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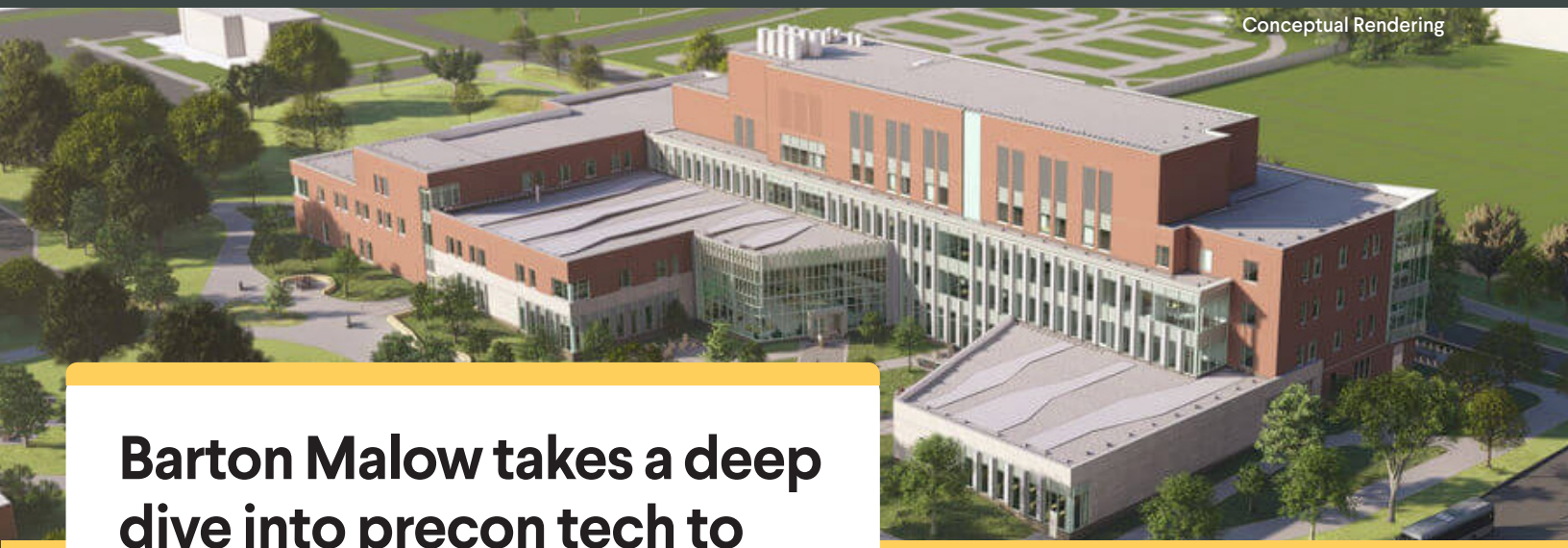
Conceptual Rendering

Barton Malow takes a deep dive into precon tech to build MSU a new kind of academic environment, but one that still meets the target budget

Challenge:

Replace a 65-year-old engineering building on the MSU campus with a flexible, state-of-the-art structure, without going over budget.

Design-Build Team:

Owner: **Michigan State University Board of Regents**

General Contractor: **Barton Malow**

Architect/Engineer of Record: **Integrated Design Solutions**

Design/Lab Architect: **HGA**

Solution:

Put the right people on the project → Give them a robust collaboration tool → Include end-users and subcontractors in early decision-making.

Impact:

MSU's new Engineering and Digital Innovation Center (EDI Center) will optimize the end-user experience while minimizing the cost to build it. A double-edged win for the Spartans! 🏆

Serving as a magnet for the MSU campus, the new Engineering and Digital Innovation Center (EDI Center) is a $340M, 265,700SF, multi-level structure that will provide opportunities for discovery and new ways of thinking. Through a convergence of education, research and career preparedness, the EDI Center will serve as a dynamic nexus, setting the stage for career opportunities in fields such as engineering, advanced manufacturing, semiconductors, data science, artificial intelligence and communications.

Barton Malow

> **Join Scenarios was the driver that moved the project forward.**

Elizabeth Geiser,
Vice President of Construction,
Barton Malow

CHALLENGE

Replace a 65-year-old engineering building on the MSU campus with a flexible, state-of-the-art structure, without going over budget

Old school: topical learning. New school: interdisciplinary learning.

Many higher education institutions–like Michigan State University–are taking the opportunity to create an entirely new type of learning environment: the interdisciplinary center or complex.

Higher education is becoming more interdisciplinary because our problems as a society have become more complex and require solutions that draw from multiple disciplines and different perspectives vs. just one. So, when it came time to replace a 65-year-old engineering building on the MSU campus, the University began planning for an interdisciplinary environment vs. a structure that would be used by only one college, or one field. The result: the $340 million Engineering and Digital Innovation Center (EDI Center).

In order to develop "the next generation of Spartans into the difference-makers and innovators of tomorrow [from the MSU website]," the EDI Center will take a pioneering approach to delivering research and instruction across six colleges–Engineering, Natural Science, Business, Arts and Letters, Communication Arts and Sciences, and Social Science–setting the stage for career opportunities in engineering, advanced manufacturing, semiconductors, data science, artificial intelligence, and communications (among others).

But as any GC knows, building a structure for multiple stakeholders can be tricky.

Plainly put, there are multiple end-user opinions on what the EDI Center should look like and how it should function. And that makes sense, says Barton Malow's Vice President of Preconstruction Elizabeth Geiser: "If it's another 65 years until something else gets built, people want all the bells and whistles now. They want to plan ahead as much as they can."

But, she adds, "none of it is free."

"That really is one of the biggest challenges on this project," adds Director of Preconstruction Jason Pociask. "A lot of the center's end-users were trying to future-proof their own labs and other spaces–particularly the labs–while trying to predict what they think their needs might be in five or more years."

MSU chose Southfield, Mich.-based Barton Malow as the general contractor on this complex CM@Risk/TVD project for many reasons–including that fact that the 101-year-old firm has successfully built several iconic structures for MSU in the past 20 years–but also because Barton Malow has proven that it understands how to incorporate multiple, sometimes divergent, end-user needs to arrive at a final solution that everyone can support.

Barton Malow

For more than 100 years, Barton Malow has been committed to building People, Projects, and Communities. The Barton Malow Enterprise is composed of five entities and two partner firms. With team members strategically positioned across North America, we are on a mission to transform the construction industry through innovation and increased efficiencies in the building process.

Conceptual Rendering

SOLUTION

Put the right people on the project → Give them a robust collaboration tool → Include end-users and subcontractors in early decision-making.

Put the right people on the project.

Because the EDI Center has several stakeholder groups whose voices need to be heard, understood, and considered within the larger context of the project design and budget, decision-making could quickly and easily become unwieldy if not expertly managed.

"It actually starts with having the right people in place," explains Pociask. "Having someone like [Estimator] Corey Pomeroy being the lead on a project like this is critical. Corey has the ability, the stature, and the M.O. to work through a project of this magnitude."

Every project is unique, he adds, "but the biggest driver to project success is having that strong lead that can take control of the VE process and understand what all the implications are for every item that needs a decision."

Pomeroy, with 25 years of construction experience, started as a field laborer at Barton Malow, moved into quality control management, and now is an estimator that leads some of the firm's largest projects. In short, he is the kind of preconstruction professional that owners want on their projects; someone who understands the interrelatedness of decisions and who can lead the team to optimal outcomes.

Give them a robust collaboration tool.

As one of the first (and arguably one of the most passionate) users of Join, Elizabeth Geiser understands that even the most experienced employees need the right tools and technologies to meet the demands of highly collaborative projects.

In a recent Construction Dive article, "How Barton Malow Leverages Preconstruction Tech [Oct. 30, 2024], Geiser talks about convincing a large healthcare project team to go all in on Join, the collaborative project delivery platform: "Before Join, we tracked [everything] in Excel. Then you had to know if you had the right Excel file or not. Then, really only one person could be in Excel at a time to update it."

In the article, Geiser describes how she had investigated Join as a single source of truth, and midstream on the Intermountain Health Lutheran Hospital project in Wheaton, CO, told the team, "good, bad or ugly, this is what we're doing." In other words, the team was going to launch headfirst into using Join on the project. The decision turned out to be highly beneficial to the team and the project, and the owner loved the visibility of the platform.

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Jason Pociask, Director of Preconstruction, Barton Malow

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Jeff Bonk,
Project Delivery Manager, MSU

Since then, Geiser and her preconstruction team have used Join on 140 additional projects, and they've been using the platform on the MSU EDI Center project for over a year (December 2023 - present).

Getting to the Target Budget

"Our work on the project started with concepts and a rough cost model," Pociask says. "Then over the course of a year, we provided an SD budget. It was tremendously over what they were looking to spend, so we spent the better part of three-to-four months developing different scenarios. Then in October 2024, we finally produced our official SD estimate, which brought the design and budget back to where it needed to be."

Since then, Pociask explains, the team has been "springboarding" off that effort. Now at 50% DDs, the team is looking to close the $1 million gap on the path to MSU's budget of $340 million.

MSU Project Delivery Manager Jeff Bonk appreciates Join's easy-to-understand interface, which helps him communicate complex cost information to key decision-makers. "As an owner," he says, "being able to track cost and potential budget impacts related to design decisions greatly enhances my ability to present information to my stakeholders. In turn, this allows for real-time, efficient decision-making. Additionally, Join has helped the design team stay within targeted budgets for work categories. This has improved the design process immensely. I find Join invaluable."

Leveraging Join Scenarios

While working hard to get the budget under control, the Barton Malow team relied heavily on a newly released feature in Join called Scenarios. With this new capability, Barton Malow and the design team were able to create a number of different Scenarios, or groupings of potential programmatic decisions, and compare their strengths both visually and numerically before presenting those ideas to MSU.

"Scenarios offers us a quick 10,000-ft. look without having to make major commitments to the design or budget," says Pociask. "By implementing Scenarios to get those points across to each one of our component teams, It gives us a chance to sort out some of the sacred cows to the project, to the design team, and to the owner, and put those off to the side and then really start focusing on the myriad other items that we might be able to look to as value engineering options.

Corey Pomeroy says that Scenarios was released right as the Barton Malow team was developing that crucial SD estimate. It was Pomeroy's first-time using Scenarios. He was willing, however, to pilot Join's brand new feature "straight out of the box" because of Barton Malow's previous successes with the software."I just started playing around with it," Pomeroy says, "and it worked."

Of the software's capabilities, Pomeroy says he appreciates its ability to help teams visualize their progress. "I immediately liked the presentation format," he says, adding that he likes to be able to see all the 'what-ifs' side by side."

One of the more complicated what-ifs on the project was whether or not to include a basement in the structure.

Include end-users and subcontractors in early decision-making.

The Red Cedar River, which winds through the heart of the MSU campus in East Lansing, is central to the campus' identity. It's a favorite running spot for students, and the faculty often schedule walking meetings along the river's tree-lined banks. Another feature of the river is that it vastly increases the complexity of constructing buildings on the campus, particularly those with basements. "The water table is extremely high," explains Pociask, "which involves a lot of expensive earth retention and dewatering." As such, the Barton Malow team identified the elimination of the basement as one of the more impactful cost-saving items they could consider on the EDI Center project.

Engaging the Stakeholders

Pociask says the team worked closely with the end-users to explain the real costs of having a basement on the project, as well as how it would impact other programmatic choices. "There were different points of view from a lot of the end users, but once we showed them that that money could be far better spent above ground in other spaces rather than going down, that was pretty much where the decision was made."

"Very quickly," he says, "once everybody came together and tried to see what we were doing as we were putting these different Scenarios together, they could see the end goal. They would say, 'Ok, I can live with this for now because I understand what you're trying to do."

Working with the Key Trades

Because the EDI Center is a Target Value Delivery project, the Barton Malow team is committed to 100% real-time cost estimating, which requires the early input of key trades. Pomeroy says that while creating key Scenarios for the project, the team originally relied on the input of in-house MEP estimators to price certain systems; while later in the project the team switched to what it calls ECI, or Early Contractor Involvement.

When teams start working with Scenarios, they often need to consider multi-trade, multi-cluster-group engagement, which can pit different priorities against each other. "It's those types of Scenarios," Pociask says, "where it becomes apparent and more important to have great communication. For example, our structural engineer may have thrown out an idea about moving a lab for his vibration requirements, completely forgetting what that does to the mechanical system and everything else."

Pomeroy says the project's design team was also involved in the creation of Scenarios. "We were sharing different Scenarios with HGA (design architect) and IDS (architect of record) so they could play around with them, too, and weigh in on those that might have an impact on design intent."

Securing Architect Buy-In

He adds that while the design team's input on big-ticket items was critical, it was also helpful on smaller-value items, which add up. Getting early buy-in from the design team, he says, "makes it a lot easier to walk the owner through the estimate and explain exactly how we're getting down to budget."

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> **Corey Pomeroy,**
> Estimator,
> Barton Malow

> **I've found Join to be a great tool for tracking costs, documenting decisions, assigning ownership, and gaining real insight into your project's pulse—beyond just the numbers.**

Jeffrey D. Johnson, AIA,
Senior Vice President, IDS

Pociask says using Join to reach a target budget has made the process of getting there more enjoyable and exponentially more efficient. "When more and more subcontractors and designers/architects are on board with it, we find that they love it. They realize that their information is easily searchable. So, when at three o'clock in the morning when you have a question about something, you can go and pull it up. It's right there. Equally valuable, you can pull up information during a Big Room meeting for discussions or decisions."

"Too often, new software enters the scene with flashy promises, only to become just another short-lived fad," says IDS Sr. Vice President Jeffrey D. Johnson, AIA. "So, when Barton Malow proposed Join for tracking continuous estimating, we approached it cautiously making sure the tool wouldn't disrupt the 'real' work. But what we discovered was quite the opposite. Join's ability to track individual change items with precision enables focused, strategic conversations with the right stakeholders at the right time. Its real-time visuals offer an executive snapshot of project health while being able to quickly drill into the details if needed. I've found Join to be a great tool for tracking costs, documenting decisions, assigning ownership, and gaining real insight into your project's pulse—beyond just the numbers."

As project team members get more familiar with the platform, Pociask says, they're utilizing more of the functions within Join. "They're putting more information down, making sure they're tagging the proper parties. And they are adhering to those due dates. It makes the communication flow that much smoother because nobody is sitting around waiting on somebody else. It's all very real-time, and people are reacting to it daily. Overall communication and reaction time is definitely enhanced because this is leagues ahead of the old days of emailing around an Excel sheet, seeking input on different cost-savings options. That was painful, at best. This has definitely streamlined a lot of that and made communication that much smoother and faster."

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I don't think that we would have been able to do it without Join Scenarios. I mean, maybe we could have, but it would have meant a lot less sleep.

Elizabeth Geiser,
Vice President of Construction,
Barton Malow

IMPACT

Elizabeth Geiser says the combination of having multiple stakeholders on the project, while having to meet an aggressive target budget, made it one of the more complicated projects she and her team have worked on. "I don't think that we would have been able to do it, honestly, without Join Scenarios," she says. "I mean, maybe we could have, but it would have meant a lot less sleep."

Pociask says Scenarios came out at an opportune time for the team. "It was like, hold on, wait everybody...you've got to see this. I think we got the answer."

"This particular project required integrated conversation," Pociask says. Adding to the complexity of the building itself was the number of stakeholder opinions that needed to be heard, understood, and integrated–but within the Owner's target budget. Possible solutions–or Scenarios–often required the input of the general contractor, the design team, key trades, and, of course, the people from the six different colleges who would be using the new building.

Geiser says Join Scenarios was the driver that moved the project forward. And that greatly pleases her, but not only because of the work it provides Barton Malow, but also because it makes MSU (and the region) that much more competitive in a changing educational landscape.

"Barton Malow Chief Community Officer Ben Maibach III went to school in the engineering building that we are replacing with the EDI Center," says Geiser. "The Barton Malow team members are committed to making sure all the people who will inhabit the new building have everything they might possibly need to excel in their efforts."

Let's build something remarkable. Together.

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