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Game On: Campaign Prioritizes Athletics, Wellness Facility

Cornell College has a long and storied athletics history dating back to its first, victorious, intercollegiate game in 1891. Since that day student-athletes have chosen Cornell for its academics and the opportunity to play a sport they love at the collegiate level. More than one-third of students now compete on one or more of Cornell's 19 NCAA Division III teams.



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A Safe Re-opening Means Evaluating Hot Water Systems

Colleges and universities are preparing to welcome students back on campus after three semesters of hybrid remote/in-person learning necessitated by COVID-19. As dormant dormitories, cafeterias, halls, gyms, and other campus facilities reopen, school administrators and managers must address a potential safety risk—stagnant water systems.



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New Jersey Institute of Technology Makerspace Gets a Makeover

Visitors to the Makerspace at New Jersey Institute of Technology (NJIT) will see Computer Numerical Control machinery, waterjet cutters, high-tech 3D printers for metal and plastic, and whiteboards full of ideas, to-do lists, and calculations. While the spacious downstairs is filled with machinery for students to bring theory into practice, the brand new, multi-purpose classroom upstairs is where much of the teaching and learning will prime students for success.



COLUMNS



Cover courtesy La Sierra University

SPOTLIGHT / ON OUR COVER

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RELATIONSHIPS & REPTILES: WORLD-TRAVELING HERPETOLOGISTS DISCUSS THEIR PASSIONS

The two Doctors Grismer at La Sierra University—Lee, professor and Director of Research in the Biology Department, and his son, Jesse, Assistant Professor of Biology—seamlessly combine their joy in making connections with people around the globe with their herpetology research focusing on speciation, biogeography, and biogenetics.



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Happy Back-to-Campus Time

Most universities have, or are in the process of, welcoming new and returning students to their beautiful campuses—home to thousands of students and a major influence on each one. Colleges take this experience with a deep sense of responsibility and value the trust of parents as they leave their children on campus—many of them for the first time.

The day I dropped off my son at college, pride, fear, and sadness welled up inside me. I held it together as we arranged his room and ate our lunch together before packing empty boxes back into my SUV. The tears came as I watched in my rear-view mirror and saw my son already talking with newfound friends. I made the hour-and-a-half drive home alone. We have been through interesting and tough times throughout his teenage years and I am proud of the young man he is becoming.

The nurturing college staff was helpful and encouraged him to become a part of the campus community. This was a tremendous help to my son and to the development of life skills that have carried him to the success he finds today and continues to strive for. The lessons learned in campus clubs and organizations were major building blocks that will help him master the art of continued learning. The college facilities he utilized enriched my child not only while he was there but long after he left the halls of formal learning.

College teaches students how to live and learn both inside and outside the classroom. I find this especially comforting because most of life is spent learning beyond a formal educational environment. Learning from experience and how to think critically are gifts university gave my son—gifts he carries with him even when he is not officially using his degree. For that, I thank all college faculty and staff for the part you play in every student you welcome onto your campuses this fall.

Until next month,

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Relationships & Reptiles: World-Traveling Herpetologists Discuss Their Passions

by Cynthia Mwenja, PhD

The two Doctors Grismer at La Sierra University—Lee, professor and Director of Research in the Biology Department (above, left, traveling to Phnom Penh with a dingo puppy), and his son, Jesse, Assistant Professor of Biology (above, right, looking at specimen jars in a museum collection)—seamlessly combine their joy in making connections with people around the globe with their herpetology research focusing on speciation, biogeography, and biogenetics.

Grismers' Research

Their department chair, Lloyd Trueblood, Associate Professor of Biology, says that “It’s like having two Indiana Jones in the department—they’re always up to something, planning something.” They usually spend two to three months each year conducting research in southeast Asian jungles, exploring far-flung areas to discover and describe new species. Additionally, the Grismers focus on conservation genomics, which is “the application of genomic analysis to the preservation of the

viability of populations and the biodiversity of living organisms,” according to Nature Portfolio. Several sources report that Lee, a world-renowned desert biologist, has described more species than any other living biologist. Lee confirms that his lab has identified over 200 species of amphibians and reptiles new to science. According to his friend and colleague Jimmy McGuire, Professor of Integrative Biology at U.C. Berkeley, while some may underestimate the value of such “alpha taxonomy work,” it is “critically important for conservation,”

providing “foundational knowledge” for the field. According to Jimmy, such work stands the test of time and is never replaced with advances in the field, as some other types of research can be.

Another friend and colleague, Evan Quah, Interim Executive Secretary for the International Commission on Zoological Nomenclature (ICZN) with the Lee Kong Chian Natural History Museum, National University of Singapore, as well as Academic Fellow with the School of Biological Sciences, Universiti Sains Malaysia, says that “people may think that the ‘Golden Age of Discovery’ is over, but we are actually still in the ‘Golden Age,’” with hundreds of species left to discover; he goes on to say that “we’re only skimming the surface.” Previously, Evan reports, people could merely use the morphological differences between animals—physical attributes that can be seen by the naked eye—to determine new species. Now researchers like Evan and the Grismers can depend on current technology, including DNA and molecular studies, to develop stronger statistical comparisons, Evan states.



Robert Fisher, Supervisory Research Biologist with the U.S. Geological Survey's Western Ecological Research Center, says that Lee has published milestone herpetology books on Baja and Malaysia. According to Robert, Lee is focused; he wants to understand a system, then explain it to the public. Jesse brings newer science questions and technologies to the cross-generational team; the different viewpoints and methods spark valuable creativity, Robert says. Lee and Jesse also have the distinction of both receiving funding from National Geographic for different projects at the same time; Lee reports that this is a first for two members of the same family.

Relationships and Mentoring

Of course, the relationship that undergirds all of their work is Lee and Jesse's parent-child bond; Lloyd remarks on the "synergy" between the two. As Robert sees it, Lee has been able to build a strong foundation at La Sierra, and now Jesse has joined and will be able to carry it forward. Lee laid the groundwork for their work together early in

Jesse's life, taking Jesse on research trips in a number of Latin American countries "from the time Jesse was in diapers." In those early years, of course, Lee taught Jesse; now, Lee says, he has learned new techniques from Jesse. Merging the two approaches affords them the ability to do deeper analyses, and approach the same questions using different strategies, they say.

The Grismers approach mentoring students in the same supportive, mutually respectful way they work with each other. Jimmy says that both Grismers are "so charismatic" and that this charisma has inspired a bunch of people to join their work. Robert says that Lee has built a strong program at La Sierra, having mentored students over the past twenty-plus years in "not just sight-seeing, but doing science, engaging in actual research." Additionally, Lee works with his students to publish results; they are a part of his team. He reports that their lab generally produces twenty to thirty papers each year. Robert says that few other programs provide this level of student experience and mentorship.

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Lee loves to identify people to mentor. Jimmy describes a “pivot point” in his life when he heard Lee give a talk about his work in Baja California at the San Diego Herpetological Society. Jimmy remembers that he was “spellbound” and offered to volunteer “sometime.” Lee asked, “How about next weekend?” The cold trip, during which they turned volcanic rocks to find geckoes, began five years of fieldwork that Jimmy participated in with Lee, ultimately enticing Jimmy to change his major and study herpetology. Jimmy’s herpetology professor—who, incidentally, had been Lee’s professor, as well—accepted Jimmy as a master’s student. Jimmy points to that first conversation, when Lee invited him on the research trip, as the catalyst for his professional direction and development.

Jesse emulates his father’s talent for inviting people into the study of herpetology. Matt Buehler, currently Graduate Research and Teaching Assistant at Auburn University—met Jesse as an undergrad at the University

of Kansas. Jesse was a doctoral student at the time, and they both worked in the herpetology section of the world-renowned Biodiversity Institute and Natural History Museum at the University of Kansas. Matt says that, in addition to bonding over their shared interests in herpetology, they enjoyed video games, comic books, and *Star Wars*, as well. Jesse even took Matt’s current Zoom cover photo, in which he poses with a sand lizard in Uzbekistan.

Lloyd says that the Grismers offer lifelong mentorship for those they include in their work; “They become family.” Evan echoes that idea, saying that he and Lee “just clicked” when Evan was working on his PhD and Lee became a co-supervisor in his doctoral project. Since then, their relationship has grown into a “real friendship” as they have conducted field research in Myanmar and Cambodia.

Amanda Kaatz, senior Biology major at La Sierra, says that she had been intimidated by Lee’s reputation, but he put her at ease from their first meeting. She really appreciates the

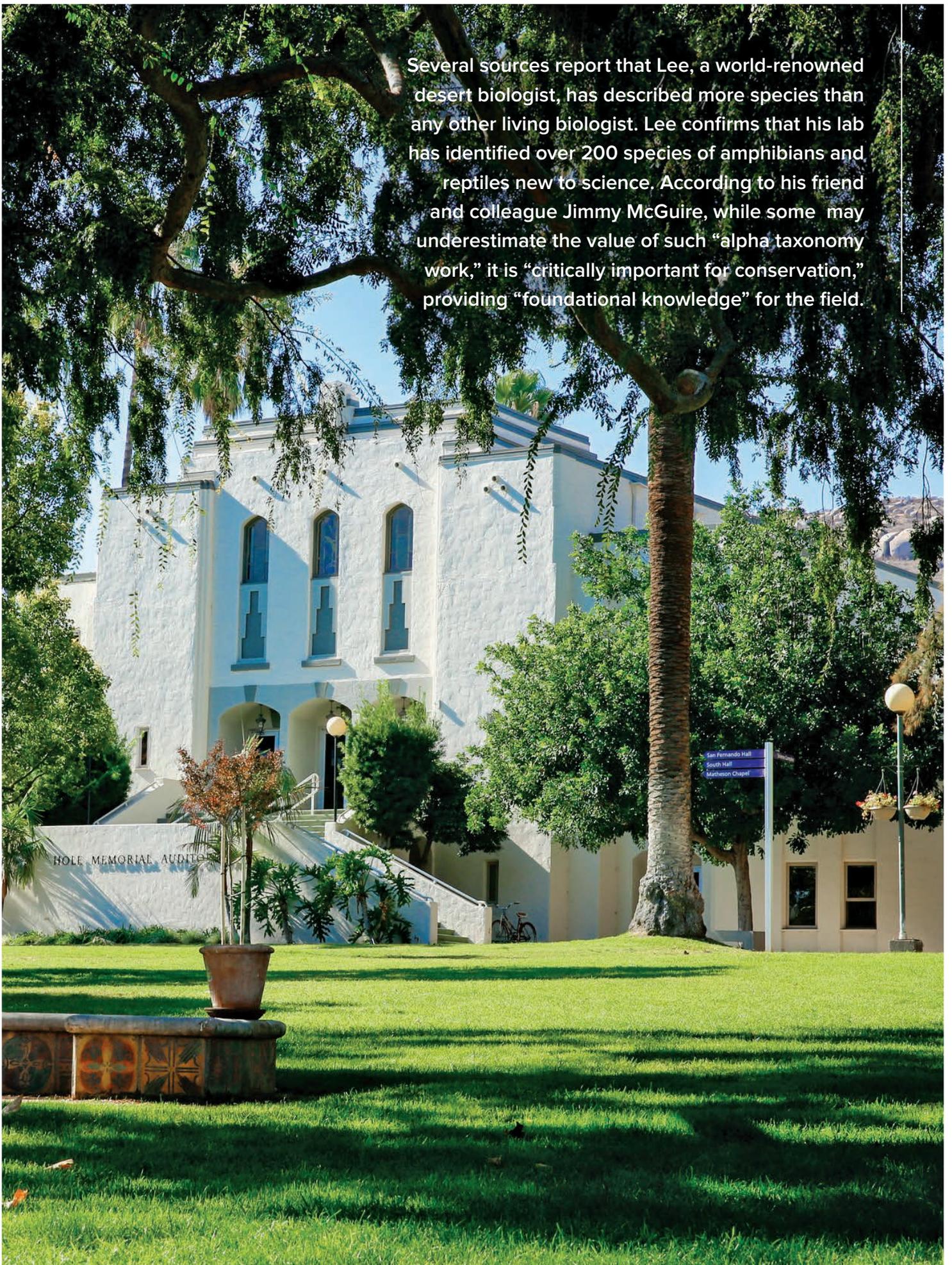
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many opportunities enjoyed by the Grismers' students. Within her first year at La Sierra, she had presented at a global gecko symposium in Israel. She also fulfilled her goal of having field work experience as an undergrad when she traveled to Malaysia for field research with the Grismers. Prior to attending La Sierra, Amanda

had not known that "doing what Lee does was an option," but now she dreams of having her own lab and continuing the kind of research Lee does. Amanda says that the Grismers are "insanely passionate" about their work, and that this passion gives their students a "love of nature and conservation."

Travel and Human Connections

Jimmy says that the Grismers are motivated by a sense of discovery, and they are willing to go to places that are difficult to access logistically. Lloyd agrees, saying that they are not only willing to go out and do things, but they are also willing to go "beyond what is comfortable, off the beaten path." In fact, they have needed armed military escorts to go deep into remote and war-torn places in Myanmar. Their work in the area has paid off, however; the Burmese government has placed many of the animals the Grismers have identified on the protected list; this protection extends to the environment, as well.

For one of the challenging research trips the Grismers favor, Jesse won a National Geographic grant in 2014 to do field work in the Gobi Desert in Mongolia. Matt traveled with the team for the six-week trip; Jesse showed him the ropes of field work—spending weeks preparing by establishing relationships with collaborators and gathering information. Jesse had researched old Russian literature—similar to the sort of research he and his dad currently engage in—to see what species had already been described. The team ended up traveling 1700 kilometers around the Gobi Desert during the trip, finding new populations, as well as seeing animals that hadn't been seen in decades. Previous surveys had underestimated how much diversity existed in the area.

Even more than the shared work, the Grismers appreciate the bonds they have made with other scientists in their travels, "connecting over shared humanity." They tell their students that if they're just going for the wildlife, they'll miss half of the experience. To better communicate with Malaysian people, Lee even learned to speak Malay. He says that "It's a human experience to connect with another human—to transcend difference."

Matt points out how the Grismers' love of family and "fierce loyalty" extends to their research collaborators: "When they bring people into the field, they become family, as well." According to Matt, both Grismers have a philosophy of "paying it forward," taking time to train and mentor future researchers at all levels, from undergrad, to grad, to young professionals. They connect with local scientists and collaborators in their global field research, too. The Grismers affirm this sentiment, saying that the local scientists "become friends and really family." On one research trip, Lee said of his diverse group of students—Chinese, Black, Latinx—"Yeah, these are all my children!"

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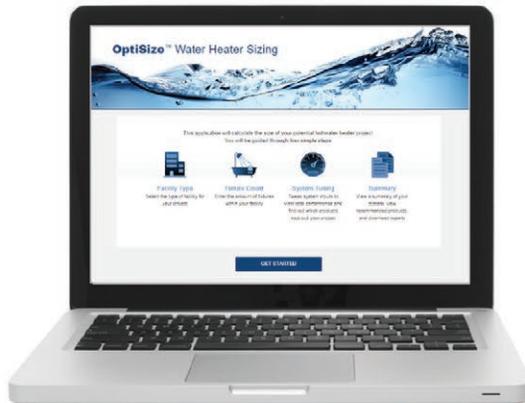
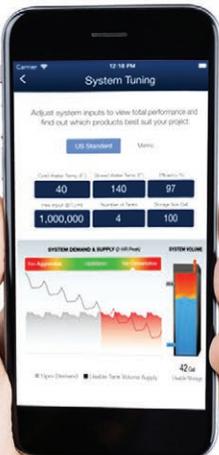


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The Grismers' research friendships intertwine with one another. As Lee finished his book, *Amphibians and Reptiles of Baja California, Including Its Pacific Islands and the Islands in the Sea of Cortés*, Jimmy was focusing on flying lizards in southeast Asia for his doctoral research. Lee joined Jimmy for two research trips and began his own far-ranging research across the area, in countries including Malaysia, Myanmar, Vietnam, Mongolia, and Cambodia. Since Lee had played such a big part in the development of Jimmy's career, Jimmy was happy to play a small role in initiating Lee's next area of research.

In another example of the interconnection between researchers in their circle, Lee and Robert met in grad school, but Robert has been on a research trip with Jesse, spending four or five weeks on a boat in 2011. Similarly, Robert's son attends La Sierra and has been on a research trip with Lee. Even though they have known each other since grad school, Lee and Robert have only just begun collaborating on publications, having published one paper on central Pacific lizards and started working on another.



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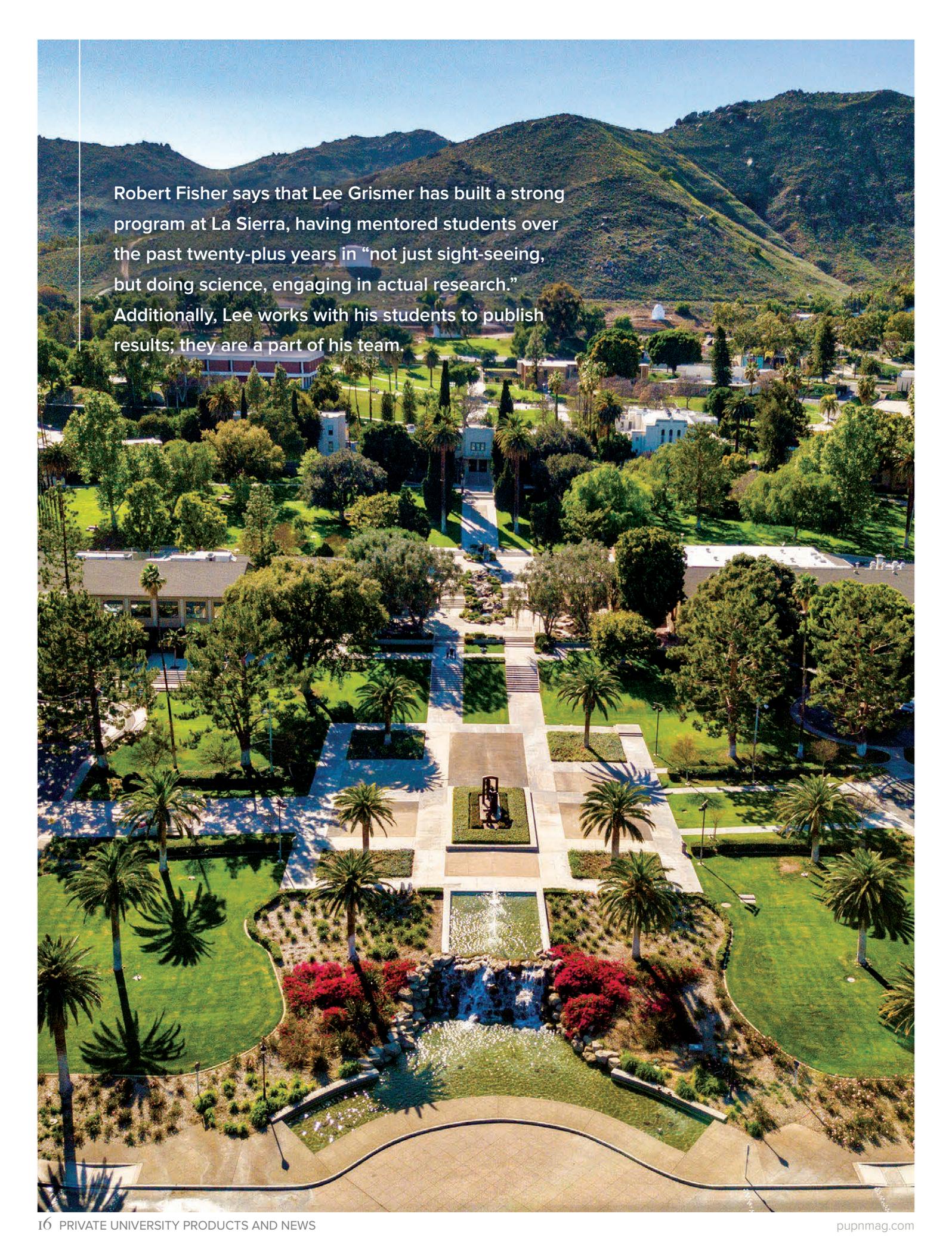
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An aerial photograph of a university campus. In the foreground, a large, paved courtyard features a central fountain with a waterfall. The courtyard is flanked by green lawns and numerous palm trees. In the middle ground, several university buildings are visible, interspersed with more trees. The background shows a range of green, hilly mountains under a clear blue sky.

Robert Fisher says that Lee Grismer has built a strong program at La Sierra, having mentored students over the past twenty-plus years in “not just sight-seeing, but doing science, engaging in actual research.” Additionally, Lee works with his students to publish results; they are a part of his team.

Covid

While the Grismers previously took two or three research trips each year, Covid travel limitations have offered the researchers time to “get back to the data and publish,” Evan says. Even with this unexpected bright spot in the ongoing pandemic, he is looking forward to getting back into the field with his friends, with a “good day of work and a nice supper together afterward.” Likewise, Amanda says that the Covid break has given her more time to work on a publication with Lee and Jesse focusing on bent-toed geckoes and their habitat preferences.

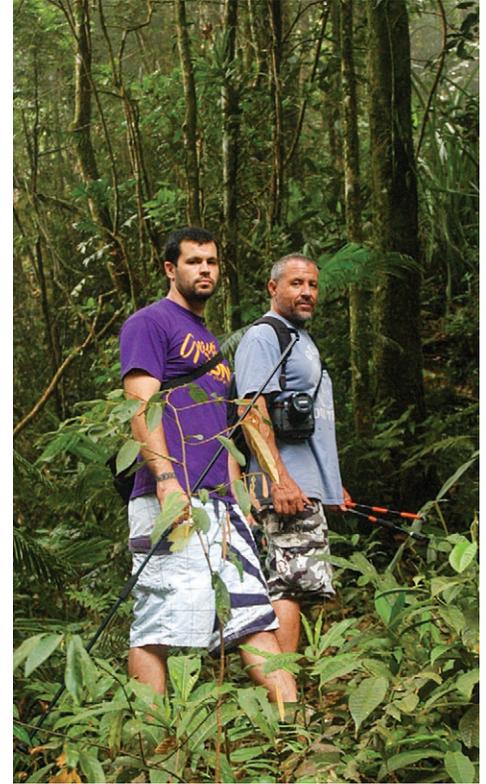
Lloyd says that Covid travel limitations show why the “Grismers just keep killing it”: because they couldn’t do an overseas research trip, they started working in a canyon near Long Beach and found a species that had not ever been recorded in that area; no one had looked in that canyon, and the particular species was not expected to be there. La Sierra has also invested in a supercomputer for their lab, so have been able to conduct genomics research more easily during this time of suspended travel.

While Covid has shut down their usual research trips, they have felt most keenly the postponement of a trip to help Uzbekistani collaborators set up a national park. Plans for the trip have continually been considered, then put on hold. Additionally, news reports about violence in areas they have visited are unnerving; they say such news “takes the wind out of our sails” because they don’t know if some of their collaborators are safe. While their current work in southern California has helped distract them, they say that Asia “gets under your skin”; they miss those experiences.

Both Lee and Jesse provide a model for researchers and professors in many fields to emulate. As Lloyd says, the two are “fun to have in the department, and they bring super-positive energy for both faculty and students.” He goes on to say that they are “incredibly productive but also genuinely nice people. They’re down to earth, care about students, and are awesome at science.” ■



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



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LAB AND
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The Cost of Laboratory Ventilation

by Kasey Fulmer

Laboratory ventilation design plays an outsized role in the planning of educational institutions. Though safety is the primary purpose of any laboratory fume hood, there is an ever increasing demand for hoods to also have a reduced impact on the environment, as well as a lower cost to operate.

These demands are understandable, considering a single traditional 6-foot fume hood operating at a 100 feet per minute (fpm) face velocity, with the sash fully open, will consume 70,800 cubic feet of valuable tempered air every hour. That's air that the institution has already paid to heat or cool, and in some cases sanitize and treat for humidity. That same fume hood costs approximately \$8,260 per year to operate. In the typical laboratory, the fume hood is the largest consumer of energy and can expend more energy annually than three average American households.

The need for more energy efficient fume hoods has resulted in the implementation of various energy reducing developments for fume hoods, such as high performance fume hoods, variable air volume (VAV) mechanical systems, and ductless fume hoods. Knowing all of the available options is one thing, but determining the right option for a specific facility can seem like a daunting task. The following sections offer an overview of each of these options and the effect they can have on energy reduction.

High Performance Fume Hoods

One of the most powerful tools to reduce energy consumption is the implementation of high performance hoods in the laboratory. The purpose of a high performance fume hood is to provide the highest level of containment at the lowest possible cost to operate. Synonyms for this type of hood include low velocity or high efficiency hoods. These types of fume hoods rely on containment-enhancing features such as specialized baffles, aerodynamic shapes at the front of the fume hood, and many others.

These features contribute to the ability of the fume hood to contain very well with dramatically reduced airflows. When compared to conventional fume hoods, which are typically operated at a 100 fpm face velocity, high performance hoods provide as good (or better) containment at face velocities as low as 60 fpm. SEFA (Scientific Equipment and Furniture Association) defines the containment requirements of a high performance hood to be tested at face velocities no greater than 60 feet per minute (fpm) while maintaining a full open sash of 25 inches or greater. This ability to contain at high levels at reduced face velocities means less air needs to be exhausted through the fume hood, thus providing a direct reduction in energy consumption associated with a HVAC system.



IMAGE COURTESY OF LABCONCO WITH PERMISSION OF PURDUE UNIVERSITY

Laboratory ventilation design plays an outsized role in the planning of educational institutions. Though safety is the primary purpose of any laboratory fume hood, there is an ever increasing demand for hoods to also have a reduced impact on the environment, as well as a lower cost to operate.

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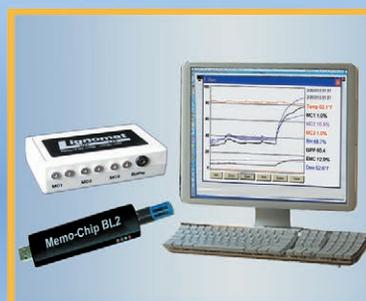
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Modern VAV systems simultaneously maintain the safest minimum fume hood face velocities regardless of sash position. They can also ensure minimum room air changes per hour are met, hold specific laboratory pressurization, and maintain the desired temperature and humidity.

Variable Air Volume (VAV) Systems

Variable Air Volume (VAV) systems feature whole-building ventilation automation. These systems go far beyond controlling the airflow through a fume hood.

Modern VAV systems simultaneously maintain the safest minimum fume hood face velocities regardless of sash position. They can also ensure minimum room air changes per hour are met, hold specific laboratory pressurization, and maintain the desired temperature and humidity. In short, these systems maximize comfort and safety while minimizing the energy consumption by cutting the demand for air as the fume hood sash closes, consequently minimizing operating cost.

Unfortunately, there is no energy consumption/operating cost benefit to a VAV system unless the operator of the fume hood closes the sash, reducing the demand for tempered air. For this reason, automated sash closure systems are often used in conjunction with VAV systems. These systems typically use an occupation sensor which, when no motion

is sensed for a set period of time, tells the fume hood sash to close automatically, resulting in the reduction of air being exhausted. When no one is detected for the entire pre-selected delay time, the sash will close.

Pairing a VAV system with an automatic sash closure system will ensure that the sash is closed when the area is unoccupied, and encourage minimal sash openings when occupied, thus taking advantage of every possible opportunity to reduce the air volume demand. The result, especially when coupled with a high performance fume hood, is a dramatic reduction in energy consumption and noticeable savings.

Ductless Fume Hoods

As the name implies, ductless fume hoods are not connected to an exhaust system. These hoods utilize specialized carbon filters to trap vapors and fumes before air is recirculated to the room. The filters are usually made of specially-treated activated carbon media that treat or adsorb chemical fumes, including certain organic solvents, ammonia, acids and formaldehyde. Since these enclosures recirculate



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filtered air back into the laboratory, all of the valuable tempered air that is in the building, stays in the building. The benefit to the HVAC system is clear here. With the elimination of exhaust air associated with the fume hood comes the elimination of supply air associated with the fume hood.

To continue to ensure the safety of laboratory personnel, these hoods often have a built-in mechanism to alert the user of unsafe concentrations of chemicals detected in the exhaust area of the filters. For this reason, there are some applications that aren't compatible with carbon filtration, but these applications are typically reviewed by the manufacturer prior to the fume hood being purchased. In an approved, compatible application, these hoods can be an excellent solution for any building attempting to reduce the energy costs associated with their lab spaces.

Finding Answers

Make safety first in your laboratory planning. The safety of your personnel, lab technicians and others in your lab should always be the guiding principle in laboratory design. With that focus on safety in mind, ensure that your lab planning team consults ventilation experts with the best available expertise in lab ventilation safety and efficiency. ■



ABOUT THE AUTHOR: Kasey Fulmer, Labconco Ventilation Specialist

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GAME ON

CAMPAIGN PRIORITIZES ATHLETICS, WELLNESS FACILITY

by Dee Ann Rexroat

Cornell College has a long and storied athletics history dating back to its first, victorious, intercollegiate game in 1891.





COURTESY KAHLER SLATER

Since that day, student-athletes have chosen Cornell for its academics and the opportunity to play a sport they love at the collegiate level. More than one-third of students now compete on one or more of Cornell's 19 NCAA Division III teams.

Rams athletics is generating more competitors, more college spirit, and more purple-clad fans in the stands than have been seen on the Hilltop in years. Along with those developments has come a culture that appreciates the central importance of athletics to students and the college community. Students even call themselves a *Ramily*.

While they have upgraded every single outdoor athletics facility in the past ten years, the headquarters are dated, and the campus lacks a fitness and wellness center to adequately serve the campus as a whole.

To address student needs, Cornell is launching the \$19.5 million Athletic and Wellness Facilities Project, part of the Greater > Than Campaign for Cornell College. The result will be a contemporary and welcoming health, wellness, and sport center for all students, faculty, staff, and alumni. It will support Cornell's ability to recruit new students, enhance Rams Athletics programs, secure competitive events, and provide a positive impact on every student and student-athlete, now and for future generations. When completed, the renewed Richard and Norma Small Athletic and Wellness Center (with a new acronym of the SAW) will become a vital hub of campus life for the Cornell community.



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The project has implications far beyond athletics. Its wellness component will positively impact students' growing mental health needs. And while it will have a direct effect on student-athlete recruitment, it also will improve retention among the entire student body.

Impact

The project has implications far beyond athletics. Its wellness component will positively impact students' growing mental health needs. And while it will have a direct effect on student-athlete recruitment, it also will improve retention among the entire student body. Increased enrollment and retention will further enhance the college's financial strength, continuing to ensure that students have rich opportunities to gain a broad and deep education.

"Athletics has strategic importance to Cornell," said President Jonathan Brand. "As the college prepares for a decline in high school graduates in an already competitive recruitment environment, athletics is critical to our future. An investment in this campaign is an investment not just in athletics and wellness facilities but in Cornell's future and in our students." The new and renovated facility will serve the entire campus with a new two-level Health and Wellness Center. The upper level fitness area will primarily feature cardio

equipment and fitness club machines, while the lower level provides space for more dynamic workouts and advanced strength training. The two levels are open and integrated, fostering community and school spirit. Architecture firm Kahler Slater has created plans for balancing construction of a 28,733-square-foot addition with a renovation of the Sport Center and Field House. The project is scheduled to finish by January 2023.

Unmet Needs

The evolution of Cornell's athletics programs has created a host of unmet needs for student-athletes and coaching staff. To compete at a high level, athletes must make a year-round commitment. The NCAA allows eighteen or nineteen weeks of in-season practices. In addition to practice, travel, and competition, athletes dedicate time to physical training, development of nutritional plans, and mindset training. Supporting these athletes requires dedication and supporting infrastructure from coaching, athletic training, and athletic administrative staff.



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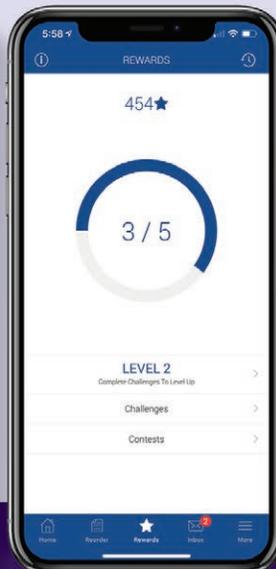
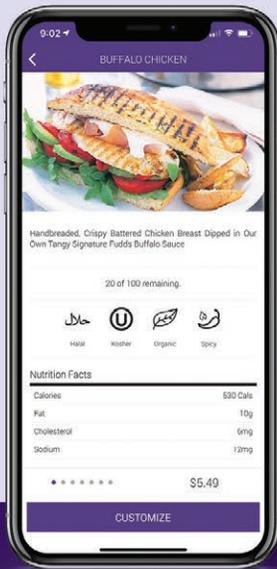
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This level of engagement is needed for student-athletes to compete successfully. “Our student-athletes excel in so many ways, juggling not just rigorous academic expectations but challenging training schedules as well. As our athletics program has grown in recent years, coupled with today’s emphasis on health and fitness, the insufficiency of our facilities has become obvious,” said Cornell Athletic Director and Head Baseball Coach Seth Wing. “Our students and student-athletes really do expect and deserve high-caliber facilities that will allow them to excel in the classroom or on the court.” The current facility also is limiting growth and expansion in Rams Athletics. In many cases, coaches are unable to add a junior varsity squad due to space limitations. Even for students who are not athletes, the condition of these facilities makes a strong impression. Mike Tressel ’96, defense coordinator for the University of Cincinnati football team, said that an investment in facilities will have a strong impact. “It will make a big difference,” Tressel said. “If you go to a high school where athletics is important, and you walk into Cornell’s facilities where it’s not as good, you



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COURTESY KAHLER SLATER

think the play isn't as good either. The reality is that, for 16- and 17-year-olds, those are the things that are going to make a difference." This project rectifies current deficiencies, creating a contemporary, welcoming, inclusive health and wellness center for everyone on campus.

Evolution of the Field House

The 1953 Field House was a project of the college's centennial celebration. It continues to serve the campus as part of the Richard and Norma Small Sport Center, which includes a large arena addition that opened in 1986. "The Field House is pretty much the same as it was in the '70s. It's outdated and not up to being competitive with other facilities," said Cornell Trustee Scott Ririe '79, once a member of the Rams football team.

The modernization and expansion of the athletics facility has Ririe excited, so much so that he and his wife, Shelley Ririe, became major donors to the campaign. "First, I love a facility that attracts more student-athletes to Cornell. Second, I hope it creates an environment that students feel comfortable in and willing to participate in meaningful experiences," he said. "Having a state-of-the-art facility like this provides a platform for which all students can contribute to their health and wellness."

Cornell frequently competes for prospective students with other Midwest Conference schools, many of which have recently completed athletics facility improvements. Life Trustee and former Rams wrestling conference champion Richard Small '50 puts it simply: "Our athletic facilities do not match up to the other schools in the Midwest Conference."

Small and his wife, honorary alumna Norma Thomas Small, have contributed another lead gift to this facility named for their investment in the 1986 addition. Joining the Smalls and Ririe as lead donors are Jean Russell '65 and The Hall-Perrine Foundation in Cedar Rapids, Iowa, which is providing a \$1 million matching gift (\$1 for every \$2 given) to the campaign. Thanks to their gifts and many others (with more to come), soon the Field House will evolve once again. And once again the Cornell community and Rams student-athletes will train and compete on the same hallowed ground where Cornell beat Coe 82-0 in that 1891 game that began the oldest college football rivalry west of the Mississippi. ■

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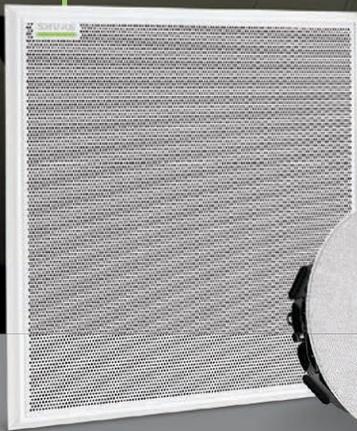
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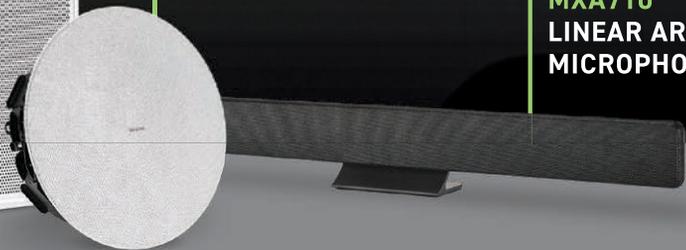
ABOUT THE AUTHOR: Dee Ann Rexroat is director of communications at Cornell College in Mount Vernon, Iowa. She has worked there since 1994 following a career in journalism.



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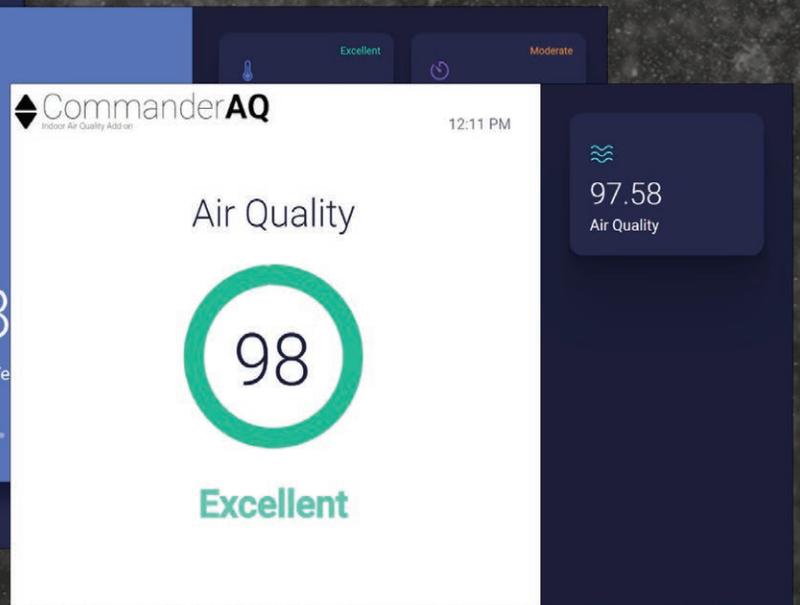
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3 Ways IoT and Smart Building Automation Can Change Your Campus for the Better

Private universities have many unique challenges. Building automation is not least on the list.

Varying growth over time likely means there are several iterations and system types throughout campus. Competition has driven an increase of new, diverse types of managed spaces for students and staff. Stagnant endowments are driving a renewed focus on energy savings to steward available funds. No single solution solves these challenges, but rather a university needs to develop a holistic strategy. IoT and Smart Building Initiatives is a part of that strategy.

1 UNIFY YOUR BUILDING SYSTEMS

You have a lot of buildings on campus, each with their own HVAC or lighting platform (or no platform at all). When looking to develop and drive an IoT strategy, the first step is to bring all those systems into a single platform. No need to replace your systems, as the leading offerings on the market can use what's already there. Additionally, by using cloud-based solutions, make these systems more accessible than ever before.

2 DRIVE THE OPERATIONAL USE OF DATA

The most innovative solution providers in the space not only connect your systems. They also share that data with other industry-leading solutions. No one system can be all things to all people. That's why collaboration and interoperability is so important.

3 DEMOCRATIZE YOUR DATA INTO THE CURRICULUM

Nothing helps students understand new concepts more than real-world examples. For instance, use building data to teach math students in-depth regression analysis on CO2 and occupancy. Use the API to teach computer science students integration and app development. Use energy metrics to teach economics students regional utility analysis and cost-avoidance measures. The possibilities are endless.

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A SAFE
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by Stirling Boston and Scott Alford



Colleges and universities are preparing to welcome students back on campus after three semesters of hybrid remote/in-person learning necessitated by COVID-19. As dormant dormitories, cafeterias, halls, gyms, and other campus facilities reopen, school administrators and managers must address a potential safety risk—stagnant water systems. Several weeks of zero flow and tempered water can result in an increased risk of Legionella, microbiological growth, leeching heavy metals, and increased corrosion within plumbing systems.

To ensure safety for students, professors, administrators, and other college employees, adequate processes should be implemented. Additionally, some funds available through the 2021 American Rescue Plan Act (ARP) should be allocated to upgrading and/or installing new water heating systems.

Five Steps for Water Safety

To help ensure water safety during the reopening process, facilities managers should take the following five steps:

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The ARP legislation allocates \$122 billion as educational stimulus for facility improvements to create healthy learning environments and mitigate the risks of virus growth and transmission due to COVID-19. Some of those dollars can be used in upgrading hot water systems to help create a sanitized environment, while also lowering operating costs.

1. Map The Plumbing System: Identify low-use water outlets and institute a flushing regime. Go zone by zone, starting at the outlet nearest the water supply and proceed to the most distant outlets.

2. Flushing & Cleaning: Initial flushing and cleaning of the plumbing system must be completed before students return to campus. It consists of:

- initial flush
- sequenced flushing
- clean F&E
- test and monitor

If possible, have staff start flushing now, even if the building's reopening date is still unknown. The earlier a flushing regime is initiated, the sooner normal water quality returns.

3. Monitor & Test: Monitoring and testing for Legionella, other bacteria, and disinfectant concentration is the only way to know the health of the plumbing system.

4. Recommission, Inspect, Disinfect (RID): Before reopening, inspect all plumbing and mechanical equipment. Disinfect all equipment and fixtures. Follow manufacturer guidelines and, if necessary, contact proper authorities.

5. Maintain Your System: Create a water management plan now, if one is not already in place. Schedule monitoring and testing of disinfectants, bacteria levels, and water temperature. Make sure to document all activities, and, of course, address issues as quickly as possible. If necessary, notify authorities of a major issue.

The American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) has a standard aimed at preventing the growth and spread of *Legionella*. This standard (ASHRAE 188) provides a framework for proactively managing building water systems and reducing the potential for *Legionella* growth in these systems.



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This standard has broad support, including the Centers for Disease Control and Prevention (CDC), Centers for Medicare and Medicaid Services (CMS), Association of Water Technologies (AWT), Cooling Tower Institute (CTI), and many others. These organizations have stated that implementing a water management program per ASHRAE 188 is the industry standard for managing Legionella risk. Consider ASHRAE 188 when developing and implementing a water management program.

Importance of System Upgrades

The ARP legislation allocates \$122 billion as educational stimulus for facility improvements to create healthy learning environments and mitigate the risks of virus growth and transmission due to COVID-19. Some of those dollars can be used in upgrading hot water systems to help create a sanitized environment, while also lowering operating costs.

The latter benefit stems from the fact that 41% of schools in America have underperforming HVAC systems in need of repair and replacement in at least half of their facilities.* Selecting the proper water heater for each building's needs and the area's water quality can increase the life of the units and improve efficiency, while also reducing maintenance costs.

Replacing outdated plumbing equipment with energy-efficient domestic hot water solutions makes water safer for students and faculty.

Mitigate Risks of Scalding and Legionella Infection

Everyone on campus will be washing their hands more frequently, making it imperative to maintain consistent water temperature. Upgrading water heating systems with an accurate digital water tempering solution can ensure this goal and prevent scalding.

The solution can be part of a hot water master blending system to intelligently control and monitor the water recirculation loop. It provides precisely controlled water temperature regulation within $\pm 2^{\circ}\text{F}$ to ASSE 1017, even during low and zero demand periods, in accordance with building codes. It also supports energy conservation through more efficient water temperature management—and in turn reduces energy costs for greater savings.



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As campuses open their doors and welcome back students, administrators and building managers have the responsibility of creating a clean and sanitary environment to keep everyone safe.

To further reduce Legionella concerns, several technologies have been developed. One that has proven highly effective is Template Assisted Crystallization (TAC). This technology has shown to control the formation of scale in plumbing systems by transforming dissolved hardness minerals into harmless, passive microscopic particles without using salt or harsh chemicals, such as water softeners and chemical additives.

TAC produces other benefits, as well: improved operating costs, lowered maintenance costs, reduced chances of premature equipment failure, and increased water heating system longevity.

Greater Reliability and Product Longevity

When water is heated, it undergoes a chemical reaction that causes the dissolved minerals to "precipitate" out as solids. The amount of precipitant, or scale, is directly proportional to the volume of water used and its temperature. As water temperature increases, so does the

rate of corrosion. Heated water releases the dissolved corrosive gases, such as oxygen and carbon dioxide, which increases the electrical conductivity of water.

The amount of these dissolved minerals, such as calcium-carbonate (lime), magnesium, silica, iron, and phosphate, in water varies throughout the country. Eighty-five percent of the United States, however, is served with water containing concentrations of dissolved minerals that are prone to scale formation.

Scale formed by these dissolved minerals is a leading cause of water heater damage and ultimately because the more water is heated over time, the more scale precipitates out. Heating water through a layer of scale not only reduces heat transfer efficiency, it increases thermal stress on the metal. Eventually, thermal fatigue occurs, causing a fracturing of the tank material. Additionally, most water heaters utilize a glass lining that relies on anode rods to slow the effects of corrosion on the tank, which is also a leading failure point. On average, these units need to be replaced every three to five years.

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This type of material eliminates the need for glass linings or anode rods, which both require service over time. The high chromium content combines with oxygen in the air to form a “passive” layer of protection. This layer is permanent and prevents it from corroding when exposed to the dissolved oxygen and other aggressive elements found in all potable waters.

The ultra-durable duplex stainless steel increases reliability and reduces unscheduled maintenance, evident by their warranties of up to twenty-five years. The greater reliability

also leads to a longer product lifespan. These advanced water heaters typically last three times longer than glass-lined alternatives, saving time and money.

The lean duplex steel alloy material is only one reason new water heaters have longer life. Advanced manufacturing also contributes to their durability. The process consists of specialized metal cutting technology in which waterjets with 3-axis (vertical) and 5-axis (beveled) cutting heads are used. They generate 50,000 psi water and garnet dust with no heat signature. State-of-the-art robotic TIG welding technology is part of the process, as well.

The final stage is immersion pickling and passivation processing. Full immersion pickling restores the chromium depleted layer from welding processes, while full immersion passivation restores the chromium oxide layer on all metal surfaces.

Welcoming Back Students

As campuses open their doors and welcome back students, administrators and building

managers have the responsibility of creating a clean and sanitary environment to keep everyone safe. Part of that process should include a thorough evaluation of the water heating system, establishing a process to ensure it is operating cleanly, and upgrading systems to leverage the best available technologies for more efficient operation and greater ROI. ■

**Source: US Government Accountability Office*

ABOUT THE AUTHORS: Stirling Boston is National Sales Director for PVI, a Watts brand. Stirling has been involved in the Plumbing and HVAC industries since 1996. He can be reached via e-mail at sboston@pvi.com.

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NEW JERSEY INSTITUTE OF TECHNOLOGY **MAKERSPACE GETS A MAKEOVER**

by Mira Korber

Visitors to the Makerspace at New Jersey Institute of Technology (NJIT) will see Computer Numerical Control machinery, waterjet cutters, high-tech 3D printers for metal and plastic, and whiteboards full of ideas, to-do lists, and calculations. While the spacious downstairs is filled with machinery for students to bring theory into practice, the brand new, multi-purpose classroom upstairs is where much of the teaching and learning will prime students for success.



The New Jersey Institute of Technology completed a makeover of the Dieter Weissenrieder Industrial and Manufacturing Engineering Lab in time for the 2021-2022 school year, when incoming students will take on a new set of mechanical, electrical, and industrial engineering challenges. Daniel Brateris, Director of Experiential Learning at NJIT, explained how he decided to complete the update and the role the new classroom will have in the engineering curricula.

Undergraduate students at NJIT in mechanical, manufacturing, and industrial engineering tracks benefit from instructional modes that blend lecture-based STEM classes with hands-on experience using engineering and programming software. As Brateris says, "In the renovated lab, we wanted to have the computers and then put them away. For a lot of our lecturing, we don't want people to have a computer because we want to be sure their attention is on us. When I teach, I don't like having tests, but sometimes it's the only way to verify that people are actually learning and at

the same time, you can't put everything on the test. So, you have to make sure your audience—your students—are paying attention. That's one of the hardest things to do in a classroom, especially if you have a class that requires computers. You can walk around at the same time you're lecturing, and people have *YouTube* up; the list of distractions goes on and on."

Brateris approached experts to help solve the technology distraction problem while keeping the engineering lab flexible enough to accommodate both lecture-based and computer-based courses. In response, the Makerspace was designed as a 24-seat lab with flipIT[®] motorless monitor lift computer desks that literally rise to the challenge of providing technology to students when necessary and removing it when screen-time detracts from learning. When students need their computers, they push down on the lid at the front edge of the desk, and the LCD display pneumatically rises from beneath the desktop surface. As Brateris says, "What we liked about this was the ability to switch between computer use and a technology-free

classroom. There are a lot of lecture-based classes in this room, and there are other classes in here where we will use the computers. We wanted the room available for classes that did not require computers. If the screen is in the down position, now you have a regular classroom."

The collaboration successfully combined CNC equipment and computer software resources to teach students how to use the machinery in the same space. To that end, a unique feature of the renovated Weissenrieder lab is its HAAS Vertical CNC machine at the rear of the classroom. NJIT instructors teach students how to use specialized software that is too expensive to install on the students' personal laptops, so it is licensed to university computers instead. Several courses at NJIT rely on Kalypso, an inspection software that has capability to measure within 3 microns of accuracy, or up to 1/10,000th of an inch. Using the software skills gained in class, the goal is for students to emulate real-world processes in the engineering lab, from conceptualization and design, to build, and finally quality control and inspection of the final manufactured parts.

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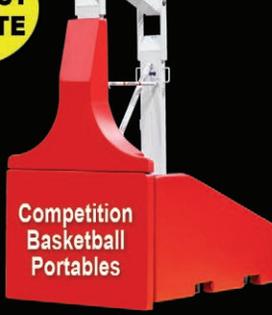




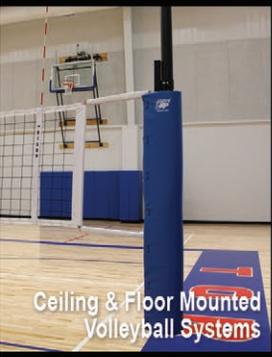
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When students graduate, they are equipped with engineering skills that develop their leadership potential in mechanical, industrial, and manufacturing engineering fields. As Brateris states, “One of the things that affects our competitiveness with the rest of the world is our ability to do things in an automated way. The concept is to teach our students many parts of the automation process. First, design the best workflow and process possible. Then, the parts need to be made as efficiently as possible. Determine the critical features of the part and which features need to be precision machined. Learning how all those elements tie together is very important.” To accomplish this goal, NJIT curricula is focused on core concepts of how to create one part, replicate, and scale that process to create 10,000 identical parts in an automated way. Brateris explains that capable engineers know how to program CNC machines with an algorithm that instructs the machines to correct trends in very small differences in parts from factors such as wear on the tool. As that happens, the inspection machine will dynamically tell the milling machine to remeasure and adjust the cutting path to compensate for small deviations. He says, “For us, it is important that our students have mastery of a logical ability to solve a problem. If the engineer has specific knowledge as to what could be causing the problem, this gives enough knowledge to address the problem and work towards a resolution.”

Future goals for the renovated engineering lab include not only applied learning for NJIT students, but also professional training for the local community of industry in the New York

“You have to make sure your audience—your students—are paying attention. That’s one of the hardest things to do in a classroom, especially if you have a class that requires computers. You can walk around at the same time you’re lecturing, and people have *YouTube* up; the list of distractions goes on and on.”

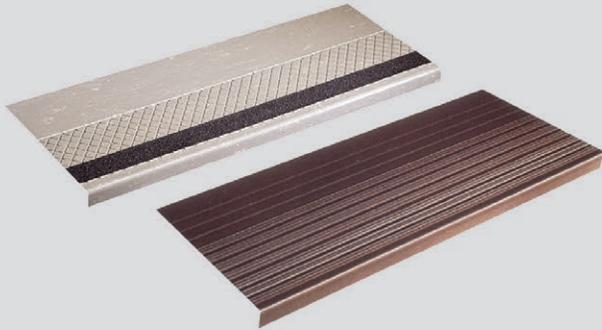
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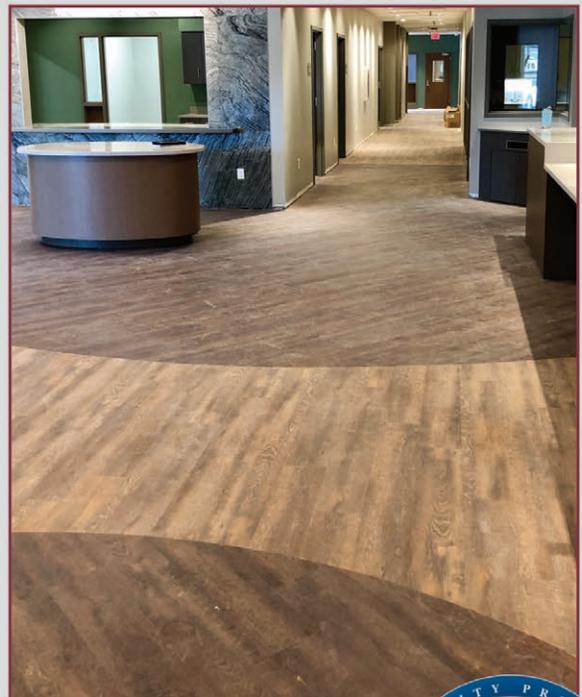
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“In the renovated lab, we wanted to have the computers and then put them away. For a lot of our lecturing, we don’t want people to have a computer because we want to be sure their attention is on us.”

—DANIEL BRATERIS

metropolitan area. Local to NJIT, there are a significant number of capable machinists who lack computer machining knowledge. Many engineers who are still working manually want to learn more automated machining techniques, and Brateris plans to further build out professional development curricula. As the director of experiential learning, he oversees any education projects that go beyond a textbook. With the addition of robotics courses for automation, welding, visual inspection, sanding, and polishing, Brateris aims to help both NJIT students and local professionals learn how to optimize industrial output in the renovated engineering lab.

Part of the NJIT mission is not only to develop capable engineers, but also imbue them with a sense of responsibility. During the most stringent lockdown period of COVID-19, the Makerspace was far from quiet. As soon as contractors were allowed on-site, renovations to the upstairs classroom began, as well as a massive project that built and delivered 25,000 injection-molded face shields to local healthcare facilities. Brateris explains that many people at home also used their 3D printers to output PPE in the form of face shields. However, the unsuspecting good

Samaritans were not aware that tiny voids in the 3D plastic prevented cleaning agents from sufficiently disinfecting the surface; therefore, hospitals could only use the PPE once before throwing it away. Although 3D printing has developed into a promising tool, Brateris warns against overstating its capabilities before the technology matures to its full potential. In his words, “Once [3D printing] designs were posted online, the making community bought up nearly all the thin plastic on the market, making the wasteful shields, and it was hard for us to procure plastic that could be reused for up to three months. This is why we try to educate very responsible engineers. Even people with a good mindset can cause very unknown consequences.”



ABOUT THE AUTHOR: Mira Korber has served as the Chief Strategy Officer for SMARTdesks since the beginning of the COVID-19 pandemic. Mira is also the founder of an education enrichment and tutoring company, Blue Ribbon Scholars LLC. In 2016, Mira graduated cum laude from Yale University. In 2021, she will attend Peabody College at Vanderbilt University to begin a Master’s program in Education Policy.

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William R. Berkley Gives NYU Stern \$50 Million for Undergraduate Scholarships

The Largest Scholarship Gift in NYU Stern's History Will Eliminate Tuition Burden for Recipients

New York University's Stern School of Business unveiled a landmark gift of \$50 million, the largest scholarship gift in the School's history, from the Berkley Family Foundation, established by alumnus William R. Berkley and his wife Marjorie. The gift will provide scholarships to students in Stern's top-ranked Undergraduate College through a brand-new program to be called the Berkley Achievement Scholars Program. William R. Berkley is the current Chairman of NYU's Board of Trustees, an NYU Stern alumnus (BS 1966), Chair Emeritus of NYU Stern's Executive Board, and the founder of W. R. Berkley Corporation, a Fortune 500 commercial lines property and casualty insurance holding company based in Greenwich, Connecticut.

Beginning with the class entering in fall 2022, the Berkley Achievement Scholars Program will increase access to a Stern education for talented students with financial need, enabling, at any given time, more than sixty Berkley Scholars from across the United States and representing the full cross-section of the country, to attend the Stern Undergraduate College tuition-free.

NYU President Andrew Hamilton said, "From my earliest days as NYU's president, in speaking with students, deans, families, and faculty, it was clear that we should set affordability as one of our foremost priorities, and we have. As Board Chair, Bill Berkley has backed that effort to the hilt, in no small measure because he knows so well from his own experience how a scholarship can alter the course of a young life and how an NYU education can be an engine of social mobility. This is a leadership gift in every sense of the word, the largest for much-needed undergraduate scholarship aid in NYU's history. Bill has given us so many reasons over the years to be grateful to him, but we owe him special thanks for this wonderful and generous gift."

"Bill's vision and extraordinary generosity will not only profoundly impact the lives of hundreds of students over the years, it will help us make NYU Stern's outstanding educational experience more accessible to those with demonstrated potential to lead. Stern has a legacy as a school 'open to all'

and today we celebrate furthering that legacy with this landmark gift from one of our most extraordinary and dedicated alumni," said NYU Stern Dean, Raghu Sundaram.

"As a former Chair of Stern's Executive Board, Bill Berkley has been a role model for the School in countless ways. And now with this historic gift, he is making a Stern education possible to deserving students who would not otherwise be able to attend," said Andre Koo, Chair of the Stern Executive Board.

William R. Berkley graduated from NYU in 1966 and started giving back to his alma mater shortly thereafter. Over the following five decades, he has had a transformative impact on NYU, the Stern School of Business, and hundreds of scholars across the University. His ongoing generosity and service is largely driven by his own personal experiences as an NYU Stern student. Bill has served, and continues to serve, in leadership roles across NYU, the Stern Executive Board, the NYU Langone Health Board of Trustees, and the NYU Board of Trustees (of which he is currently Chairman). Bill's dedication to Stern and NYU is evident in his unwavering support of NYU's most pressing priorities from professorships and scholarships to centers and facilities. Some notable examples at Stern include the William R. Berkley Professorships in Economics, the Berkley Center for Entrepreneurship, and the William R. Berkley Scholarship Program for MBA students.

"When I was admitted to Stern, I was the beneficiary of a scholarship that gave me the chance of a lifetime to study tuition-free. I often think about this extraordinary opportunity that dramatically impacted the path of my life, and I am fortunate to be able to pay it forward. I am pleased to build on NYU Stern's efforts to tackle the problem of unequal access to higher education by opening doors for young people with talent and determination who simply need an investment in their future. Empowering people changes the world," said Bill Berkley.

Stern's Undergraduate College is one of the country's leading undergraduate business programs, ranked #3 by Poets & Quants and #5 by US News & World Report among undergraduate business schools. With over 15,000 applications for its 600+ spots and a median SAT (math and verbal) of 1540, the Undergraduate College attracts the best and brightest from around the world, and offers them an exceptional educational experience guided by five pillars – Academics, Global Perspective, Social Impact, Professional Development, and Community.

Vanderbilt Announces Demolition of Final Carmichael Towers Buildings

by Katherine Keith

After delaying demolition due to the COVID-19 pandemic, Vanderbilt University is moving forward on its plan to demolish Carmichael Towers East residence hall with a controlled implosion on Saturday, July 31.

The implosion of the 14-story Towers 1 and 2 is scheduled for 9 a.m. The approximately 15-minute process will be overseen by Layton Construction LLC, which is conducting ongoing construction in Vanderbilt's West End Neighborhood, and Controlled Demolition Inc. (CDI), a national leader in large-structure controlled demolition.

The removal of Carmichael Towers 1 and 2, to make way for a new residential college in the West End Neighborhood, aligns with Vanderbilt's Academic Strategic Plan, a key pillar of which is to strengthen the undergraduate residential experience, and with FutureVU, the university's initiative to enhance the places on campus where community members live, work and learn. Residential College C, which is scheduled to open for fall 2024, will be the fourth residential college along West End Avenue. The E. Bronson Ingram College opened in 2018, Nicholas S. Zeppos College opened in fall 2020, Rothschild College will open for fall 2022.

These residential colleges will build upon the successful living-learning environments already in place at The Martha Rivers Ingram Commons, Warren College and Moore College. "We continue to explore ways to connect our students, faculty, and staff as they forge the learning experience together," said Vanessa Beasley, vice provost for academic affairs and dean of residential faculty. "Residential colleges give students the opportunity to learn from each other, become more connected, and benefit from the resources and wisdom available in the broader Vanderbilt community."

The design for all residential colleges in the West End Neighborhood will give the area a more park-like feel and augment a positive community atmosphere. The university has redeveloped the area to add green space, pedestrian- and bike-friendly pathways, and tiered areas ideal for studying, relaxing, and hosting outdoor gatherings. The implosion event will necessitate temporary road closures the morning of July 31. University and Nashville police will be on site, and a blast perimeter will be established to keep the public at a safe distance. Occupants of buildings within close proximity to the implosion will be evacuated or mandated to remain indoors. Once the implosion and checks to the site and surrounding areas are complete, traffic will reopen and mandatory restrictions will be lifted.

In their place on West End Avenue between 23rd and 24th avenues, Carmichael Towers 1 and 2 have been home to tens of thousands of students since their opening in 1966. Named in memory of the university's third chancellor, Oliver Cromwell Carmichael, the residence halls housed undergraduate students.



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A New Chapter: Ohio Wesleyan Announces \$11.25 Million Renovation of Iconic Slocum Hall

by Cole Hatcher

On June 20, 1898, Ohio Wesleyan University dedicated Slocum Hall as its new campus library—a spacious, modern building with a leaded glass ceiling that still draws gasps of wonder and delight from first-time visitors.

One hundred and twenty-three years later, Slocum Hall is beginning a new chapter as it undergoes an \$11.25 million, donor-funded renovation to add modern amenities and redefine its future. “This is a momentous project for Ohio Wesleyan, and I am grateful to our donors for helping us fully renovate and preserve a building beloved by generations of OWU alumni,” said President Rock Jones, Ph.D.

“When it reopens in fall 2022, Slocum Hall will become the home of the Career Connection, which works with students throughout their time at the university to secure internships, build resumes, and develop the career-readiness skills that will set them apart,” Jones said. “Slocum Hall also will continue to house our Offices of Admission and Financial Aid, helping prospective students and families explore Ohio Wesleyan and learn more about our impressive educational outcomes all in one place.”

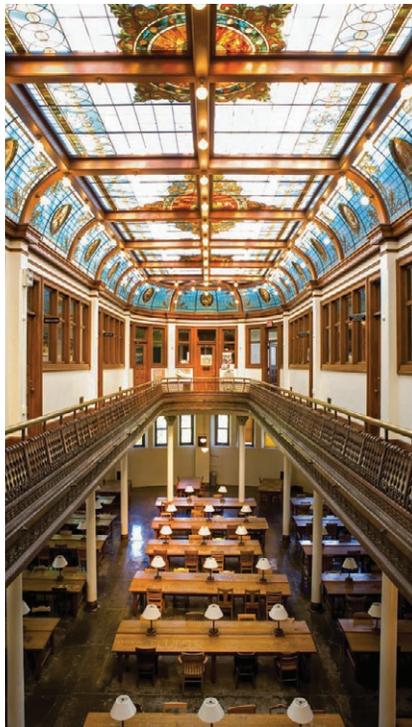
The renovated building also will house the Department of Africana, Gender, and Identity Studies as well as the university’s Honors and Scholars programs, classroom space, and a lounge/study area in its iconic Reading Room.

When the 29,076-square-foot building reopens, it will feature modern amenities including air-conditioning, an elevator, second- and third-floor restrooms, and updated mechanical, electrical, plumbing, and technology systems.

The work will include making the building fully compliant with the Americans with Disabilities Act, adding a sprinkler system, and cleaning and repairing Slocum Hall’s iconic 70-foot-by-20-foot leaded glass ceiling. Schooley Caldwell of Columbus is serving as the project architect, and Setterlin Building Co. of Columbus is overseeing the renovation. Slocum Hall is named in recognition of its original donor, Charles Elihu Slocum, M.D., of Defiance, Ohio. Before the building was designed and constructed, Dr. Slocum and then-Ohio Wesleyan President James W. Bashford, Ph.D., visited more than forty college libraries in the United States and Canada to help plan the three-story, white Bedford limestone structure.

Slocum Hall’s 21st-century restoration and renovation is being supported by several donor gifts including a \$10 million contribution from an anonymous alumni couple. Their contribution, announced previously, is the largest single outright gift in Ohio Wesleyan history.

Additional gifts supporting Slocum Hall include \$1 million pledged in May by OWU Board of Trustees Chair John F. Milligan, Ph.D., and Kathryn Bradford Milligan, both members of the Class of 1983, and \$500,000 from Robert W. Gillespie and Ann L. Wible Gillespie, who graduated from the university in 1966 and 1967, respectively.



Teaching and Learning Institute Plans to Carry Forward Lessons From Remote and Hybrid Learning at Bryn Mawr

When what was to become Bryn Mawr’s Teaching and Learning Institute (TLI) was created in 2006, it was conceived as part of a larger initiative to build community and enrich education on campus through fostering dialogue and collaboration among faculty, staff, and students.

When the COVID-19 pandemic caused campus to empty out and a shift to remote learning occurred, student partners from across nine different institutions with pedagogical partnership programs, including students in the TLI’s Students as Teachers and Learners (SaLT), joined together for discussions about how to navigate—and support their faculty partners in navigating—this unprecedented shift.

These student partners—from Bryn Mawr College, Florida Gulf Coast University, Haverford College, Reed College, Smith College, Tufts University, University of Denver, Ursinus College, and Vassar College—generated a set of recommendations that was shared widely and posted on the websites of teaching and learning centers on other college campuses. Several student partners from these institutions also authored—or co-authored—with faculty essays on their experiences of the unprecedented shift to remote and hybrid teaching and learning under pandemic conditions.

And while this month likely marks the end of the majority of remote learning for Bryn Mawr’s students and faculty as plans are in place for a return to the classroom in fall 2021, those involved in this work hope that many of the practices found to be most effective in a remote environment will continue in traditional classrooms.

“Whether instruction is happening over Zoom or face to face, research has shown that it is the students who feel respected and heard in the classroom who develop the personal agency and sense of belonging that are essential for success in college,” says TLI founder and Professor of Education Alison Cook-Sather.

Rihana Oumer ’21 is a chemistry major at Bryn Mawr who took part in SaLT during the fall 2020 semester and worked with Assistant Professor of Dance Lela Aisha Jones, who was teaching the hybrid course *Diasporic Bodies, Citizenship, and Dance* as part of the 360°: Centering Critical Blackness.

“I appreciated the value that was placed in every student’s voice and what they brought to class,” says Rihana. “For example, students were voting on what readings they would like to discuss. After each person shared which of the readings they were eager to talk about, they would be put into breakout groups based on their interest.”

After each group had their individual discussions, the class would come back together to start a larger group discussion based on what was talked about in the smaller groups.

“This gave the students agency, a chance at collaboration, and flexibility, and is the sort of thing that could be carried over to a traditional in-person class,” says Rihana.

As a relatively new faculty member, Jones says working with students through the SaLT program has helped her grow tremendously.

“I know that I would have made it through without TLI, but I have a better understanding of the student community and can be a better resource for them thanks to the program,” says Jones. “Rihana helped me see and understand things from different perspectives so that I could better include everyone in course activities and learning.”

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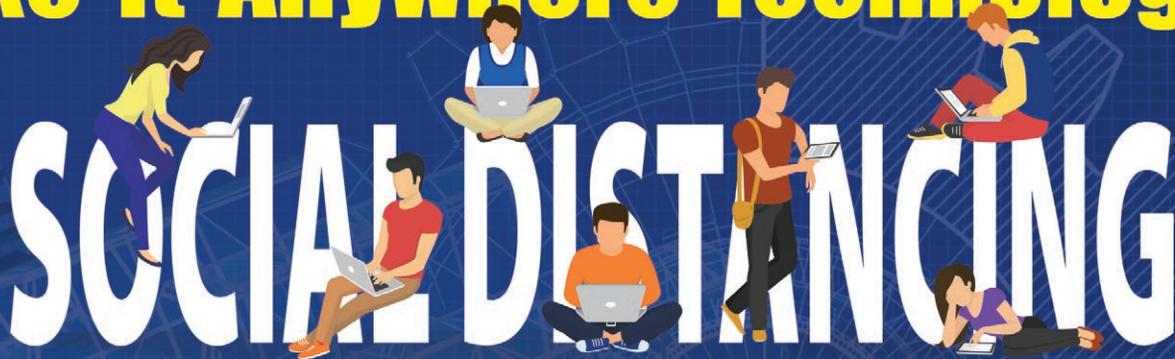
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