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Campus-Based Green Maintenance and Automated Maintenance Technologies

Thanks to the dedication and ingenuity of committed persons on and off campus, a shift is currently underway in how private universities and colleges confront the global warming crisis. This shift has entailed a reshaping of core principles at the institutional level, and now we can utilize automated technologies to make our campuses greener, more sustainable, and even more efficient.



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Innovation with Green Energy through Campus Rec Centers

Going green and becoming more conscious of environmental impacts continues to be embraced by people and organizations worldwide, and college campuses are no exception. Both Millennials and Generation Z (Gen Z), the latest generations to matriculate to college or university, are demonstrating that they have the knowledge, will, and capacity to create lifestyles that promote positive, sustainable change for the environment.



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Essential Features of Wireless Microphones

Wireless microphones are a core element of live events today, for music, theatrical performances, and even events like presentations and panel discussions. It would be almost unthinkable to have a concert or stage a play without wireless mics, yet wireless is one of the most mysterious and misunderstood parts of audio.



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BUILDING REPUBLICS VIA THOUGHTFUL, CIVIL DISCOURSE

David Townsend, tutor at the St. John's College Annapolis campus, articulates and embodies democratic ideals, connecting them from foundational texts to everyday living. In conversation, he moves naturally and seamlessly between principles and their practical applications. As an award-winning faculty member, teaching at both undergraduate and graduate levels, David aims to learn alongside his students in creating small republics together, thereby helping all to develop tools for democratic citizens to use in meeting the current times.

Cover and above photo courtesy St. John's College Annapolis

CONSTRUCTION AND PLANNING

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REVOLUTIONIZING SOUND IN A HISTORIC CONCERT HALL

The Arlene Schnitzer Concert Hall, home to the Oregon Symphony since 1984, is a mainstay in downtown Portland, Oregon. Since its opening in 1928, the historic building has undergone a number of reinventions, from its original role as a Vaudeville hall to a movie theater and, ultimately, a live music venue.

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EDITOR'S LETTER



Happy March, Readers—

Well, 2022 has continued to give us both great times and great challenges. It reminds of the movie “Parenthood,” in which Grandma tells the story of the roller coaster; I think we all can relate to that idea in the first three months of 2022.

Just like Grandma, I like the roller coaster; I am not a fan of the Ferris wheel going around and around in the same place. What I have come to realize is that challenges—the downs that balance the ups—can be opportunities to grow and to admire the strength that we have on the inside. In the tough times, we can often see the beauty that is the human spirit.

Throughout all that the world has experienced recently, the private higher education community has thrived and met every difficulty head on, steadily pursuing excellence on each college campus. You can be proud of your sustained response to the array of challenges that you have faced for the last two-plus years, and your success shows—in persistent enrollment growth, in the continued expansion of your facilities, and in the adaptability that you have displayed in overcoming each new hurdle presented to you.

The example you provide to your student body—and to many others looking for ways to meet life challenges—is inspirational. You are giving lessons without lectures, and the future leaders created on your campuses will look back on your actions in these times as proof that persistence leads to reward. Your resilience in the face of obstacles is a living testament to how we all can strive to not only endure but thrive in difficult times.

We see the amazing growth on your campuses; thank you for showing all of us what dedication to a mission statement means and how such dedication affects outcomes. This blueprint—being guided by a clear mission—can guide us in our own personal trials, and I am certain that people who follow such a model will see the same results that you all have produced.

We look forward to continue being part of your journey and to sharing your facilities growth and care in the coming months, as we have for the last ten years.

Onward and upward together—

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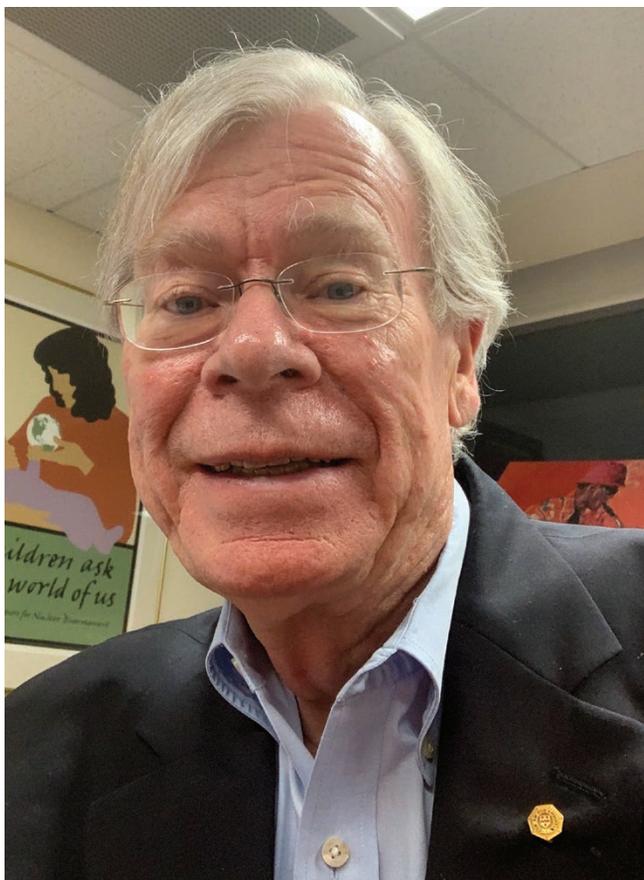


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Building Republics via Thoughtful, Civil Discourse

by Cynthia Mwenja, PhD

David Townsend, tutor at the St. John's College Annapolis campus, articulates and embodies democratic ideals, connecting them from foundational texts to everyday living. In conversation, he moves naturally and seamlessly between principles and their practical applications. As an award-winning faculty member, teaching at both undergraduate and graduate levels, David aims to learn alongside his students in creating small republics together, thereby helping all to develop tools for democratic citizens to use in meeting the current times.

Learning Together at St. John's

St. John's has two campuses; David began as a tutor at the Santa Fe campus and currently teaches in Annapolis. All students at St. John's follow the same course of study; this "new program" was founded in 1937—at the height of the Depression. After World War II, the school has grown slowly to its present size of around four hundred undergraduate students. The students take four years of seminar classes, which are driven by reading original texts across the liberal arts disciplines. The college has no departments and no ranked faculty; the professors—called tutors—are expected to lead seminars in all areas of the curriculum. Tom May, tutor emeritus, says that the program offers "an intensive and heady experience" through its emphasis on discussion. St. John's tutors believe that they also have something to learn from the questions of those who are reading the material for the first time; Tom states that "David embodies that respect and attentiveness" and that this work "requires as much imagination and heart as it does mind."

Association of Graduate Liberal Studies Programs

St. John's is a charter member of the Association of Graduate Liberal Studies Programs (AGLSP), which was founded about thirty-five years ago. According to its website, the AGLSP is "the professional organization of academic programs providing graduate interdisciplinary education in the liberal arts and sciences." David was given AGLSP's 2020 Annual Faculty Award, having been nominated by Emily Langston, Associate Dean for Graduate Programs at St. John's. Emily explains that David has "More patience with difference, more willingness to see things from other perspectives" than "anyone she knows." She mentions the constant demand for opportunities to study with David; he is "incredibly generous with his time and experience" but also willing to teach and learn new things. Emily nominated David for the award because he is the most involved in the Master's of Liberal Arts program and also because of his work in the non-credit lifelong learner programs at St. John's.

The Graduate Institute at St. John's offers three programs: Master of Arts in Liberal Arts, the Master of Arts in Eastern Classics, and

the Liberal Arts Education Certificate, along with a combined MA/JD degree program with the University of Maryland Carey School of Law. According to Tom, David has taught every class in the master's program (as well as almost every undergraduate course); he is also "much sought after" as an advisor and director of the master's essay. David is happy to go beyond work that he already knows, and he expresses delight in working with students whose material is challenging and interesting, noting that he learns a great deal from such projects.

Grad students at St. John's range in age from their twenties to their seventies; Tom says that this mix of experience and backgrounds makes for rich discussions. For example, Tom explains, reading the *Iliad* with veterans of war makes the content more real and clearly relevant to the present day. Christine Mooradian, Head of Greystone Academy, was a student of David's, and they now work together on a series of seminars for teachers of classical education; she states that David understands the "importance of the relationship between teacher and student" and that he "lights a fire at any age, recognizing that the spark is in the person."



PHOTO COURTESY OF UNIVERSITY OF MOUNT UNION

Creating a Republic

Christine points out the tremendous service to the community that David provides, noting that “he really cares about getting people to think more deeply and to communicate more humanely.” She says that David refers to the group of students in each seminar as a “republic” and that he has a “real sense of being an American; he understands that—to have a republic—people must listen to those with whom we disagree.” She goes further to note “If anything will save our country, it will be through this kind of work” and “David provides people the ability to rule themselves because they have explored and sifted these ideas to guide their decisions and behaviors.”

Joanna Tobin, President of the Board

of Education of Anne Arundel County, has worked with David in a variety of ways over the years: she was one of his master’s students—David was on her thesis committee—they were later colleagues for a time at St. John’s, and they have co-taught many times together at the Aspen Institute. She observes that David “takes the experiment of the republic very seriously.” David reports that he works to cultivate a sense that a republic is, in essence, a group of people who can listen to one another, explore ideas together, disagree with one another, and allow multiple viewpoints. He tells students in each seminar that “we’re forming a small republic, and a republic is only as good as its citizens—and it’s not an autocracy or tyranny.” He notes that exploring a text

The students take four years of seminar classes, which are driven by reading original texts across the liberal arts disciplines. The college has no departments and no ranked faculty; the professors—called tutors—are expected to lead seminars in all areas of the curriculum. Tom May, tutor emeritus, says that the program offers “an intensive and heady experience” through its emphasis on discussion.



together offers a foundation for civil discourse and a civil society, saying that there “wouldn’t be an America without these values, and it is still an experiment.”

Seminar Guide

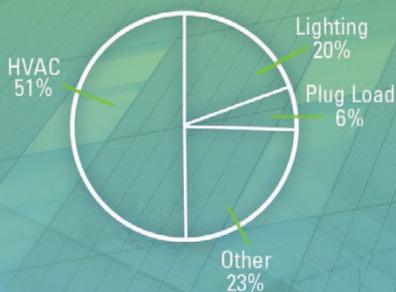
Seminars at St. John’s are typically led by two tutors, with eighteen students enrolled.

Author Sara Taber, who has attended “all sorts” of community seminars for years, describes how seminars typically begin: with an opening question. A tutor may read a passage from the assigned text, then offer an opening question springing from the passage. Alternatively, the tutor may ask each participant to offer their own opening questions. The tutors then stay quiet, allowing the conversation to develop and tossing in another question to shift the conversation or get another perspective when needed. Sara says that David embodies “artful mastery of such guidance.” In addition to the seminars he leads for students at St. John’s, David holds seminars for the community, including

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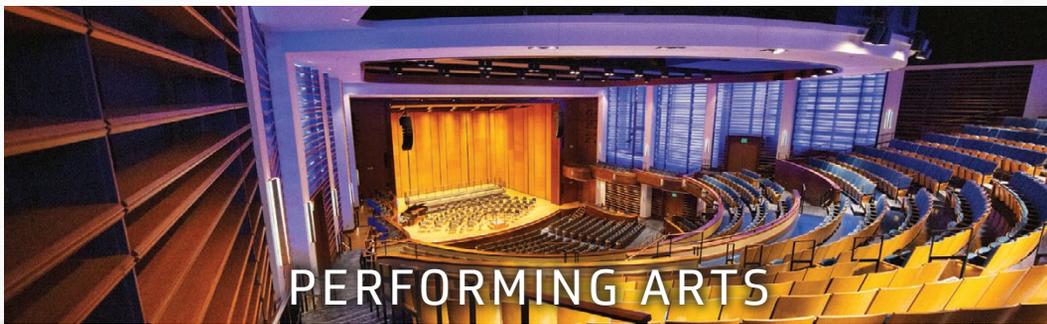
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yearlong, weekend, and summer options. According to Christine, David communicates to each class that everyone in the group has to “work together to draw out the truth and enlightenment” from the text. David’s seminars have spanned a wide array of topics,

including “Liberty, Justice, Equality,” “Beauty, Goodness, and Truth,” the *Aeneid*, James Joyce, *Beowulf*, Frederick Douglass’ *Narrative*, Italian neorealism, and the list goes on. The current topic for the Year of Classics is “Joy,” and readings range from the Christian Bible

to Shakespeare to Mary Oliver; as David notes, the “life of the mind can be source of great joy.”

As Christine states, these community seminars “feed so many people; they’re always full.” Sara adds that “people from all kinds of backgrounds come,” and they “freely, comfortably, and civilly talk about great books.” In discussing his approach, David remarks that “everyone is invited into a common sense that they can learn together, listening to each other and disagreeing civilly.” This model, Christine observes, demonstrates “openness to every idea and a sense that everyone is needed to build a full understanding of the text.” Similarly, Sara notes the “atmosphere of complete non-judgement and openness to all points of view that is vastly democratic”; she adds that David also “keeps an eye out to make sure that airtime is shared so that every perspective is offered.” Hydee Schaller, retired Director of the Mitchell Art Gallery, says that “Many tutors are adept at facilitating conversations, but David is exceptional, making it accessible for everyone.”

One particular aspect that Sara points out is that, by focusing solely on the assigned text, tutors keep the “people on an equal playing field; it doesn’t allow pontificating.” She also remarks that “In an ordinary situation, the people in the group might not get to know one another, but in the seminar, they are “friends trying to figure out the world.” David has helped to begin a variety of seminar programs, such as the Touchstones Discussion Project, whose goal was to have these sorts of discussions in public schools; he says this program currently continues as a non-profit. He was also involved with beginning a seminar series at Jessup Correctional Institution, a maximum security prison in Maryland; the series has now evolved to a GED program. He has even done seminars with the Baltimore Police Academy in which they read the Federalist papers.

Faculty Leadership Seminars

Joanna describes the faculty seminars that she and David co-taught through the Aspen Institute, with additional funding from the American Association of Colleges and

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David’s seminars have spanned a wide array of topics, including “Liberty, Justice, Equality,” “Beauty, Goodness, and Truth,” the *Aeneid*, James Joyce, *Beowulf*, Frederick Douglass’ *Narrative*, Italian neorealism, and the list goes on. The current topic for the Year of Classics is “Joy,” and readings range from the Christian Bible to Shakespeare to Mary Oliver; as David notes, the “life of the mind can be source of great joy.”

Universities. She states that this series is “unlike anything else”; it was essentially a leadership seminar—as are all Aspen seminars—focused on “reading things and talking about them.” These seminars were “geared to helping faculty across disciplines” who came from a mix of schools—community colleges to high-prestige universities, young and seasoned scholars—with forty to sixty participants divided into three cohorts. The over-riding question at the heart of their work was “What is education for in a Democracy?” Joanna perceives that “for so many faculty, these events were life-changing.” They had an opportunity to read and think—not produce, not be experts—to read, respond, evaluate ideas, talk about them. David notes that instructors “are often more interested in showing what they’ve learned than in learning,” but in this setting, Joanna reports, faculty members said things like “I never

saw [a situation] that way; I never asked that question” and “I’m remembering why I got into this work.” The afternoons were free; the down time provided space for conversations to build on what had emerged in the morning seminar. As a result, Joanna notes, “these events supported their intellectual work as whole humans.”

Core Values and Meeting the Current Time

David’s colleagues all agree that he is beloved by students on campus and in the community. Hydee says that David has a “devoted following of students who are loyal” because of his “deep caring for fellow humans” and his ability to “create community.” Christine says that David is “dearly loved” by his students; they seek his comments on their papers and “clamor” to become one of his master’s students. Emily says that David is “absolutely indefatigable”

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David is “absolutely indefatigable” and his “love of engaging with texts is infectious.” Every class and seminar he offers “fills up immediately; he is popular because he provokes so much thought” and “allows the richness of his own experiences to inform the reading and support multi-layered, multi-faceted conversations.”

—EMILY LANGSTON,
ASSOCIATE DEAN FOR GRADUATE
PROGRAMS AT ST. JOHN’S

and that his “love of engaging with texts is infectious.” She goes on to say that every class and seminar he offers “fills up immediately; he is popular because he provokes so much thought” and “allows the richness of his own experiences to inform the reading and support multi-layered, multi-faceted conversations.”

He also contributes to campus life outside of the classroom. Christine says that David “shows up to everything—every event that students do.” As an example, she describes a recent afternoon art show at which her son played drums for the jazz band. Similarly, Hydee says that David is “always willing and able to step up and offer a book club, seminar, or lecture” in conjunction with various exhibitions at the Mitchell Gallery, which offers four museum-quality exhibitions each year. These events have often tied written texts to the art on display. Hydee appreciates David’s “generosity of time,” noting

that he also chaired the Mitchell Gallery advisory committee for several years. Joanna says that “David is a remarkable guy—an extraordinary person who is unbelievably thoughtful and intelligent.” She further explains that “There’s nothing he hasn’t read, nothing he hasn’t thought about; he’s also a gifted, gifted teacher.”

Extending Christine’s point that “people now struggle to communicate civilly,” Joanna says that David’s vision of how education can and should work to mold democratic citizens is needed “more now than ever—to be able to have a thoughtful conversation with a text, a person, an idea—that is a vision David has carried. He is a master.”



ABOUT THE AUTHOR: Dr. Cynthia Mwenja teaches Composition and Rhetoric at the University of Montevallo.

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CONSTRUCTION AND PLANNING

Revolutionizing Sound in a Historic Concert Hall

The Arlene Schnitzer Concert Hall, home to the Oregon Symphony since 1984, is a mainstay in downtown Portland, Oregon. Since its opening in 1928, the historic building has undergone a number of reinventions, from its original role as a Vaudeville hall to a movie theater and, ultimately, a live music venue.

Despite the venue's popularity, several challenges—including an aging shell of reflecting panels surrounding the stage, coupled with a lack of warmth and resonance in the venue's acoustics—necessitated a renovation of the facility to ensure it could continue offering an enjoyable experience for patrons and music lovers.

Maintaining the integrity of the historic space was key in this project. To limit the need

for significant architectural alterations, Staging Concepts, a Trex Company with more than thirty years of experience as an industry leader in designing and engineering staging equipment, worked with theater consultant Shalleck Collaborative to create an innovative solution to make use of 3,750 square feet of previously unusable space above the decorative ceiling.

Combining its industry-leading platforms with specially designed end framing for superior support, Staging Concepts developed an access platform system positioned eighty feet above the main floor of the theater. The custom catwalk incorporates aluminum beams that significantly reduce the weight imposed on the existing structure, thus protecting the venerable building.

Staging Concepts also provided custom mounting plates, as well as steel and aluminum guardrail, which sits fourteen inches above the decorative plaster ceiling and allows staff to access the hall's new audio system of more than forty speakers and microphones. The access platform system was built to service the new sound system, which offers a new method for the venue's sound management.

As Cindy Albrecht, director of sales and marketing for Staging Concepts, says, "This project has opened the door to new and exciting ways that we can work with theaters and music venues to offer the best possible experience for patrons while safely and effectively maximizing space. Sound is such a crucial aspect of enjoying live events. The updated acoustics at the Arlene Schnitzer Concert Hall will continue to delight music fans for years to come."

The Arlene Schnitzer Concert Hall project is a perfect example of the custom solutions that Staging Concepts can not only visualize but realize. To install the access platform system, the Staging Concepts team worked with a variety of trades, including electrical and AV, for the layout of the platform paths. For the necessary access and to get the equipment into the venue undamaged, an opening was made in the ceiling, and a crane was used to load in the equipment, moving materials to an

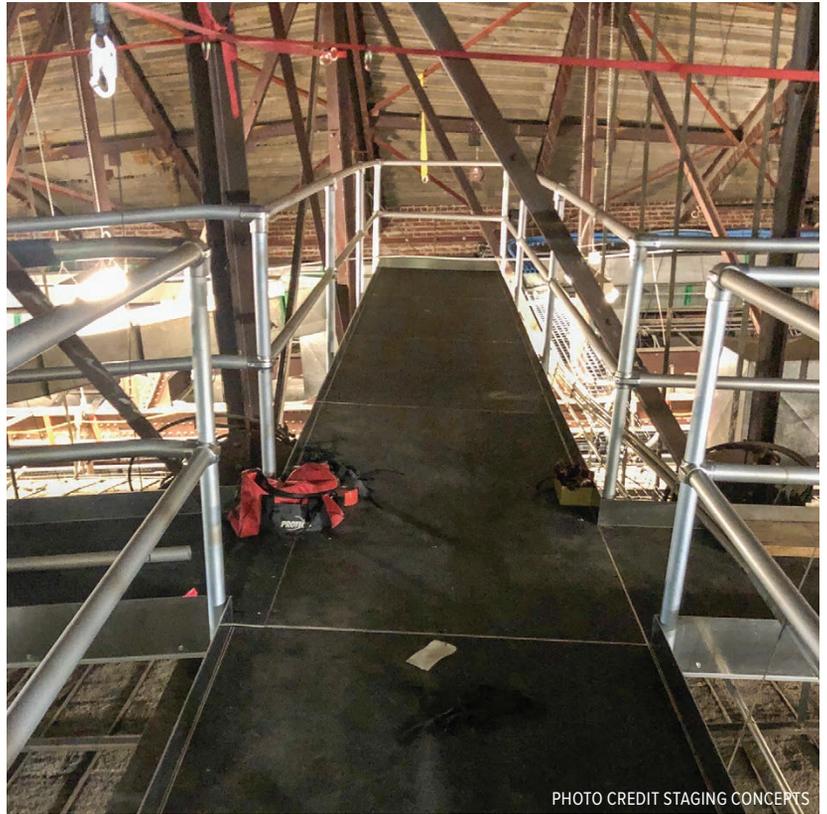


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intermediate roof that provided access to the balcony of the seating area. From there, an access panel was removed; the equipment was hoisted through it, and finally moved into the attic area for installation. All of this work was done without the need for HVAC moves or welding and without lasting change to the decorative ceiling. To finalize installation, steel plates were bolted to the existing steel roof trusses. The overhaul was part of a \$9.6 million project funded by a consortium including the Oregon Symphony and the City of Portland. The venue reopened to the public in the fall of 2021.

ABOUT THE AUTHOR: Staging Concepts engineers and produces the most advanced modular, custom portable staging solutions for all types of venues, including performing arts spaces and production companies, sports facilities, worship venues, convention centers, hospitality settings, and special events. Since 1990, the company has been committed to elevating the abilities of all people to safely access and enjoy amazing life experiences. Based in Minneapolis, Minnesota, Staging Concepts is a division of Trex Commercial Products, Inc., a subsidiary of Trex Company, Inc. For more information, visit www.stagingconcepts.com.

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CAMPUS-BASED GREEN MAINTENANCE & AUTOMATED MAINTENANCE TECHNOLOGIES

by David Vinson, PhD

Thanks to the dedication and ingenuity of committed persons on and off campus, a shift is currently underway in how private universities and colleges confront the global-warming crisis. This shift has entailed a reshaping of core principles at the institutional level, and now we can utilize automated technologies to make our campuses greener, more sustainable, and even more efficient. Green maintenance not only improves air quality and reduces the emissions of greenhouse gases, but it also aids in the reduction of ongoing operating costs. Another key benefit: it helps to preserve the vitality of the natural environment on campus, not least of all because green maintenance positively impacts the physical and emotional health of the campus-based community.



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Moreover, automated maintenance technologies that take the form of building analytics can effectively treat on-campus buildings as self-contained ecosystems. These technologies bring building data to the cloud and subsequently to the user. In doing so, they provide system integrators and users alike the ability to see what actually is taking place inside the building. This information allows for the tracking and triggering of systems and devices securely from any location. Automated technologies make possible what was once believed to be impossible—the means of contextualizing a building’s data. Users can monitor energy usage and in turn cut energy costs. Not only can users calculate CO₂e (including greenhouse gas emissions, emissions reductions, and carbon credits), but they can use automated technologies to adopt text and email alarming, configure system schedules, create custom dashboards, implement built-in security, and use a fully supported application programming interface (API) that defines how applications or devices

can connect to one another. One can now monitor every component of a building that may need maintenance, including the ability to check the history of maintenance work, track spare parts, schedule new tasks, and even determine which assets (machines, tools, etc.) are exhibiting increased signs of wear. Functioning with this kind of efficiency can transform campus-based operations.

Rethinking Construction on Campus with Automated Technologies

As the expectations and needs of students, faculty, and staff continue to develop, the need for expanding campuses with new construction projects has increased regularly. We can already trace the profound impact of automated maintenance technologies on how we monitor the ecosystems of campus buildings; perhaps unsurprisingly, the construction companies responsible for creating these new buildings are experiencing an automation revolution, as well.

Builders can now deploy autonomous, self-driving machines to haul materials and transport items under minimum supervision. Autonomous survey drones are transforming the sight surveying process by taking minutes to monitor sites, identify safety hazards, and create maps—all tasks that would require days, if not weeks, to accomplish on foot. Further, automated and robot-controlled machines operate at least as efficiently as manually operated machines; and because there are few manual processes too complex for today’s advanced automation systems to handle, the usage of automation will surely increase in the construction industry.

Automation also enhances worker safety at construction sites. Worker safety, of course, is an issue of serious and ongoing concern due to the presence of environment hazards and heavy equipment. In fact, the Bureau of Labor Statistics contends that construction is the single most dangerous industry in terms of occupational fatalities. But with automated robots doing the heavy lifting, workers and

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operators can avoid danger and instead focus on other tasks. Automated technologies, as such, can lead to campus-based construction projects being completed with more efficiency than ever.

Alongside automation, modular construction makes the construction process vastly more efficient. Modular construction breaks down buildings into discrete, modular components that can be mass manufactured. The general idea is to take advantage of how buildings are made up of discrete components such as doors, walls, and other units. The components can be mass-manufactured while still remaining customizable. In the context of economies of scale, modular construction brings material costs down. Some higher education institutions may even wish to utilize 3D-printed modular components for smaller facilities—it is not far-fetched to imagine why this approach to construction would be an on-campus attraction both to current and prospective students. That 3D-printed modular buildings are environmentally friendly is an added benefit, one that aligns with the core goals of producing greener and more sustainable campuses.

Promoting On-Campus Sustainability with Green IT Solutions

Information technology (IT) can provide another strategy for making campuses greener, more sustainable, and more efficient. Put simply, green IT is the practice

of environmentally sustainable computing; this approach aims to minimize the negative impact of IT operations on the environment by designing, manufacturing, operating, and disposing of computers and computer-related products in an environmentally friendly manner. Green IT practices help to reduce the use of hazardous materials, to maximize energy efficiency during a product's lifetime, and to promote the biodegradability of unused and outdated products. Green IT is founded on a philosophy that defines an enterprise's success—higher education included—on its economic, environmental, and social performance.

Green IT solutions address a wide range of environmental issues, each with the goal of making campuses greener and more sustainable. One such solution is virtualization. At Stanford University, not unlike many other private universities and colleges, managed virtual servers are offered as an alternative to managed physical servers. This process takes advantage of virtualization technology by which a single server provides the virtual services that would otherwise need to be provided by multiple systems. The result is streamlined technology that reduces overall power, which in turn benefits the environment and cuts down on energy costs.

Another green IT solution is to reduce the use of computing systems during non-peak time periods. Few computing devices, for instance, are computing at full output at all

times. Instead, the majority of computers are used intermittently, typically operating at their computational peak for 1-2% of the time. The best power-management designs make a computer “energy proportional,” in that electricity use and computational output go up proportionally with utilization, and electricity use goes to zero (or nearly so) when the device is idle. Campus-based sustainability can also be managed by recycling physical technology components such as keyboards, monitors, CPUs, and so forth. Because these devices can be highly toxic and are often not biodegradable, several hardware manufacturers have developed biodegradable parts.

The Covid-19 pandemic has created an exponential demand for remote learning as well as telecommunication. While adapting to these changes has been a challenge for students, educators, and staff alike, an obvious upside is that the ability to learn or work from home reduces transportation emissions. Similarly, remote administration allows administrators to remotely access, monitor, and repair systems, all of which significantly decrease the need for physical travel; again, reduced travel eliminates unnecessary carbon emissions.

Creating Meaningful Change

Green maintenance and automated maintenance technologies empower us to create meaningful change on campus and beyond. Over the past several decades, the progress made by private universities and colleges to provide greener and more sustainable facilities has been remarkable—and we can be confident that as innovative technologies continue to emerge, we will continue to pursue the highest possible standards in terms of positively impacting our local communities, society at large, and the planet.

In our next issue (April 2022), we extend this conversation about sustainability and green living by focusing at some length on ways of transforming on-campus facilities into energy efficient, healthy, and cost-effective spaces.



ABOUT THE AUTHOR: Dr. David Vinson has a PhD in English with specializations in transatlantic literature and cultural studies. He is a committed scholar, teacher, and dad. If you ever meet David, avoid the subject of soccer. His fandom borders on the truly obnoxious.

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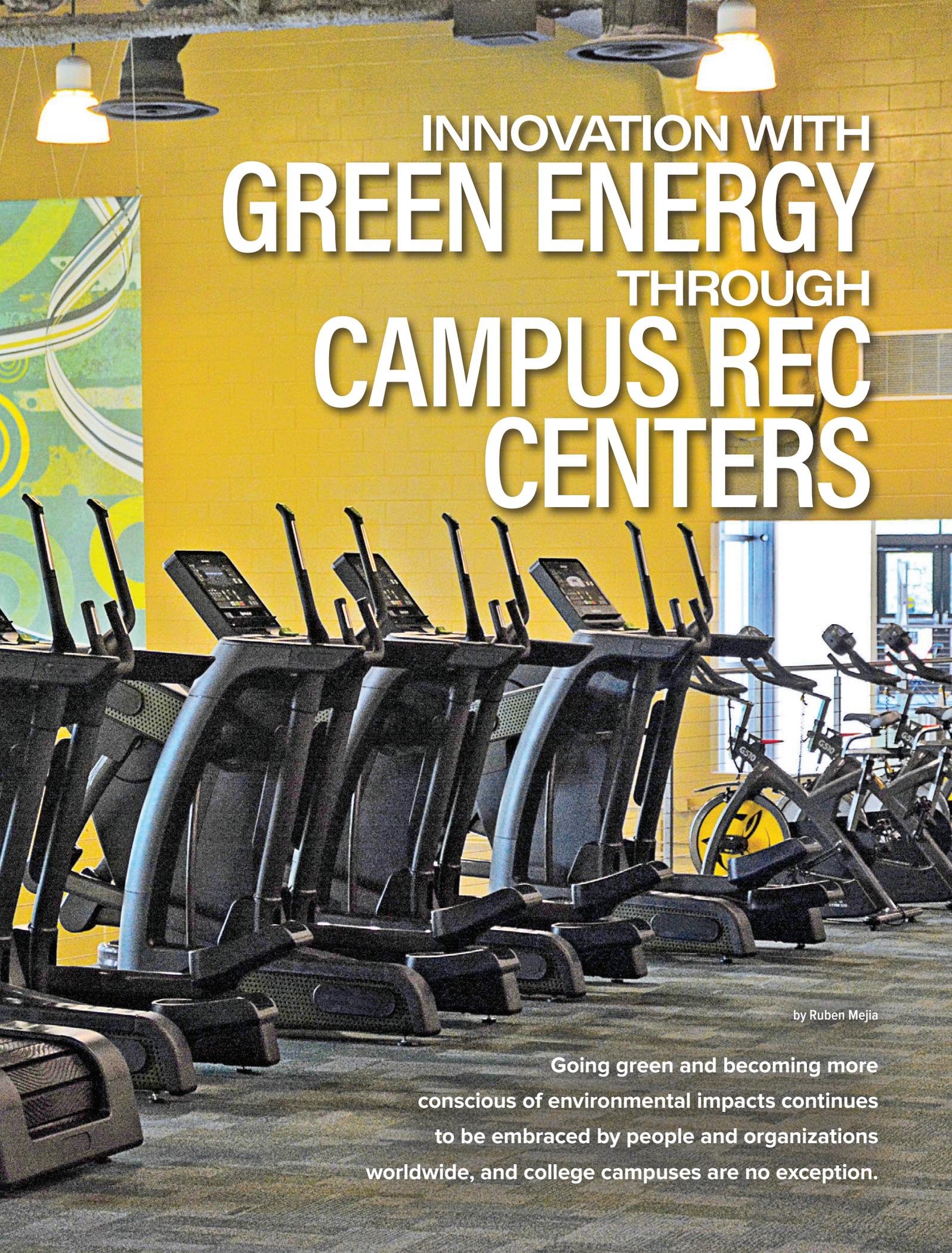
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A row of treadmills in a gym with a yellow wall and modern lighting. The treadmills are arranged in a line, and the background features a yellow wall with a large abstract mural on the left and a window on the right. The lighting is warm and modern, with pendant lights hanging from the ceiling.

INNOVATION WITH GREEN ENERGY THROUGH CAMPUS REC CENTERS

by Ruben Mejia

Going green and becoming more conscious of environmental impacts continues to be embraced by people and organizations worldwide, and college campuses are no exception.

Both Millennials and Generation Z (Gen Z), the latest generations to matriculate to college or university, are demonstrating that they have the knowledge, will, and capacity to create lifestyles that promote positive, sustainable change for the environment. In turn, they want their chosen college or university to reflect these values back to them. Brand-savvy and keen on doing the research before making a big decision, millennials and Gen Z alike take pride in knowing which colleges and universities are “walking the walk” when it comes to sustainability on campus.

With Gen Z beginning their college careers, everything from program offerings to institutional goals are constantly changing. Colleges must do more than offer prospective students their academic program of choice; they must provide an outstanding student experience beyond academics from the get-go. However, now that sustainability and movements to go green are more popular than ever, colleges and universities are responding by adopting

sustainability initiatives that not only help our planet, but also capitalize on the opportunity to attract prospective students by highlighting the tools and support offered to live a green lifestyle aligning with their personal values.

According to the *U.S. News and World Report*, more than eight hundred colleges and universities across the United States have pledged the American College and University Presidents’ Climate Commitment, which sets a goal of reducing greenhouse gas emissions on their campuses with the ultimate goal of becoming carbon neutral. These commitments align with the values of incoming students, as a 2019 *Princeton Review* poll reports 64% of applicants surveyed (approximately 12,000) would factor in school’s environmental and sustainability commitments and goals when deciding where to attend. Going beyond campus-wide recycling programs and solar panel installation, colleges and universities should continue to explore new and alternative green programs in an effort to achieve

carbon neutral status. One area to achieve these aims is through campus recreation centers, which offer an untapped opportunity for administrators to create an engaging, green fitness experience that can help foster a sense of community and inclusion through the student body.

Many colleges and universities offer grants or alternative funding for sustainability initiatives, oftentimes reducing—or eliminating—the financial burden that accompanies making these changes for the student recreation or athletic department. One alternative funding source can come from student government programs that work to support sustainable efforts across campuses. With rising energy costs—recent studies show 47% of recreation facilities account for annual building energy—installing self-powered cardio equipment can be a natural progression towards offering a more energy-efficient and sustainable experience for students across college and university campuses.

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Energy savings can help attract today's green-minded students to their campus fitness centers. Traditional treadmills use an average of one kilowatt hour, which equates to a refrigerator running for five hours. However, innovative solutions like the energy-generating ECO-POWR™ treadmills from SportsArt convert up to 74% of human energy into usable electricity. As a result, one treadmill can reduce the need to purchase that one kilowatt hour from the electric company, while generating up to an additional 200 watt-hours. That energy generation means a single student working out on a single energy-generating cardio machine can create a net positive 1.2 kilowatts of electricity per hour.

For many students, living and maintaining a healthy lifestyle is a priority, both before their enrollment and after graduation. Up to 68% of students report campus recreation facilities influence their decision of which college to attend, which is why many campus recreation facilities are often highlighted and touted as destinations on college tours. Participating in recreation activities and programs expands interest in staying fit and healthy; they're often seen as a hub of social activity, where students can gather to connect with friends, reduce

stress, have fun, and relax. These facilities offer a safe and positive environment for students, and they can, in turn, help improve student wellness outcomes overall.

On-campus recreation centers are used by as many as 75% of students. By leveraging emerging technologies, colleges and universities can change how students create positive and sustainable outcomes for their overall health and wellness on campus. On-campus recreation centers are a component of holistic development for students. Eco-friendly athletic and recreation centers give colleges and universities the ability to demonstrate the direct impact of being environmentally conscious while instilling a great sense of pride on campus.

Attracting students to visit their campus's fitness center is just the first step. Gen Z students are the first generation of "digital natives" to attend college, meaning that the majority of them are tech-savvy and expect schools to offer technology to accompany their workouts. This expectation goes well beyond simply offering televisions on top of equipment. Instead, by including software ecosystems and mobile apps that work directly with the fitness equipment, campuses can ensure students are getting the most out of

their campus recreation center. In addition, including a gamification aspect offers additional opportunity for students to be even more engaged in their workouts. Through tracking workouts, for example, not only do students have the ability to see their workout metrics in real time, and they can also opt to see how their workouts stack up against their fellow students. These comparisons can foster friendly competition, motivation, camaraderie, and fun for students. When campuses combine these capabilities with workout equipment that can generate power back into the campus power grid, students may find themselves working out more frequently and know that their workouts makes a difference.

For institutions, installing energy-saving and energy-generating equipment can help reduce costs and offset carbon emissions over time. Combined with digital integrations, this new information can be brought to the forefront and put on display to highlight sustainability efforts and show students how their workouts can positively impact the planet. This situation can offer students the unique sense of ownership in helping give back, and of living the green lifestyle they strive for. By seeing the electric power they are generating firsthand, students can take

pride in seeing how their actions are helping the campus community and beyond. These insights can mean that a simple workout can transcend a student's time on campus. Going green and making changes to become eco-friendly is an ongoing process that both colleges and students can take pride in. New developments and innovation in energy-generating workout equipment and updated technology integrations will provide campus recreation and athletic directors even more opportunity to provide engagement to students in unique and meaningful ways. As sustainability continues to grow, the evolution of technology has made it possible for students, facility, and staff to engage with greener solutions for a better tomorrow in our shared world.



ABOUT THE AUTHOR: Ruben Mejia, Executive Vice President for SportsArt America, has more than twenty-four years of collective experience across the technology, e-commerce, and fitness industries. In his current role, Mejia focuses on product software and technology; he also manages external customer relationships, marketing, and sales.

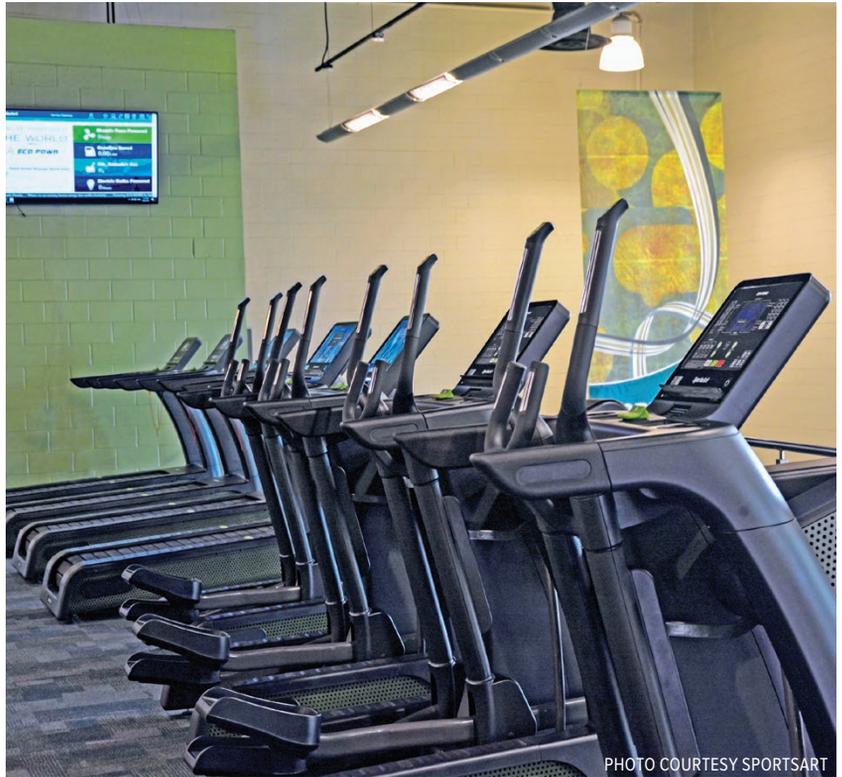
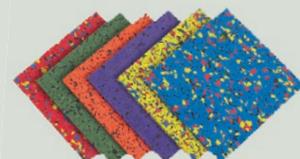


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ESSENTIAL FEATURES OF

Wireless Microphones

by Chris Lyons

Wireless microphones are a core element of live events today, for music, theatrical performances, and even events like presentations and panel discussions. It would be almost unthinkable to have a concert or stage a play without wireless mics, yet wireless is one of the most mysterious and misunderstood parts of audio. Many universities are laboring with outdated wireless mics or just don't have enough of them to meet the needs of the different venues on campus that require them. Even schools that are well-supplied can be overwhelmed by the monthly battery costs related to wireless mics.





PHOTO COURTESY SHURE INCORPORATED

Higher education institutions are faced with a tough challenge: Audiences today have been raised on a diet of professionally-produced media and expect live presentations and performances to be slick and professional. Delivering professional-quality audio that makes audiences glad they came isn't easy. This article offers five features of wireless microphones that can make the difference between "good enough" and "great."

Crystal Clear Digital Sound

Even mid-priced wireless systems are now digital, providing better sound quality with less effort. Analog wireless systems had limited dynamic range, which required careful adjustment to avoid hiss or distortion and necessitated planning and testing during sound check to make sure the settings are right for each performer. Digital systems can handle a wide range of sound sources—from whispering actors to screaming singers—without constant tweaking.

Using Spectrum Efficiently

One of the biggest challenges for wireless mic users is how to operate many systems in larger spaces. Having more systems in one room requires the ability to pack frequencies closer

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together in the spectrum without interfering with each other. With wireless spectrum continuing to become more crowded and TV channel assignments changing regularly, having the ability to switch frequencies is increasingly valuable. Buyers should look for systems with a tuning bandwidth of at least 20 megahertz; systems should also be able to operate at least ten units in one open TV channel, which is all that may be available in some metropolitan areas.

Working the Room with Wider Coverage

Larger spaces like an auditorium or theater demand thoughtful placement of receiving antennas to guarantee coverage throughout the performance area; these spaces also require distribution of the antenna signals to the receivers which may be in the wings, under the stage, or in a control room at the back of the room. Fortunately, modern wireless systems typically offer a selection of available antennas for both medium- and long-range pickup, and an optional antenna distribution system that feeds one pair of antennas (and DC power) to multiple receivers.

The signal from the transmitter on stage weakens considerably as it travels, so it's important that the receiving antennas are located so that they can harvest as much of



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the remaining signal as possible. Mistakes involving antennas can easily result in 80% of the signal being lost, causing intermittent audio dropouts that the audience will notice.

Making Connections with Networking

Running audio cables through walls and ceilings from the stage to the control room can be expensive and labor-intensive. Upscale wireless receivers offer digital audio networking in addition to standard analog audio outputs. Digital networking allows hundreds of audio channels to be carried over one standard ethernet cable, even for considerable distances. This ability means that the receivers can be located backstage—where signal pickup can be stronger—even if the mixing board is in a remote control room. The audio signals take so little bandwidth that they can even share the same network used for data and building functions. Networkable wireless receivers also make frequency coordination much simpler. Wireless system management software can monitor performance in real time and upload new frequencies if interference is detected. These capabilities can all be done remotely from the control room.

Maximizing Power with Rechargeability

The insatiable appetite for seemingly infinite numbers of batteries can be a shock to wireless users and purchasing agents. It's also a huge headache for AV technicians, who must err on the side of caution and throw away batteries that may still have considerable use left. It's not uncommon for universities to dispose of thousands of alkaline batteries every year. Smart lithium-ion rechargeable batteries for wireless mics provide the same performance as alkaline batteries but can cost about one-fourth as much per operating hour. In addition, the remaining operating time of a rechargeable transmitter can be measured accurately in hours and minutes, so there's no doubt about whether it will last through the event. When the curtain closes, the microphone or bodypack simply drops into a charging dock to be sure that it will be ready to go when needed. Best of all, rechargeable batteries support university environmental goals by preventing hundreds (or thousands) of alkaline batteries from being disposed of in landfills.

Technical advances have made wireless microphones better sounding, more scalable, less expensive to operate, and even greener than ever. Investing in quality wireless systems can deliver better-sounding, more reliable performances to audiences for years to come.



ABOUT THE AUTHOR: Chris Lyons, Senior Manager /

Integrated Systems Marketing, Shure Incorporated, is a 36-year Shure veteran who has filled a variety of different marketing and public relations roles. His specialty is making complicated audio technology easy to understand, usually with an analogy that involves cars or food. He doesn't sing or play an instrument, but he does make Shure Associates laugh once in a while.

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Furman to Build New Residence Hall, Renovate Four Others

This spring, Furman University will begin its largest construction project to date, a comprehensive renovation of South Housing that will include building a new residence hall and updating four others in the complex devoted to first-year students. The project will replace the current Blackwell Hall, relocate the Center for Inclusive Communities into the new hall, and introduce a host of modern amenities in the new and existing halls designed to support student success and belonging, enhancing the first-year experience for Furman students. A groundbreaking for the project will take place on February 12. Construction is expected to begin in March, with students moving in by Fall 2023. The first students to move into the new residence hall will be members of the Class of 2027. The project will be funded through financing, and will cost \$70 million, including approximately \$31.2 million for the new first-year residence hall.

Furman's Business Block students, other students from accounting, economics, and Furman's Investments Club, faculty, administrators, financial advisors, underwriters, and more gathered as the public auction for 30-year municipal bonds went live. Students also attended bond basics sessions led by Raymond James, underwriter for the bond issue, and PFM, Furman's financial advisor.

Demolition of Blackwell Hall will begin in May 2024 and last through September. The building is named after Furman's Gordon Williams Blackwell, an alumnus of Furman's Class of 1932, who became Furman's eighth president in 1965. Blackwell Hall was constructed in 1967 and remodeled in 2006. The university administration is discussing ways to continue to honor the former president. In 2016, President Elizabeth Davis launched The Furman Advantage, a personalized four-year pathway that prepares students for lives of purpose and accelerated career and community impact. The Furman Advantage is characterized by a close partnership between Academic Affairs and Student Life, combining students' in-class and out-of-class experiences. The on-campus experience fosters student belonging and connections to faculty and staff mentors, while guiding students to services that support their success.

The goal of preparing students for lives of leadership and purpose lies at the center of Furman's new construction and renovation project, which is scheduled to be completed in November 2024.

"By reimagining the first-year residence hall from the ground up, we are creating a vibrant student hub, one with new personal and social spaces for students to gather and connect for years to come, setting their trajectory for success at Furman and beyond," says President Davis. "This project enhances the safety, accessibility, security and privacy components of all the residence halls in South Housing, while also advancing the university's sustainability goals."

A New Home for the Center for Inclusive Communities

The new hall will offer students greater opportunities to gather and build community, while creating more occasions for faculty and staff to visit South Housing. The design will also provide ample space for the Center for Inclusive Communities, which will move from the Trone Student Center, to grow programs and initiatives, according to Deborah Allen, who served as the director of the CIC until last week and played a central role in the project's early planning. The new building will include reception and office spaces, a kitchenette, meeting and lounge spaces, support services, and provide the entire campus easy access to the CIC.

"Now in its fifth academic year, the CIC continues to cultivate an inclusive and welcoming environment for Furman's historically underrepresented students to thrive as their authentic selves," Allen says. "Staff foster opportunities for students to engage with people from various cultures and identities and reflect deeply on their own intersecting identities."

The center coordinates activities and events related to first-generation students, cultural heritage and awareness, inclusivity for the LGBTQIA+ community, the legacy of Rev. Dr. Martin Luther King Jr., and many others. Rod Kelley is serving as interim director while a national search is conducted. "Early on, it was apparent our students, programs, and initiatives would quickly outgrow the current

physical space," says Allen. "It is exciting to envision a new space, placing the CIC at the nucleus of a vibrant living and learning community."

A Residential Village

The renovations of residence halls Manly, Geer, McGlothlin, and Poteat—and construction of the new residence hall—will grow the overall total beds for South Housing to 718, ensuring the entire first-year class is housed in one location, an important foundational element of student success and belongingness. The renovations will include several new safety upgrades, entrance accessibility, new bathroom layouts and fixtures, information technology improvements, and new social spaces. An evaluation of Blackwell Hall determined that it would cost more to renovate the building than to replace it.

"The South Housing renovation and construction project will not only enhance the residential experience for first-year students, but will create a residential village that strengthens the connection to the core of campus, much like the Trone Student Center renovation and boardwalk provided a few years ago," says Connie Carson, vice president for Student Life. "The first-year South Housing experience will better connect students to each other in the various halls while serving as a centerpiece for student activity both inside and outside residence halls."

The lead design firm on the project is St. Louis, Missouri-based Mackey Mitchell Architects, in partnership with McMillan Pazdan Smith, which has offices in Atlanta and the Carolinas. John Burse of Mackey Mitchell is the principal design architect and is based out of the firm's Asheville, North Carolina, office. Kyle Wagoner and Marilee Hertlein are also principals.

The construction management company is Rodgers Builders, a women-owned firm headquartered in Charlotte, North Carolina. The firm also managed the Townes Center for Science addition and renovation, which was Furman's largest project to date. As part of this new South Housing project, Rodgers Builders will be contacting minority-owned businesses to perform some of the subcontractor work.

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