Western Michigan University

Customer Success Story

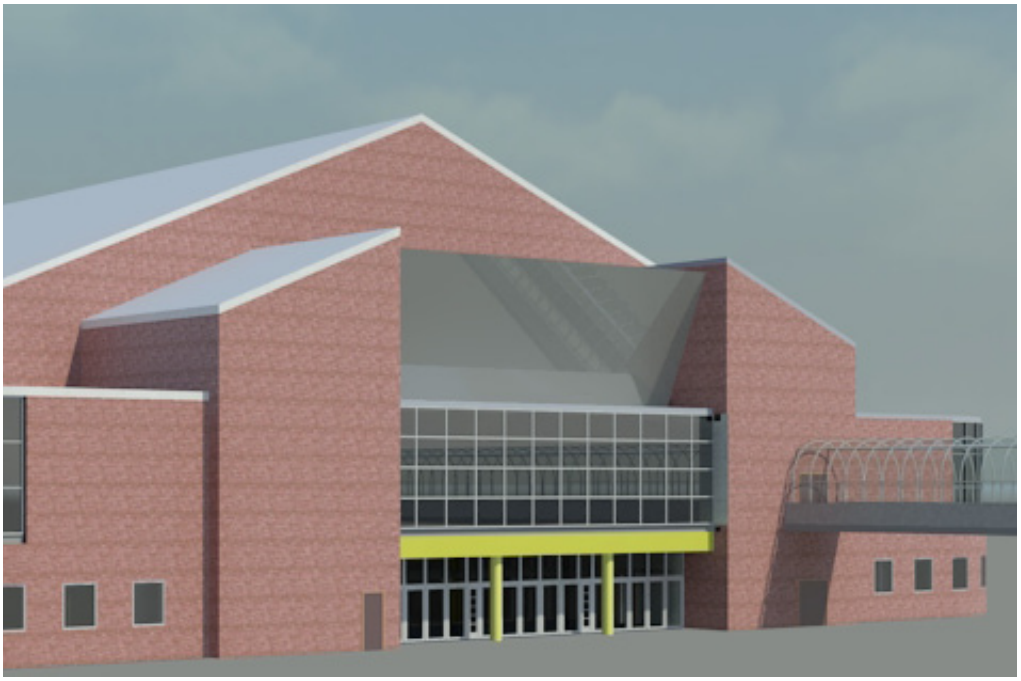
**Autodesk® Revit® Architecture**
**Autodesk® Navisworks® Manage**
**AutoCAD®**

We own and operate our buildings for 50 years or more—and approximately 90 percent of the costs occur after construction. We need to make smarter decisions with those assets—and to have access to real-time information about them. BIM is how we access and maintain that information.

—Peter Strazdas
Associate Vice President,
Facilities Management
Western Michigan University

# Improve building performance.

## With Autodesk Revit Architecture, WMU students model campus buildings for energy analysis, renovations, and retrofits.



**Front entrance of the University Arena. Image courtesy of Western Michigan University.**

**Project Summary**

Western Michigan University (WMU) is a dynamic, student-centered research university with an enrollment of 25,000. According to the U.S. News & World Report, WMU consistently ranks among the top 100 public universities in the nation. A key factor in these rankings is the University's commitment to delivering high-quality, industry-relevant undergraduate instruction. That is one of the reasons why the Department of Civil and Construction Engineering introduced the building information modeling (BIM) process and Autodesk® Revit® Architecture software to the curriculum in 2008. Soon afterward, WMU initiated a much wider implementation of BIM to support the many building design projects that the planning, engineering, and construction divisions were working on across the campus. "We knew that BIM was the way to go," says Peter Strazdas, associate vice president, facilities, at WMU. "However, before using BIM on a new construction project, we wanted to explore its potential on some of our existing, in-house renovation projects."

**The Challenge**

To support this effort, WMU initiated a plan to have a group of engineering students model the campus' existing buildings in Revit Architecture. "We wanted hands-on experience with buildings that we already understood before we used BIM on new construction," says Mike Hodgkinson, building commissioning administrator at WMU. "It was a great learning opportunity for the students—and allowed us to stay within a reasonable budget."

The initial plan was for the students, working 30 to 40 hours per week, to model two-thirds of the 8-million-square-foot campus between May and September. One of Strazdas' ultimate goals was to use these models for energy analysis and to help with the subsequent identification of those buildings on campus most in need of renovation and retrofitting. To help demonstrate the project's feasibility to stakeholders and facilitate whole-project review, the team used Autodesk® Navisworks® Manage software and its powerful conflict resolution, visualization, and planning capabilities.

Autodesk®

# Using Revit Architecture software, WMU students model 115 campus buildings in only 4 months.

**The Solution**
WMU turned to Autodesk reseller Kal-Blue for early guidance and training. Kal-Blue modeled the first campus building, showing the facility management team and students how the process worked. Kal-Blue also developed best practices that the design team could follow and introduced WMU to AIA E202, a document that helped determine how much detail to include in the models.

"If we drafted every detail, the process would have taken too long," says Strazdas. After deliberation, WMU used the graduated scale from the AIA E202 document and selected a baseline of Level 200 out of 500 for most of the buildings.

**Leverage Existing Drawings**
To help accelerate model creation, the design team based its work on the extensive collection of AutoCAD® DWG™ files that WMU maintained. "Much of the 2D information transferred easily into 3D," says Hodgkinson. As a result, the students worked much faster than originally projected. "We also updated the original designs to ensure that our models included all recent building modifications."

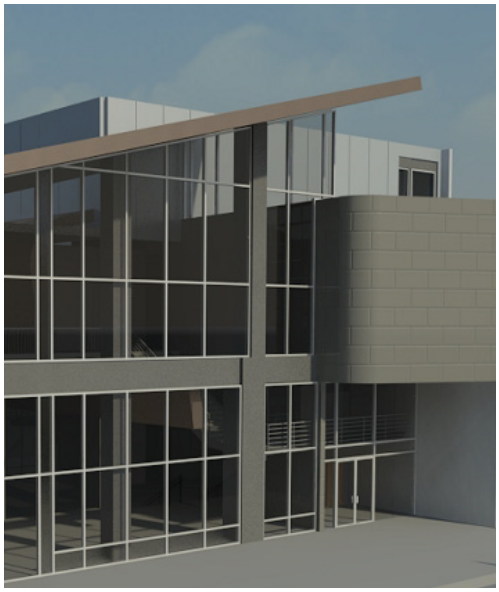
**The Result**
The WMU design team succeeded in modeling 80 percent of the campus—115 buildings—by September. "We easily surpassed our goals," says Strazdas. "With help from Revit Architecture, our students accomplished an impressive amount very quickly." Others were equally impressed; several students have had inquiries from potential employers. Another group of students will complete the remaining buildings in 2011.

**Make Better Decisions**
Strazdas believes the models will have tremendous value on future renovations. "We'll share visualizations with our in-house customers during the review process," says Strazdas. "That is much easier with Revit Architecture, Navisworks Manage, and a BIM process." WMU will also integrate data from the models with energy analysis software for better decisions about energy consumption and effective identification of targets for renovation and retrofitting.

WMU has already begun using the models on a renovation project that requires adding two chillers to an existing building. WMU is enhancing the model with data from a laser scan, and also piping data from an engineering consultant—raising the detail level in that part of the model to 400.

Ultimately, WMU will consolidate all campus buildings into a unified model. "We own and operate our buildings for 50 years or more—and approximately 90 percent of the costs occur after construction," says Strazdas. "We need to make smarter decisions with those assets—and to have access to real-time information about them. BIM is how we access and maintain that information."

For more information, visit **www.autodesk.com/revitarchitecture**.



**The RCVA Building. Image courtesy of Western Michigan University.**

**Schneider Hall Courtyard. Image courtesy of Western Michigan University.**

We easily surpassed our goals. With help from Revit Architecture, our students accomplished an impressive amount in a very short period of time.

—Mike Hodgkinson
Building Commissioning Administrator
Western Michigan University

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