

RLF

Customer Success Story

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Autodesk BIM solutions helped us to meet our deadlines and deliver quality. From the foundation to the signage and furniture, BIM gave us insight into every aspect of the project from the very beginning.

—Keith Holloway  
BIM Technical Manager  
RLF

# Staying on the fast track.

RLF uses Autodesk BIM solutions to design and coordinate a fast-track government healthcare facility—on time and on budget.



## Project Summary

One of Florida's first firms to offer integrated architecture, engineering, and interior design services, RLF was founded in 1935. Today, the firm is home to more than 130 design professionals who continue to offer integrated services to public and private sector clients. On every project, the firm strives to deliver innovative, practical, and enduring solutions. The design professionals at RLF have come to rely on Building Information Modeling (BIM) to help them realize their goals. The replacement Irwin Army Community Hospital at Fort Riley project demonstrates the increasingly central role of BIM to RLF's business.

Encompassing a 263,000-square-foot inpatient hospital and a 289,000-square-foot outpatient clinic, the new healthcare facility will serve the military community in Fort Riley, Kansas. The facility was designed to achieve a LEED® Silver rating. Autodesk BIM solutions, including Autodesk® Revit® software applications and Autodesk® Navisworks® Manage software, helped the team from RLF to design, collaborate, and coordinate on the project more effectively. "The Fort Riley facility was a fast-track project with a multidisciplinary, multifirm project team," says Keith Holloway, RLF's BIM technical manager. "BIM allowed everyone to explore, visualize, and understand the project as we worked. It gave us a window into the outcomes of design choices from the earliest stages of the project."

## The Challenge

To design the healthcare facility, RLF collaborated with LEO A DALY, one of North America's largest privately held design firms. RLF took charge of the outpatient clinic, central energy plant, and parking garages. RLF also handled the furniture, signage, and communications for the entire facility. LEO A DALY designed the inpatient hospital and provided structural and civil engineering services.

The clients on the project, the U.S. Army Corps of Engineers and the U.S. Army Medical Department, mandated the use of BIM. They did this to complement the fast-track nature of the project, help ensure the ground-level integration of sustainable principles and evidence-based design, and support truly world-class healthcare construction. The fast tracking involved bringing in a contractor to collaborate from the earliest stages of the project, which is known as early contractor involvement, and compressing the project schedule to conduct the design and construction phases simultaneously. For instance, the schedule called for construction to begin on the site work and foundations before the building designs were complete. Precise coordination quickly emerged as a mission-critical factor in the success of the project.

"On a fast-track project like Fort Riley, you don't have the luxury of going back and modifying early portions of the designs at the end of the project," says Damian Serrano, RLF's BIM project coordinator. "It's essential to take a whole-project, outcome-oriented view from the very beginning."

Autodesk®

# Informed decisions—inside and out.

Everyone—contractors, architects, interior designers, and engineers—needs to be able to align their vision for the end result in almost real time. I don't know how you could do that without BIM."

## The Solution

Healthcare facilities, especially government healthcare facilities, have highly complex program requirements. From hallways to examination rooms to storage, the design needs to meet precise space allocations. In the programming stages of the project, the design team, which consisted of architects, engineers and interior designers, established the program requirements for the facility—and incorporated the requirements in conceptual design models in Autodesk® Revit® Architecture software.

"The intelligence of the building information model saved an incredible amount of time on the project," says Serrano. "Keeping track of whether room sizes meet government criteria used to take significant time on projects like this. Now, when we change one room, the rest of the model adjusts—and applies the size changes to all affected areas instantly. If the design ever started to deviate from program requirements, we identified and addressed the issue quickly and easily."

## Staying Coordinated

With RLF and LEO A DALY working on complementary aspects of the project simultaneously, the design team relied heavily on BIM to coordinate the design. RLF developed its architectural models in Autodesk Revit Architecture and mechanical, electrical, and plumbing (MEP) models in Autodesk® Revit® MEP. They aligned their work with Autodesk® Revit® Structure models provided by LEO A DALY. This helped the team to reduce the risk of clashes from the earliest stages of the project.

To collaborate with the contractor, the team regularly provided access to the design models. The contractor explored the models in Revit software,

and aggregated them in Autodesk Navisworks Manage software. The clash detection capabilities in Navisworks Manage helped the team identify and address interferences and constructability issues well before construction began.

"BIM made it possible to coordinate efforts with multiple team members and the contractor in a near real-time way," says Pedro Rivera, mechanical designer and BIM coordinator at RLF. "Even though many of us were spread geographically, it was like we were all working under the same roof. If we coordinated the model less frequently or less automatically, it would have been difficult to stay on schedule."

## A Better Patient Experience

Interior design and signage make a significant impact on a patient's perception of the comfort and warmth of a healthcare facility. RLF used Autodesk Revit Architecture software to develop the interior design package, including the furniture and signage. Signage can be especially important with a large healthcare facility like Fort Riley. After developing and placing the signage in Revit Architecture, the team loaded the model into Navisworks Manage for virtual walk-throughs.

"Navisworks Manage provides a quick and intuitive way to explore how a person will experience a project," says Miriam Ganesh, interior designer with RLF. "We can see how patients will move from the entrance to the information desk and to their destinations. You want clarity every step of the way. Navisworks Manage let us put ourselves in the patients' place."

Throughout the interior design process, the interior designers referred closely to the Revit MEP model to ensure that elements such as nurse call buttons and equipment harmonized with the overall design. They also used the material takeoff capabilities of Revit Architecture to balance costs with aesthetic considerations.



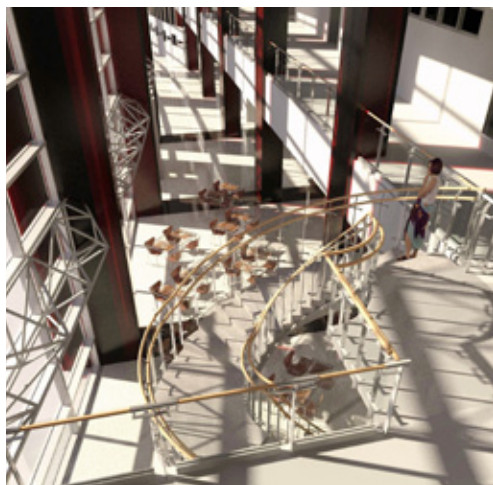
"BIM allowed us to align our ideas with the mechanical systems as well as structural and other elements," reports Ganesh. "We visualized exactly where things like switches came through panels, which helped us make material choices that enhanced usability. BIM made it easier to control interior costs more proactively too. For instance, we easily stayed on top of how using more costly materials, such as porcelain, impacted the overall project."

## The Result

Construction on the project began almost a year before the teams from RLF and LEO A DALY delivered the final design package. Holloway explains the advantage of such an aggressive schedule: "A fast-track schedule means that military personnel and their families will be able to use a state-of-the-art medical facility sooner. Of course, errors, misunderstandings, or poor coordination could derail the whole project. Autodesk BIM solutions helped us to meet our deadlines and deliver quality. From the foundation to the signage and furniture, BIM gave us insight into every aspect of the project from the very beginning."

## Learn More

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—Pedro Rivera  
Mechanical Designer/BIM Coordinator  
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Images courtesy of RLF

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