

TABLE OF EXPERTS

Building Education

BY BONITA TILLMAN



PHOTO BY MICHAEL THOMAS

MEET THE EXPERTS:

**JEFF KOCHAN**

*Vice President of Technologies
Utilitra*

Jeff Kochan is Vice President of Technology at Utilitra, where he leads strategic innovation around emerging technology and security solutions. With a focus on operational excellence and forward-thinking technology integration, Jeff has over two decades of experience in Technology and IT leadership. His collaborative approach and commitment to community-driven outcomes position him as a trusted voice in shaping educational and municipal technology strategies across the region.

**EMILY SPINDLER**

*PK-12 St. Louis Region Practice Leader
FGM Architects*

Emily Spindler, AIA, NCARB is a Principal at FGMA with more than a decade of experience in PK-12 school design. She has guided projects shaped by diverse pedagogies, safety, and access, always working to uncover the “why” behind each client’s mission and translate it into inspiring, student-centered environments. In March 2024, Emily began leading the firm’s St. Louis region’s PK-12 strategy, bringing her dual perspective as both a professional and a mother to create learning spaces that enhance outcomes and simplify daily operations for administrators. Emily attained her Master of Architecture degree from the University of Illinois Urbana-Champaign.

**JEFF VREDEVOOGD**

*General Manager, Vertical and Market Segments
Haworth, represented locally by Professional
Office Environments in Maryland Heights*

Jeff Vredevoogd, Haworth’s General Manager of Vertical Markets and Segments, leverages 40+ years of industry experience to help campus leaders adapt spaces to change. His focus includes collaborating to create forward-thinking spaces, balancing choices for students and staff, and emphasizing connection. A proponent of pilot testing, Jeff ensures new ideas are evaluated before campus-wide implementation. He’s a featured speaker and published in industry publications like Commercial Building Products Magazine and Buildings Magazine.

**MIKE YAZBEC**

*President
S. M. Wilson & Co. Construction
Managers/General Contractors*

Michael Yazbec, President of S. M. Wilson, brings over 35 years of A/E/C expertise to lead this employee-owned firm. With a team of 100+ employees, he focuses on client experience, profitability, growth and sustainability.

S. M. Wilson has more than \$2 billion in educational experience, serving more than 40 districts in Missouri and Illinois. Committed to building next-generation environments, the company is dedicated to the success of its school district clients and achieving high repeat business.

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Design and construction companies involved in building schools have more to consider these days than the brick veneer on the building or paint colors on the walls inside. Technology advancements and security have risen to the top of the priority list for both school administrators and parents.

Professionals who focus on these projects every day provided insight into how to achieve success and overcome challenges during a recent Building Education Table of Experts panel discussion.

Moderated by Robert Bobroff, Publisher of the St. Louis Business Journals, the conversation included:



PHOTO BY MICHAEL THOMAS

- **Jeff Kochan**, Vice President of Technologies, Utilitra;
- **Emily Spindler**, PK-12 St. Louis Region Practice Leader, FGM Architects;
- **Jeff Vredevoogd**, General Manager, Vertical and Market Segments, Haworth; and
- **Mike Yazbec**, President, S. M. Wilson & Co. construction managers/general contractors.

BOBROFF: How can a design construction team support a district's long-term education goals, by creating a project that allows for flexibility for next generation learning and create spaces that enhance student wellbeing, inclusivity and accessibility?

YAZBEC: The short answer is partnership. The earlier we are involved in projects, the better. Now, some of the delivery methods, such as construction management at risk and design-build, are allowed by public entities. Districts select us based on best value and bring us on very early. In the most successful projects, we're brought on before they're even out for a bond referendum if one is required.

This allows us to help districts plan for their long-term education goals by providing cost estimates to ensure they understand what to pursue and how to future-proof the design. We can also provide advanced planning and constructability to ensure the most

thoughtful and practical construction solutions.

Since new schools aren't built very often, they need to last for a long time. Many of the schools we renovate have been around for more than 50 years, so during a renovation, we ensure that the infrastructure for future technology is installed. This might have more first-time costs related to that support, but you need flexibility because enrollments fluctuate.

As far as design, we've seen a lot of portability added to classroom design, so it isn't just four walls anymore, but an organic space that moves around. Decisions made by the school board and superintendent are huge at the front of the project. The earlier we become involved in partnerships with design firms, the better our chances will be of success in building projects that support the future needs of districts.

BOBROFF: Is that relatively new that they're bringing you in that early?

YAZBEC: In 2016, the statutes in Missouri were updated to allow for construction management at risk and design/build. That statute has just been revised to remove the sunset, due to the great collaborative success of these delivery methods.

Essentially, throughout the nation, a lot of state statutes have been revised, allowing the construction manager to

come on early. It really works out well because the last thing a district wants is to get the project fully designed and out for bid in the open market and then have all your bids come back over budget. Then you've got a budget and a schedule issue, so the best move is to solve that issue beforehand. It's a collaborative effort between us and the design team to make that happen, which is the key to a true partnership.

SPINDLER: Successful projects start with recognizing what may be missing from the established team. Owners who fill those gaps with the right industry partners set their projects up for success, ultimately realizing an improved process and result.

YAZBEC: The community is a huge piece of that because most times you're asking them to borrow money and potentially raise their property taxes to support the effort. So it's painting that picture that this is good for the community, the education of our children and your property values. We get a variety of opinions from the community that we sort through, but you end up hearing similar themes about what's important to the community.

VREDEVOOGD: It really comes down to "do it with me and not to me." We discuss stakeholders and higher education as students and faculty, but the reality is that the most successful projects bring voices from all areas on campus for input into the process. This

variety helps create the experience you're trying to develop because you get buy-in and engagement.

BOBROFF: Technology is also a huge piece moving forward for the flexibility and the learning environment. What's coming next? How do we future-proof the facility so it's capable of handling whatever's next in technology?

VREDEVOOGD: Technology is best applied when it enables and enhances teaching and learning, not be the education. I think that's the most important thing. So often we see that we get into the trap where we think the technology is the answer, but it's just part of the recipe. It becomes a key ingredient as we connect instructional design with space design.

KOCHAN: Technology has paved the way for cloud services and digital curriculum. The largest impact technology has on schools is that these platforms help manage costs and time. This is why it's important to design the school technology networks to support this growing need. Another impact touching schools is keeping our children safe. When designing technology security solutions, it's imperative to make design decisions based on industry standards and common platforms. This provides a foundation that can support the future needs and growth of a district.

BOBROFF: What new trends have developed in PK-12 school design?

SPINDLER: We're referencing strategies for nurturing health and wellness from designers who work on public safety and civic spaces. The stress and strain that first responders and elected officials face isn't that different than school administrators, educators and students. Creating spaces that encourage mindfulness, decompression and regulation can help everyone thrive — and reduce the frequency of students needing to regulate themselves outside of the classroom. This means designing schools with adequate space, flexible furniture and small one-on-one interaction spaces right in classrooms.

Another big focus in PK-12 design is safety — implementing secure entries and procedures for locking down certain areas. We have been bringing first responders into the design process so that, if there's an emergency, the school is built to empower first responders to act quickly and accurately.

For instance, we can color-code corridors so they already know which colors correspond to which age groups, see those colors low and high and automatically find their way in the building in an emergency. These are elements we can incorporate into the design to help gain seconds in emergency situations.

YAZBEC: There's always that balance between providing security, but then making sure that the kids don't feel like they're walking into a maximum-security prison to go to school. The way it is handled by the design teams requires a delicate balance.

KOCHAN: Creating a security solution that is functional, non-obtrusive and provides peace of mind for all the stakeholders is an important part of education facility design and construction. We can recommend a security solution that supports the entire effort of the school district, such as cameras with different abilities, multi-sensor cameras, analytics and two-way communications. Selecting a unified platform that supports all the districts' needs allows the capability to link systems like access-control to guest management, increasing visibility and enhancing security. A unified platform allows the shift from being reactive to proactive using smart

technologies to solve daily problems. These platforms provide schools with the ability to pre-plan, help detect and prevent scenarios.

VREDEVOOGD: Successful spaces on campus provide the right level of choice and comfort for everyone using the spaces. This depends on knowing who we are designing for and how the spaces we are creating can support them in the best way possible. Gone are the spaces where accommodation is handled in a very obvious way — often bringing focus on aspects of the space (we all have been in a lecture hall where a few pieces of fixed seating has been removed and replaced with a table and chairs).

Accommodation is not only important, but it also becomes a key element of overall good design. Understanding who you are designing for as well as desired goals for the space being designed. Creating spaces that can support everyone, whether in class or as smaller groups is all part of an inclusive solution.

BOBROFF: How can we get input from stakeholders such as students, faculty and staff to inform space design?

VREDEVOOGD: When talking about reaching out for stakeholder input, the theme I often use is tied to an earlier point, "do it with me, not to me." I often think you'll have many projects move through the process and then when you share it with others, they say it doesn't work. Often that is because they weren't asked or brought into the process.

First, why is it important? It's engagement; it's buy-in. I loved your point about the community because including stakeholders' input from my perspective has always been a wonderful draw for donor support. If you understand what we're trying to do on campus or in a building, and we show the benefit and you may be testing some concepts in real time, the donor can get a feel for what they're supporting and where their money is going. What's critical is bringing those voices into the process.

We had a panel last year with students from different universities to talk about education, and it was incredibly eye-opening to hear directly from them. In

addition, we recently conducted a survey with campus design leads around the process and importance of gathering stakeholder input. One thing is clear — they want to be part of the process and are open to sharing their thoughts and ideas.

BOBROFF: When should a technology integrator be brought to the table during the project lifecycle?

KOCHAN: Our goal is to work with the school, design team and contractor to integrate with their existing investment and technology plan. We're going in and making sure what we're doing isn't going to disrupt the design but enhance it. We promote new ideas and ways to save time and money and enhance the final physical security and technology solution. The education process is dependent on technology resources, and issues like a school network or internet being unavailable cause more impacts with loss of connectivity to these critical cloud resources. So the sooner we're at the table, the better we can help and control costs.

BOBROFF: How are contractors partnering with school districts to promote skilled trades by offering real-world learning opportunities both in the classroom and on the job site?

YAZBEC: Anybody in the built environment understands we're beginning to experience a skilled trade shortage, and it's only going to expand with the demographic shift.

In 2019, S. M. Wilson recognized that, given the amount of education work we managed, especially in the K-12 arena, we should seize the opportunity to expose children to the construction industry as early as pre-kindergarten and ensure they understand the great career opportunities in skilled trades.

That's when we founded SKILLED®, S. M. Wilson's Construction Career Education program, which provides hands-on opportunities to integrate academic learning and focus on future employment in the A/E/C industry. SKILLED's mission is to "Inspire the future of construction."



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With SKILLED, when we're renovating an existing facility, we make a conscious effort to involve the students. We have people read stories about bulldozers and cranes to kindergartners and first graders. And as they move through, we let them come through job sites in a very safe manner, see what's going on and ask our people questions.

SKILLED offers three levels: Discover for PreK-12, Develop for post-high school and Elevate for career development. As we get closer to when they'd have to make that career decision, we offer shadow programs for high school students to come see what construction's all about and fund scholarships to trade schools.

Our project superintendents are awesome, and several have served as mentors for our high school students who are making their decision. Since 2019, about 20,000 preK-12 students have participated in our projects and our outreach through SKILLED.

We are starting to see the impact of lower numbers of tradespeople, and it is

really affecting schedules. In order to not be disruptive, most of our renovation work happens during the 12 weeks of summer when schools are vacant and the schedule is very intensive. The entire industry is doing everything we possibly can despite barriers between our competitors because it is an industry problem. It's a great way to make a living, and we just have to show kids that it's a great career path.

VREDEVOOGD: There's constant conversation about the softening of the enrollment; some refer to it as the enrollment cliff. While there may be some validity to softening enrollment, it is driving institutions to think differently. High school graduates may not be going to school for a bachelor's but are interested in getting a certification on the same campus. Grand Rapids Community College is designed to support the needs of the community so as the needs of the community shift, the school is able to respond.

I also love your point about the specialties within high school. We had an expert panel back in December where we

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FGM Architects

invited four superintendents from local schools, public, private, big and small. Two of the schools shared stories around how their districts are broadening their focus and now offering like auto, electrical and plumbing. One district even had a local donor step up and help fund a brand-new auto shop, which will be opening soon.

YAZBEC: It's interesting because the technology has changed. You still need to work with your hands, but when you look at electrical or mechanical careers, you won't walk on our job sites and see a big roll of blueprints; everybody has the drawings on their iPad. Almost every trade has a technological component embedded in it, whether it involves calibrating equipment or utilizing other technologies. The lack of trade workers will only get worse, so we need to figure out a way to solve it. We feel like we have an opportunity with our K-12 work to influence those students.

KOCHAN: Some schools are allowing students to take computer programming languages in place of foreign languages, which allows students a foundational understanding of these programmatic languages. Schools have also offered industry-based training for certifications from companies such as Microsoft, CompTia and Cisco. Students can walk out of high school with industry knowledge that directly transfers to the job market.

YAZBEC: We've seen it on the administrative side of construction. Some of the AI tools that we have now made our office people much more efficient, which may or may not lead to less jobs in the office, but somebody still has to put that foundation in; one brick still has to go

on top of the last one.

KOCHAN: AI was like the Internet was for us in the early 2000's, allowing us to be more efficient and productive. AI will be essential to the next generation of the workforce, so it makes training around AI essential to the educational system.

BOBROFF: How is learning and instructional design driving space design?

VREDEVOOGD: One of the very first campuses I walked on when I first started working within higher education had a sign in one of the offices that said, "Higher education, steeped in legacy preparing students for tomorrow using yesterday's methods." I thought that was interesting because everybody's trying to do something new. We read the journals, look online and see all the wonderful pictures and people say, "I want that." I often share a point around...just because it's new doesn't mean it's right for you.

When we talk about instructional design and driving space design, we have to step back a bit to really understand what kind of experience you're creating. What are the learning outcomes? What do you want to, as a faculty member teach? What am I walking away with as a student? What we've learned and are continuing to experience is that we can walk alongside clients in answering those questions.

We actually have two pilots going on right now where we are approaching the overall learning experience much like theater. If you think about learning, it's not a snapshot, it's a movie and you want to understand and support each scene. We have one campus that's a brand-new break-off wing of an existing department. They were given a space, and their initial thought was to drop some furniture there and be done. They would've been unhappy really quickly. Instead, we sat down with each faculty member and mapped out the scenes of his or her experience and then laid the maps on top of each other to weave all those scenes together to support instruction in the best overall way.

The discussion steps beyond focus of how many chairs or tables are needed. The real work comes in when you start to put all these scenes together, not just

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individually. I often share about a book I read Maestro, which I highly recommend. It tells a story of the role of a conductor – which is to not only help each musician be his/her best, but also to create an environment where the entire orchestra can come together to create beautiful music – which is the ultimate goal.

So connecting this to a learning space, good design not only understands the individual spaces (scenes) that may exist but also works to weave them together in a way that makes for a truly wonderful experience for everyone who uses the space.

BOBROFF: How do schools future proof for tomorrow's technology?

KOCHAN: Creating a foundational plan is the first step in future proofing for tomorrow's technological needs. Having control of your data and software licensing controls your costs. You need to build on standards and allow for expansion. This is like building a solid foundation before you build a new building. This plan dictates future technological growth. Investing in borderless networks with wireless capabilities, laptop infrastructure and standards-based software protects school districts from unknown costs.

YAZBEC: And you have to think about when those infrastructure needs get articulated because it's usually above the ceiling or behind the wall, and it's much easier to put in more space than you need now for future-proofing.

KOCHAN: This type of forward thinking produces long-term benefits to the school, as it will allow for technological growth without infrastructure disruptions. It's so much easier to upgrade and grow these environments, historically saving cost and time.

BOBROFF: With more school districts choosing to renovate existing facilities and construct additions rather than new construction, what are the most effective measures for ensuring the safety of students and staff during construction on occupied campuses, specifically regarding site security, traffic flow and noise control? And how can transparency about potential disruptions such as noise access changes or schedule shifts be balanced with maintaining community confidence

and excitement for the project?

YAZBEC: Sometimes, we are building a brand-new greenfield site like we did for Francis Howell North High School, but most of the time, we are adding on or renovating an interior. Obviously, the ideal situation is to complete renovations within the 12 weeks when the students are on summer break. However, there are numerous things to manage, and projects often extend into the school year.

One great way to engage the community during the disruption is using visual things like signage, fencing and artwork, but not just plain construction signage. At elementary schools, we've let kids create the artwork on the fence and we put little peepholes at their height so they can see what's going on safely. We also have them design construction fencing and paint temporary walls. Safety plans are implemented for every site, and we also adjust our work schedules to minimize noise levels during class times.

One of our project superintendents came up with the idea of flying drones over the projects, specifically for transparency and communication purposes. From this footage, we create videos of the new drop-off and pick-up path for parents. We sent them a link to show them driving their car into the place and dropping their kids off, allowing them to visualize and understand exactly what is changing on the campus. We're using creative solutions to address these problems and involve parents and kids. We're getting them as early as kindergarten, and we'll recruit them for jobs later.

SPINDLER: This underscores the importance of early integration of the stakeholders and getting feedback from the community and end users on campus every day.

BOBROFF: What types of strategies can be used to renovate existing areas to bring them up to the next generation learning environment?

SPINDLER: The most important strategy and what FGMA views as the first pillar to our design process is listening, especially to the people that are going to use that space, including students. Sometimes they don't know

what to tell us, so we have to be able to ask the questions that lead to design-changing answers.

We might be experts in architecture, but the end users are experts in their environment. They know what works and what doesn't work in their existing space – we then bring our creative approach to respond to their needs and aspirations.

I have noticed that teachers typically have a lot of supplies to store, which can take up valuable space in the classroom. So for one renovation project, we created a shared storage space in a central location and opened more of the classroom footprint for educational purposes.

VREDEVOOGD: Take lab spaces on campus. Each lab often typically includes not only classroom space, but also storage as well as any specific equipment or capabilities required for the type of experience being supported. A newer approach is to rethink this to now have multiple learning spaces / labs flanking a common storage or equipment

zone, freeing up valuable space but also provides improved support to each individual lab space.

Another idea is around a very common element in most classrooms – the lectern. In many classrooms this can take up 4 x 6-foot space (including circulation space). Changing out the fixed lectern with alternative and more flexible solutions for faculty not only frees up valuable space but also supports new ways of interaction but also brings faculty and students closer together for an improved experience.

SPINDLER: Asking the right questions, listening and then finding a solution is the goal. To your point with the teacher's desk in early education, we had one district that preferred a kidney table instead of a standalone teacher's desk because it allowed space for additional centers. So it's just asking the questions and finding the solution with the right people at the table.

BOBROFF: How are campuses addressing their aging facilities to meet current and future needs?



VREDEVOOGD: We often are in discussions with campus leaders around helping them reimagine their current spaces.

What's interesting is that these conversations aren't always about furniture. It's often about what they are looking to do and discussions around what is working and what isn't. These discussions then lead to leaders exploring new ideas and approaches within their existing spaces. These pilots work to inform future decision making.

We also partner with schools of education and schools of design, both of which will have future impacts on learning spaces, either as designers or teachers. This is a wonderful group of individuals to engage with, helping them see their entire campus as their classroom.

Recently, we worked alongside a group of design students who were asked to reimagine their design studio in the future. Their initial designs seem like a variation of what they have today. They really weren't pushing the limit and seeing

how space could create an entirely new experience for students, faculty and staff.

During initial reviews we challenged them to rethink their designs – freeing them up to really step outside today and assumed constraints within their studio space. The ideas that came out of that are now being fed through the leadership of that design department up to the point of saying, here's are some ways we can do it or reimagine the space.

BOBROFF: Discuss how CTE has an impact on students being prepared to enter into the workforce after graduation.

SPINDLER: It's critically important to underline that career and technical education (CTE) prepares students for highly skilled and highly paid jobs. And it doesn't start in high school; we're encouraging districts to incorporate CTE in middle and elementary school settings too.

There are opportunities for hydroponics and even healthcare with simulation centers that provide cost-effective

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JEFF VREDEVOOGD
Haworth

experiences and flexibility. You can design open spaces and fit them with the technology so they can almost be a rotating option based on the need. At the end of the day, you need to survey students, local businesses, elected officials and area facilities to develop a collaborative effort to help the community thrive for generations to come.

YAZBEC: We finished a new high school last fall and had a tour for the whole office because it's very rare to build a brand new greenfield high school. I was amazed that they had a robotics lab. The biology area was also key because of the need in that area for agricultural science, but it's amazing they were doing it at the high school level. We're also working with St. Louis Community College, which is meeting with industries throughout St. Louis to determine what they need in terms of talent. They have developed many new advanced buildings that help meet workforce needs.

SPINDLER: It's not just the act of building a robot but the exposure they get to do all those things. It doesn't really matter what exactly they're doing if they're learning such valuable lessons.

VREDEVOOGD: Colleges are offering scholarships for robotics; there's a huge path for that to be very successful career.

KOCHAN: Schools are offering students a path to enter the workforce directly from high school when they don't desire or have the opportunity to go to college.

Schools also provide tracks to assist with trade school enrollment or union apprenticeships. These opportunities turn into great paying positions providing years of critical on-the-job experience. I have personally worked with some of these students at Utilitra and they're like sponges. They just want to learn; they're great employees and these schools are doing a great job cultivating that.

BOBROFF: How are smart schools and technology producing a better learning environment for our kids?

KOCHAN: We keep talking about flexibility. AI platforms and immersive learning technologies can use virtual reality headsets to learn and enhance communications. During COVID, schools stumbled a bit, but now they have cloud-based platforms for curriculum. When my child is sick, she doesn't have to notify her teacher; she gets on her platform and stays engaged while at home.

They can also get real-time feedback and assessments. As soon as tests are graded, they are posted. I never question what my child's grades are because she can tell me in real time.

Technology is helping with accessibility and inclusivity. For people that may have a disability, we can use voice to text programs; and for hearing impaired, we can offer visual displays and use more interactive boards. These smart schools have installed network-based speakers and signage to assist with message delivery directly connected to the school's fire and emergency notifications systems. There is even furniture that supports technology like charging ports in desks now.

Security has been one of the largest improvements. Schools can use cameras and smart sensors to detect items from threats, vaping, cell phone usage and fights. Smart schools can deliver this information to a mobile device for school administration and school safety officers, which allows them to be in more than one place at a time. From these same mobile devices, administrators or safety officers can implement pre-plan scenarios, send out mass communications or lock down a building. With the growing use and abilities of analytics and AI, the sky will be the limit when it comes to detecting and analyzing future threats in smart schools.

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