for modeling energy and creating materials lists and 3D visualizations.

**Two examples show how these capabilities let Dietrich's easily identify potential problems that would be a challenge with two-dimensional plans.**

**Design analysis:** On most big custom homes, the engineer has to spend time searching the drawings for red flags, but with Dietrich's the 3D model does a lot of that work. In the Brentwood project, one exterior wall included a large opening for an accordion-style door. When the software created a 3D rendering of this space it became clear that additional reinforcement would be needed above the opening to support the structural loads.

Issues like this aren't readily apparent from a set of 2D drawings because of the lack of detail associated with these drawings. By contrast, a Dietrich's 3D model includes exact wall, ceiling and roof build-ups along with all of the appropriate connection detailing to ensure that the design meets code requirements. This information is visually represented in 3D, making it easy to identify potential problems. In this case a large Glulam was used to reinforce the opening above the accordion-style door keeping this issue from being transferred to the job site where it could have caused costly delays.

**Space planning:** The second example shows one of the ways visualization pays off. Dietrich's lets the architect download interior



Master Bedroom Visualization

finishes and furniture from third party websites and software programs, then place them in the 3D model to create fully detailed virtual spaces that show the clients how the home will look when it is fully furnished. Doing so made it clear that the master bedroom would need to be larger. Dietrich's let them figure this out before the work began, and so helped eliminate what could have been unhappy clients and an expensive change order.

While Dietrich's certainly makes for a more efficient design/build process, Structure's managers also see its visualization and problem-solving capabilities as a powerful selling tool. They look forward to showing clients how the software can ensure that their home is exactly what they want. "The greatest value of the software is what it will enable you to sell," says COO Michael Strong. "You need only sell one custom home or a few large remodels to recoup your investment."

To learn more about Dietrich's Software, including access to a product movie, scan here.

