

One of our major business goals is improving the sales process. With help from a Digital Prototyping workflow based on Inventor software, we're able to provide faster, smarter designs even as we explore all avenues for saving our customers money.

—David Johnson
Manager of Information Systems
KYSOR Panel Systems

Customers like it cool.

From the U.S. National Archives to Walmart, KYSOR Panel Systems freezes out the competition with Autodesk® Inventor® software.



Project Summary

Since its founding in 1947, KYSOR Panel Systems® (KYSOR) has become a global expert and industry leader in developing reliable walk-in coolers and freezer systems based on innovative insulated panels. KYSOR panels offer high insulation values, a tight building envelope, resistance to water vapor, and support for heavy loads. They are often used for commercial buildings or cold storage facilities where temperature, humidity, and light must constantly meet precise specifications. For example, KYSOR provided panels for the controlled environment for the U.S. National Archives and refrigeration systems that cool beer at the new, state-of-the-art Dallas Cowboys Stadium in Arlington, Texas. Among the company's customers are the world's largest retailers, including Costco, Kroger, Safeway, Target, and Wal-Mart.

What makes KYSOR a top walk-in cooler and freezer manufacturer is its advanced design and manufacturing capabilities, powered by Autodesk® Inventor® software. Building automation around Inventor, KYSOR has streamlined much of its engineer-to-order (ETO) process. With the help of Autodesk Inventor software, KYSOR has been able to increase its competitive advantage by:

- Reducing sales engineering design time from two weeks to as little as one day
- Completing orders faster and reducing errors in manufacturing
- Providing more accurate, detailed quotes to customers
- Meeting municipal codes and regulations more reliably

The Challenge

As an ETO manufacturer, virtually everything KYSOR builds requires a completely fresh engineering design that must be created quickly and accurately. When KYSOR committed to expanding its customer base, the company's leaders realized that its design process needed updating. "We sell one-off units by the thousands every week and it can take up to two weeks to create each design manually—it's time we could no longer spare," explains David Johnson, manager of information systems at KYSOR. "David Frase and Mickey Oxford, KYSOR's president and CIO, developed a visionary strategy for shortening design cycle time by automating the design process."

KYSOR also wanted to take its renowned customer service to the next level. "We're very customer-centric," says Johnson. Crispin Fjerestad, a programmer/analyst and design engineer at KYSOR, adds: "We wanted to provide more accurate quotes and help save our customers money. We hoped that design automation would help us make smarter, better designs while reducing the errors and rework that can upset customers."

A longtime Autodesk customer, KYSOR adopted a Digital Prototyping solution based on Autodesk Inventor software, Autodesk® Vault Manufacturing data management software, and proprietary software tools to transform its engineer-to-order process. Staying true to its reputation for innovation and high quality, KYSOR took advantage of the comprehensive Inventor API to create 40 specialized Inventor plug-ins that enable design automa-

Design automation helps KYSOR improve overall efficiency by 45 percent.

tion. The company developed a standard modular platform design that can be configured to meet each customer's unique requirements.

Faster, More Accurate Quotes

By automating sketching and approval documentation, KYSOR has enabled its salespeople to turn around customer quotes faster than ever. "In this industry, it can be challenging to understand how an insulated panel system fits in a particular space," says Johnson. "Now we are able to quote and build what customers want without spending a lot of time going back to them for verification."

Johnson adds: "One of our major business goals is improving the sales process. With help from a Digital Prototyping workflow based on Inventor software, we're able to provide faster, smarter designs even as we explore all avenues for saving our customers money."

Efficient Designs, Improved Service

The information salespeople gather from customers feeds into a business optimization program that configures a standard modular platform using custom attributes to drive and optimize customer-specific design variants. The optimizer determines how to adjust the modular platform to fit the customer's needs using the least number of labor hours, the least amount of materials, and the best combination of panels. The optimizer communicates the information to Autodesk Inventor software, which assembles the product digital prototype automatically via KYSOR's custom plug-ins.

At that point, a KYSOR designer adds symbols and other information needed for manufacturing. If there are certain municipal codes or regulations that need to be followed, designers can tweak the digital prototype appropriately. Each of KYSOR's digital prototypes goes through a rules engine and is

subject to interference detection, helping to reduce the risk of error.

Fjerestad notes that Digital Prototyping has enabled more accurate and automated BOMs and drawings that are no longer subject to interpretation. "In the past, the shop floor sometimes had difficulty reading our 2D drawings and often had to fix inaccurate BOMs," he says. "With a digital prototype created in Inventor, everything is clear. Both our shop workers and our customers can see and understand how everything fits together—there are fewer misunderstandings."

Digital Prototyping Data Maintained Easily

KYSOR manages, synchronizes, and coordinates all design data related to its digital prototypes using Autodesk Vault Manufacturing software across three U.S. manufacturing sites—directly connecting design to manufacturing processes. "From manufacturing to installation and servicing, we use our design data throughout every phase, so it needs to be accessible," reports Johnson. "It is our goal to maintain data indefinitely so that if a customer ever damages a panel, it's quite easy for us to manufacture a replacement."

Supporting Rapid Growth

Thanks to Autodesk Inventor software, KYSOR is making inroads to meeting its growth objectives. "We're designing new products based on our panel technology more quickly, thanks to Inventor," says Johnson. "Our focus on additional markets has allowed us to double revenue and grow phenomenally since launching the design automation project."

As KYSOR's customer base grows, the company has been able to maintain its high levels of service without expanding its overhead. "With help from Inventor software, we've been able to move into

new markets and increase capacity without adding facilities and designers," notes Johnson.

The Result

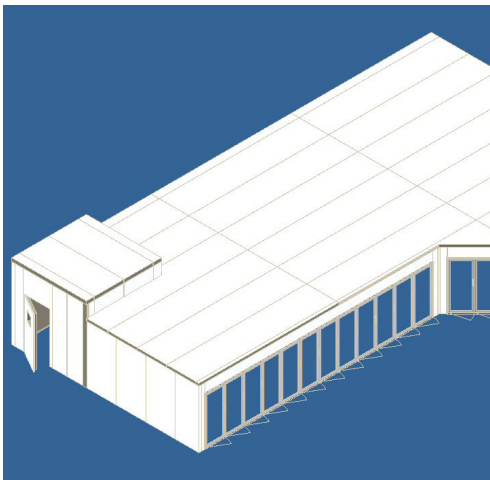
Design automation has improved KYSOR's overall efficiency by 45 percent and cut engineering design time from up to two weeks to just one day in many cases. The company has exceeded its goal of using automation to complete 80 percent of the design work for 80 percent of its designs.

Autodesk Inventor software is even helping with getting new workers up to speed. "It's now much easier to train our new designers," Fjerestad points out. "Using the 3D model, they can clearly visualize the things we build."

Explaining the role Autodesk Inventor software has played in his company's success, Johnson says, "KYSOR's industry dominance can be attributed to our commitment to customers and to making continuous improvements. Implementing design automation using Autodesk Inventor and our proprietary software tools has significantly contributed to KYSOR's ability to increase capacity, serve customers faster, reduce manufacturing errors, and increase documentation quality. We believe that design automation is helping us to cement our leadership position."

For More Information

To find out how Autodesk Inventor software can help you increase innovation, reduce mistakes, and cut costs, visit www.autodesk.com/inventor.



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