



Image courtesy of Thomas J. Story for Sunset Magazine

*Where most firms our size might work on 12 projects in a year; we have 50 to 60, and about one-third of our work is custom. It is therefore essential that our software streamline the way we develop and document designs. To keep well-designed architecture affordable, we are blending the architectural process with the manufacturing process.*

— Michelle Kaufmann  
Design Principal  
MKD

## AutoCAD Goes Green

Harnessing efficient processes and environmentally responsible design, Michelle Kaufmann Designs makes great living spaces more affordable.

### Project Summary

Michelle Kaufmann Designs (MKD) was founded by modular and sustainable design pioneer Michelle Kaufmann in 2002. Since then, Kaufmann and her firm have been attracting attention for groundbreaking work in sustainable and affordable design, and MKD's prefabricated Glidehouse will be on display at the National Building Museum from May 2006 through June 2007. Using AutoCAD® and other design software from Autodesk, the professionals at MKD are completing custom designs and modifying existing designs more quickly and efficiently. More crucially, AutoCAD allows MKD to streamline communications with its manufacturers, enabling innovation while controlling costs. With help from AutoCAD, MKD is:

- Collaborating with manufacturers to save time and money
- Helping clients build their homes for as much as 20 percent less
- Making sustainable design affordable and accessible
- Communicating more efficiently while reducing dependence on paper

### The Challenge

#### **Making Prefab Fabulous**

All of the structures that MKD designs are prefabricated at a factory and then assembled on-site—even custom residences. Modular, prefabricated homes may conjure images of cramped, cookie-cutter dwellings. But this is not so for innovative architects such as Michelle Kaufmann, who makes “prefab” an integral component of her visionary designs. Because prefab homes are constructed at a manufacturing facility, they produce almost no construction waste—the manufacturer uses any excess material on the next order. The ecological benefit is huge; according to some estimates, nearly one-third of all landfill material is generated by on-site construction. Moreover, manufacturers of prefab buildings can order sustainable materials in bulk, helping to keep costs down.

Driven by a mission to make well-designed and sustainable dwellings available to more people, the 12 staffers at MKD are constantly looking for new ways to make great design more sustainable—and affordable. The faster they can complete their innovative designs, the lower their design fees. And the more seamlessly they can communicate with manufacturers, the more efficient and cost-effective the manufacturing process becomes.



Image courtesy of James Watts



Image courtesy of Nick Gunderson for Oregonian

## The Solution

The custom-home design process at MKD begins after an initial meeting with clients to determine their needs. Michelle Kaufmann and the project manager then use Autodesk® Revit® Building to do a 3D preliminary design, after which a set of plans is created in AutoCAD for the client to review.

To streamline the design process, MKD team members select details from a library of standard designs in their AutoCAD design center and then modify the plans to suit the current project. Once complete, MKD publishes the designs to DWF™ (Design Web Format) directly from within AutoCAD and sends the DWF files to clients and extended team members, who review the files using Autodesk® Design Review, the all-digital way for non-CAD users to mark up and track changes to designs.

According to Paul Warner, an architect and principal at MKD, using standard design details allows MKD to complete projects faster and more consistently. He says, “We are able to begin with, for example, a standard kitchen plan and enhance it with details stored in AutoCAD. Our process not only saves a significant amount of time, it also produces a consistent document set, which reduces the risk of errors and speeds up project coordination.”

## No RFI in Manufacturing

With prefab, homes are built to the same—and often higher—standards as site-built structures. The difference: most of the building is constructed as a series of modules within a factory and then assembled on-site. Efficiency is essential. Unlike many contractors, manufacturers are intolerant of ambiguity in designs. If one project necessitates a slew of requests for information (RFIs) to an architectural firm, manufacturers will avoid working with that firm in the future. So from the initial pricing stage to engineering and construction, MKD uses AutoCAD to provide its manufacturers with documents that support clarity in the format its manufacturers prefer.

“Manufacturers need to understand immediately what we are trying to achieve in an individual design,” explains Warner. “It would be impossible for us to work with our manufacturers without AutoCAD. AutoCAD supports the precision they demand in a format they are familiar with.”

## The Result

### Sustainable Design for 20 Percent Less

With environmental consciousness rising across the world, more people want homes made with sustainable materials and processes. With help from Autodesk, MKD ensures that these people have an affordable place to turn. “One of the biggest benefits of our processes for clients is predictability in terms of costs and time,” says Kaufmann. “We could not achieve that without AutoCAD. Sustainable design is not necessarily more expensive. In fact, by taking efficiency to the next level, we’re making ecologically responsible custom homes up to 20 percent less expensive, and our non-custom homes are even more affordable.”

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