

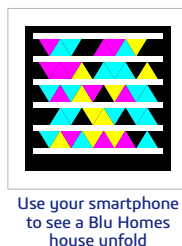


Photorealistic image of the interior of an Element model home designed with CATIA Photo Studio Optimizer

By Lisa Roner

# Blu Homes rethinks green design with CATIA and 3DVIA

Blu Homes needed 3D design and visualization tools that supported its goals of building quality, green, affordable prefabricated homes with a high level of buyer personalization. Blu Homes chose CATIA and 3DVIA from Dassault Systèmes to help realize its vision of making the homebuilding process more predictable, affordable and enjoyable.



**87%**  
CATIA's high levels of design precision allow Blu Homes to meet tolerances of no more than 0.0625 inches (0.15mm), 87% more precise than the 0.5 inch (1.27cm) variances typical of stickbuilt homes.

**B**lu Homes is combining prefabricated, eco-friendly and affordable homes with marketing tools that give buyers unsurpassed abilities to personalize and visualize their choices. The Massachusetts-based startup credits its use of CATIA and 3DVIA – 3D design and visualization solutions from Dassault Systèmes (DS) – with allowing it to completely rethink not only how its homes are designed and built, but also how they are sold.

Design precision is critical for Blu Homes. Houses constructed board-by-board onsite can tolerate variances of as much as 0.5 inches (1.27cm), but Blu Homes' unique folding designs require variances of no more than 0.0625 inches (0.15mm). Typical architectural software cannot manage that level of precision, but CATIA can.

"It's necessary for us to be able to manage and visualize assemblies and sub-assemblies with tens of thousands of unique parts," says Dennis Michaud, Blu's Vice President of Product Development. "CATIA is crucial for making that possible. The kinematics we employ for folding our homes for shipping demand a fairly abnormal level of precision compared to what the building industry is used to. I believe CATIA is the only tool that allows us to design the house in its entirety in full precision."

## POWERING ECO-SUSTAINABILITY

With CATIA, Blu Homes is designing homes that are 40% wider than other prefabricated homes after they're unfolded, but with a transportation footprint comparable to a typical modular home. This allows Blu Homes to ship across the country more

economically than other modular builders can do in-state. "That's a difference of tens of thousands of dollars we can pass on to our customers," comments Josh Appleman, Digital Tooling Manager at Blu Homes.

The CATIA model feeds all of Blu Homes' downstream processes. This allows design changes to be reflected in updated renderings and marketing documentation, which is created with CATIA Photo Studio Optimizer to eliminate the time and expense of physical mockups and custom photography. Bills of material (BOMs) generated directly from the model streamline procurement and allow home buyers to quickly see how their design choices affect the total cost of the home. By facilitating direct integration between design and manufacturing, CATIA also helps to ensure that the designed geometries are buildable, cost-effective and eco-friendly.

## INNOVATING HOME MARKETING WITH 3DVIA

"One of the really important aspects of our business model and competitive strategy is making the whole process of buying a home much more predictable and much less chaotic," Appleman says.

Blu Homes' online configurator, driven by 3DVIA, helps create a positive experience for buyers. Starting with a 3D XML model output from CATIA, 3DVIA organizes and presents the assembly in a format that allows homebuyers to experiment with tile, cabinets, flooring, window styles and paint color options, and then virtually "tour" their home to verify their choices before construction. "With the 3DVIA-based configurator, we try to show customers exactly what they're getting before they spend a penny," Appleman explains.

Blu Homes works with two DS partners who specialize in the solutions they represent: Mecanica for CATIA, and 3DCalifornia for 3DVIA.

"Mecanica has been a highly valuable partner in helping us to locate and use the right DS products for our needs," Michaud says. "They have knowledge of CATIA best practices for the use of catalogs, skeleton models, power copies and Knowledgeware, and we've used these capabilities in totally rethinking how a house is designed and built."

Appleman credits DS business partner 3DCalifornia with helping Blu optimize the 3DVIA configurator. "They've been instrumental in making a scalable tool for us using 3DVIA, and that's a critical part of our marketing plan. Our designs are constantly improving, so we needed a tool that ensures what the customer sees is up-to-date and visible quickly. We simply couldn't do this without 3DCalifornia's help."

## FUTURE PLANS

Blu Homes expects to drive its automated NC machining directly from its CATIA models in the first half of 2011, particularly to make optimal use of high-waste sheet goods such as drywall. The company also is evaluating additional CATIA modules to further enhance eco-efficiency, cost and design productivity.

Michaud hopes the company's success will inspire other architects to adopt 3D. "DS solutions are helping Blu Homes build better quality homes and provide average homebuyers a custom home-buying experience at a reasonable price," he says. "That's something that could benefit the whole industry."

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## SUCCESS STORY



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**Dennis Michaud**  
Vice President  
of Product  
Development,  
Blu Homes



The modular design of Blu Homes allows for substantial creativity. In this photograph, three Origin models were combined to create a distinctive home addition.