Adolfson & Peterson Construction

Customer Success Story

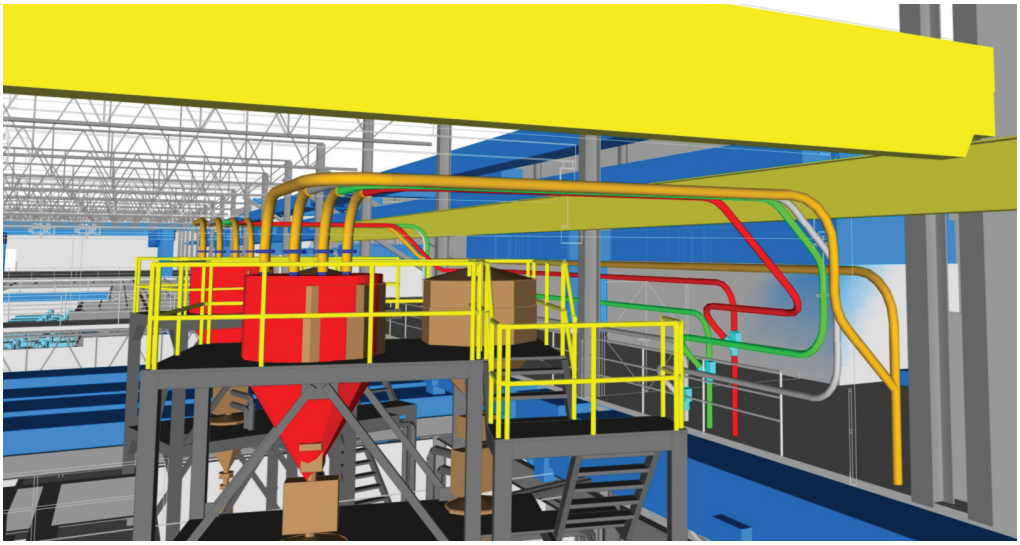
Autodesk® Navisworks® Manage

The bottom line is Navisworks helps save us from doing rework, minimizes construction schedules, and supports better communication.

—Cameron Donegan
Virtual Construction Manager
Adolfson & Peterson Construction

Building efficiency.

Adolfson & Peterson Construction reduces construction waste, rework, and delays using Autodesk Navisworks.



Project Summary

A national general contractor with offices in Arizona, Colorado, Minnesota, North Carolina, Texas, and Washington, Adolfson & Peterson Construction (A&P) builds everything from schools, churches, and hospitals to correctional facilities, parking structures, and retail stores. While A&P's clients have always been cost conscious, the softening economy has made it even more important for them to complete projects efficiently and cost-effectively. To manage the construction process—and help spot problems before they impact schedules and budgets—A&P turned to Autodesk® Navisworks® software. Using Autodesk Navisworks, Adolfson has been able to:

- Save $20,000 of rework on a single project
- Fix piping before it became a $30,000 problem
- Make up a month of time on a weather-delayed project
- Reduce call backs from clients having operational or maintenance problems

The Challenge

A&P has always tried to weed out waste wherever it can, whether it's wasted time or costly materials. And in tough economic times, completing projects on time and on budget is even more important. "We need to be conservative for our clients," explains Scott Weicht, president at A&P. "A surprisingly small amount of money can make or break a project in these budget-conscious times."

To complete projects even faster and with less waste, A&P wanted to reduce the kinds of surprises that often cause problems during construction and in the building lifecycle. For example, conflicts between equipment and mechanical, electrical, and plumbing (MEP) systems can cause expensive delays and wasted materials. "Solving these problems during construction means lost labor productivity, fewer options, and costly changes," says Cameron Donegan, virtual construction manager at A&P. "We needed a way to streamline our construction process by identifying major construction issues before they impact schedule and cost."

The Solution

A&P adopted Autodesk Navisworks software to help streamline its construction projects. Using Navisworks, A&P combines the project data contributed by various design and building teams into a single building model.

"We collect and manage 3D models from our major subcontractors—from ductwork, piping, and electrical systems to manufacturing equipment," says Donegan. "Because we can gather, manage, and combine 40 different file types in their native format, we are able to more accurately coordinate the entire construction process. Navisworks makes it easier."

Once they have a model that combines subcontractor data, the team at A&P can perform walk-throughs, team reviews, and MEP coordination with

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Adolfson & Peterson solves problems before construction begins with Navisworks.

clash detection more efficiently. As a result, A&P solves problems before construction begins.

"Navisworks allows us to coordinate objects in space," explains Donegan. "We can also account for maintenance issues. For example, we model clearances for access to variable air volume boxes to ensure that all controls will be easily accessible during and after construction."

Fast-Tracking Projects

To meet a tight project deadline, A&P recently began construction on a film processing plant before the plant's process and shop floor design was completed. The company used Navisworks to evaluate whether the equipment being designed and fabricated in Germany could operate as designed, without interferences, in the building A&P was constructing. Navisworks also helped A&P with installation planning by letting teams block out areas in the building model for mechanical, ductwork, plumbing, and electrical systems. After importing equipment and system designs into the Navisworks model, A&P ran clash detections to help identify problems.

For example, the plant had grinders with chutes on them that had to penetrate the floor. Because the process wasn't completely designed before construction, the angle and placement of those chutes kept changing. But this didn't slow down A&P. "Navisworks allowed us to wait until the last possible minute to finalize the openings in the structure for the chutes, giving the equipment designers maximum time to perfect their layout," says John Huyett, senior project manager at A&P.

A&P also used Autodesk® Navisworks® Manage software to help detect and resolve clashes between the cranes needed to install and operate the film processing equipment. "Without Navisworks, we would have delayed certain areas of construction until the equipment and process designs were complete," notes Huyett. "Due to the integrated equipment, ducting, and piping, there would have been a lot of guesswork and rework at the jobsite. With Navisworks, we could respond to design changes without slowing construction."

When A&P did detect a problem, its team met with subcontractors to resolve it quickly. "People made changes at meetings using laptops," says Huyett. "Then we'd reload everything into Navisworks on the spot and rerun the clash test until we got it right. Navisworks saved us huge headaches in the field."

Effective MEP Coordination

A&P also relies on Navisworks Manage to help with MEP coordination. On a high school construction project, A&P attached the project schedule to the Naviswork model. The TimeLiner tool (available in Autodesk® Navisworks® Simulate and Autodesk Navisworks Manage software) automated the schedule and gave MEP subcontractors and owners a visual understanding of project status and phasing on a daily basis.

The Navisworks model also helped MEP subcontractors anticipate and head off problems before and during installations at the school—such as learning that a piping system wouldn't fit in a particular ceiling space as designed. "We use the Navisworks model to find problems and establish solutions before construction to assist productivity in the field," says Donegan. "When subcontractors have questions, I can pull up the model and walk them through the area to help them understand how all the pieces fit together."

For A&P, viewing projects in 3D makes all the difference in keeping subcontractors on the same page. "With 2D, you can't always see exactly what is happening around the area in question, especially if you encounter an issue early in the construction process," explains Donegan. "Everyone can look at the 3D model and visualize the same space. With help from Navisworks, we've improved the process of understanding, communicating, and sharing the project's vision."

The Result

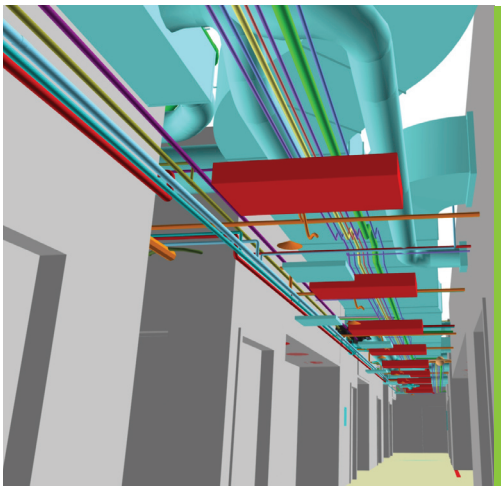
Thanks to Navisworks, A&P is completing construction projects more efficiently and cost-effectively. "We are proactively solving problems before construction begins so teams aren't waiting for answers or solutions to issues during construction," explains Donegan. "The bottom line is Navisworks helps save us from doing rework, minimizes construction schedules, and supports better communication."

A&P points to many instances where Navisworks has benefited costs and schedules. By accurately coordinating grinder chutes at the film processing plant, the company saved $20,000 it would have spent reworking steel beams. On the recent school project, Navisworks helped discover a piping problem prior to construction that would have cost 264 man hours and approximately $30,000 in rework cost. And when one hospital project was delayed by more than a month due to weather and soil conditions, Navisworks helped A&P recoup the time—and stay on schedule.

Donegan concludes, "With Navisworks, we have created a whole new level of construction. The software helps us streamline projects by minimizing costs, rework, and project time in ways that benefit us and our clients."

For More Information

To find out how Autodesk Navisworks can help you increase productivity, reduce waste, and cut costs, visit **www.autodesk.com/navisworks**.



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Images courtesy of Adolfson & Peterson Construction

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