

INSIGHTS
REPORT

Safe Facilities During the Pandemic and Beyond

How campuses
are changing to
fight the virus

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THE CHRONICLE
OF HIGHER EDUCATION.

Verizon on safe, smart campuses for the pandemic and beyond.

The COVID-19 pandemic has upended long-standing expectations about the college experience. Now, higher education institutions must rethink the design and function of their campus spaces to prioritize the safety of students, faculty and staff.

Among the challenges set in motion by the pandemic, colleges must consider how to:

- Allow for more flexible use of physical spaces on campus, prioritizing the needs of people rather than of traditional organizational function.
- Support the physical, mental and emotional health of those on campus and in surrounding communities – while operating within the reality of hard-hit budgets.
- Determine which pandemic-triggered changes should be considered temporary, and which could be recast as opportunities to help enhance campus life and advance long-term environmental goals.

No matter how college campuses are configured in the future, achieving flexibility – and striking the right balance between physical and virtual learning environments – will require robust, secure technology infrastructure.

With more than two decades of experience supporting higher education institutions, Verizon understands the importance of helping colleges digitally transform their campuses to become safer, smarter and more flexible. Given the extra challenges posed by COVID-19, creating a digital campus rises to even greater importance.

As colleges navigate their evolving pandemic and post-pandemic environments, we can help strengthen and modernize campus infrastructures to enable dynamic, engaging and effective experiences for learning, research and living.

Verizon is pleased to support this report from *The Chronicle of Higher Education*, “Safe, Smart Campuses for the Pandemic and Beyond.” We hope that this report, representing a collaboration among college leaders, design experts, architects, public-health officials and student-affairs officers, will help colleges across the nation to reimagine how their campuses can function and feel so that everyone there can thrive – now and in the future.

For more information about Verizon solutions for higher education, [visit our website](#).



A handwritten signature in black ink that reads "Patty Roze".

Patty Roze
Vice President, Public Sector Sales, Verizon

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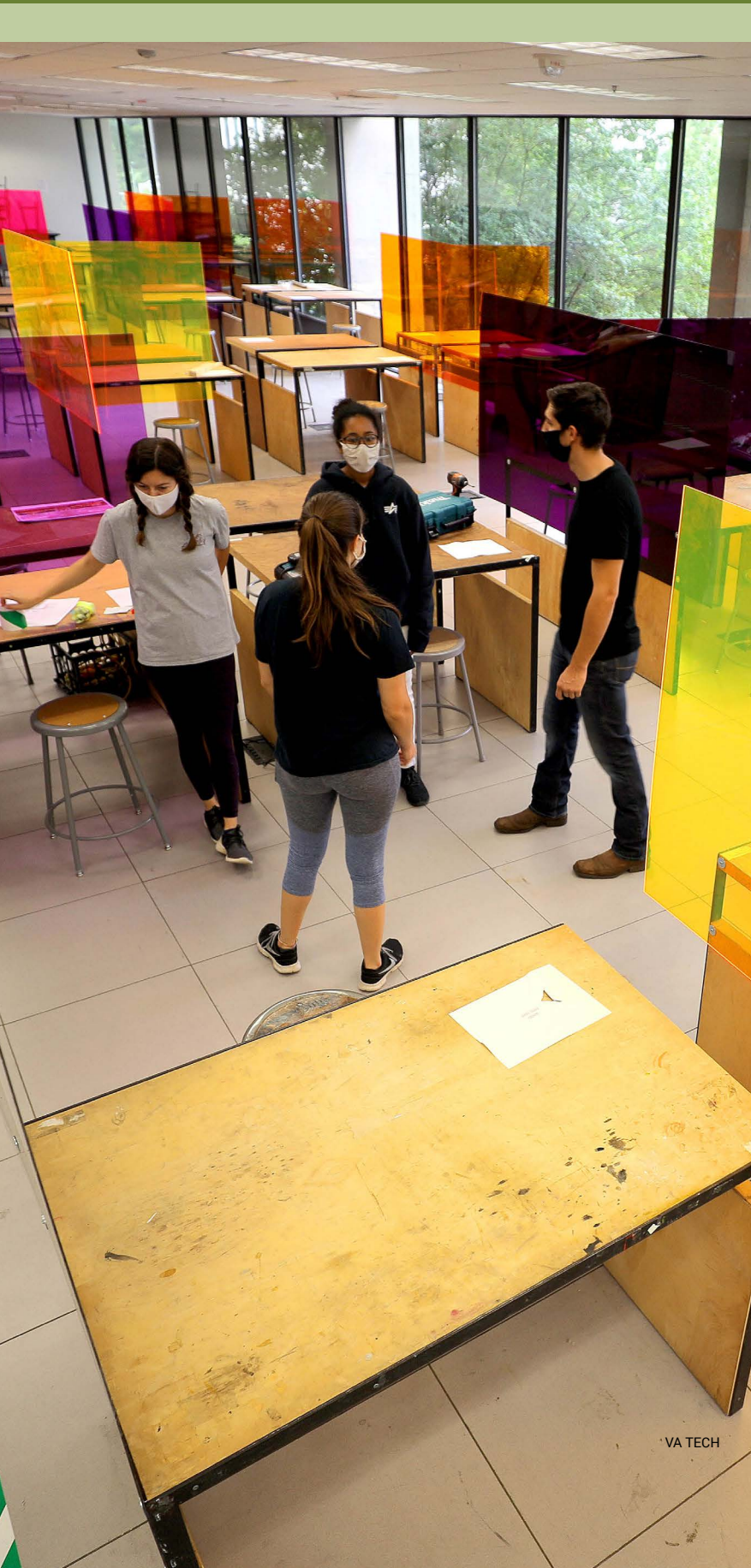
Rice U. added four semi-permanent outdoor structures for events and socially-distanced classrooms.

TOMMY LAVERGNE, RICE U.

Contact CI@chronicle.com with questions or comments.

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INTRODUCTION



VA TECH

With moving instruction online and sending staff home to work, virtually every college and university has made some degree of change to its campus and facilities in response

to Covid-19. Some changes may be so significant that they will have long-term implications for how institutions deliver on their educational and research mission.

The metamorphosis that the virus has forced on higher education may well be a profound teachable moment for colleges and universities. It has shown, for example, that effective teaching can be conducted online and that an institution's work can continue apace while staff work remotely. At a strategic level, the pandemic has prompted some institutions to reassess how they allocate space and build out their physical plants.

It is unclear what the future holds. Will the pandemic force colleges to rethink facilities completely? Or will they revert to past practices once a vaccine is available? This report examines those questions to better understand how campuses have been altered to promote health and safety — and how those changes may affect planning.

Colorful plexiglass partitions have been installed between work spaces at Virginia Tech's College of Architecture and Urban Studies.

Changes for Safety

By the summer of 2020, it became clear that the pandemic would not be short-lived. Institutions began to prepare for a fall term, potentially with a radically rethought campus.

To protect those on site, “de-densifying” the human presence became a rallying cry. Many institutions pared down the number of students in dorms, often by reducing room occupancy from two or three students to singles. The student-to-bathroom ratio became an operative metric. In public spaces like lounges, furniture was removed or rearranged to support social distancing.

For its autumn term, for example, the University of Washington, the first major university to end in-person classes in the spring because of the virus, was home to around 4,100 students, less than half the 9,500 students it regularly houses.

Pam Schreiber, the university’s assistant vice president for student life and executive director of housing and food services, says that more regular cleaning of such facilities — with particular

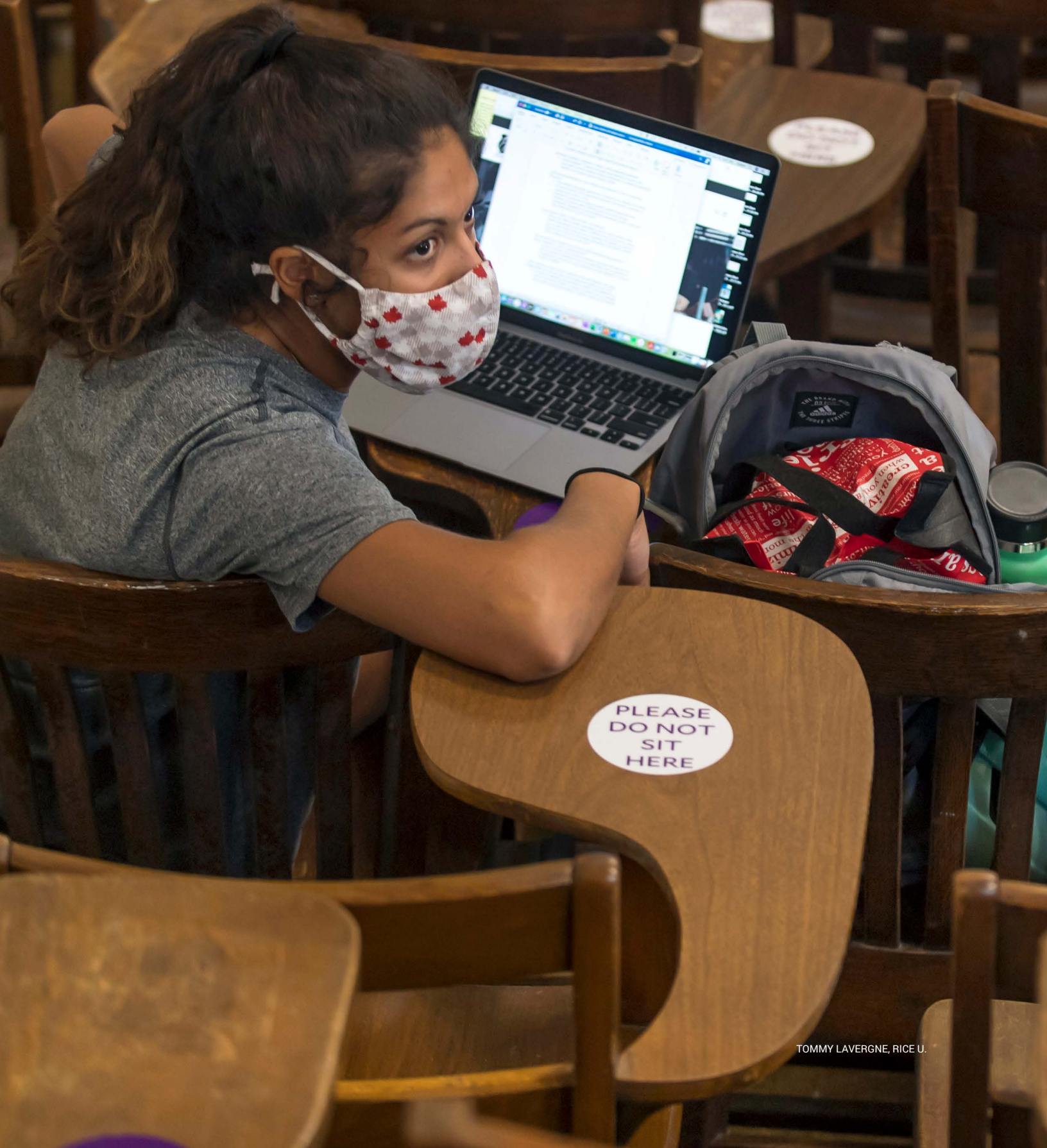
attention to high-touch surfaces like doorknobs and elevator buttons — had become standard, and that electrostatic cleaning devices had been added to cleaning staffs’ tool kits.

When the coronavirus first struck, Washington’s dining halls went to a takeout-only option. Now, limited eat-in is available, although self-serve stations have been converted so that food is instead handed to a patron. This fall, Schreiber says, dining-hall staff were recruited to act as “social-distancing ambassadors” to help diners maintain acceptable space between themselves.

As with dorms and dining facilities, institutions also had to rethink how many students would be allowed in classrooms and lecture halls and how those spaces could be used during the pandemic. For academic areas, the principles of social distancing may first have been decided with a tape measure and moving chairs six feet apart, but institutions quickly became more sophisticated.

“When we first started this, people misunderstood what the ratio was between Covid occupancy and [regular] occupancy,” says David W. Leebron, president of

A student participates in a socially-distanced class inside the Herzstein Hall auditorium at Rice U.



Rice University. “On average it runs about six to one. That means if you’ve got a 30-seat classroom, it’s going to have five or six seats” that are acceptable for occupancy during the pandemic. Learning spaces at Rice have two stickers on the door: one that tells “regular” occupancy and one that spells out how many people are allowed in the space at one time during the pandemic.

Getting even more specific, officials at Marymount University told a local television station that while one of its auditoriums normally had 206 available seats, that number was pared down to just 18 for effective social distancing, or 8.7 percent of its nonpandemic occupancy. Virginia Tech reported that capacity for most of its classrooms had been reduced by some 75 percent.

To provide more elbow room for in-person learning, Rice got creative by building four new “provisional campus facilities,” or PCFs. Looking a bit like modern-day Quonset huts, these air-conditioned “semi-permanent” learning spaces can comfortably host up to 50 people under pandemic restrictions for de-densifying classrooms. Each PCF has robust technology to support teaching and learning. In addition, Rice erected five open-air tents, sprinkled throughout the campus, where up to 25 people can social-distance with some protection from the elements.

From labs to libraries, social distancing and other protocols for occupancy and cleaning became the norm in other campus facilities. Spaces for the performing arts were widely shuttered to further help prevent the spread of Covid-19.

Institutions across the country began to make better use of their outdoor spaces for both pedagogy and more informal — but socially distanced — student interactions. Rice, for example, purchased more tables and chairs for outside use. To make six outdoor spaces more usable during the pandemic, Virginia Tech invested \$250,000 in improvements like canopy tents, outdoor lighting, furniture, and stronger Wi-Fi service.

Along with a focus on social distancing, many institutions sought to deal with the

possibility that coronavirus might spread through the air by assessing and improving air quality in buildings. “One of the things we’ve done across the campus is make sure the air handling and filtration were safe,” Leebron says. With their strict requirements for airflow, he says, Rice’s labs provided one model for the rest of Rice’s HVAC systems. In North Carolina, engineers at Elon University evaluated ventilation and air filtration in some 200 buildings. The flow of air was increased to the extent possible, and staff installed air filters with the highest efficiency for removing airborne viral particles.

“When we first started this, people misunderstood what the ratio was between Covid occupancy and [regular] occupancy. ‘On average it runs about six to one.’”

Plexiglass shields — in classrooms, offices, and other public spaces — also became commonplace. Purdue University made the need for plexiglass barriers and other Covid-19 protections the focus of a fund-raising campaign that reaped more than \$100,000.

Meanwhile, too, thousands of square feet of campus office space stood vacant or greatly underused as many campus staff worked remotely. The pandemic undermined much of the income streams that most institutions rely on, and many started to cut staff, salaries, academic programs, and athletic teams.

Changes to Campus Design

Even while colleges and universities continue to adapt to the pandemic, they are also thinking about what happens after a vaccine for Covid-19 becomes widely available. In one sense, things will likely go back to some semblance of normal. Reopening fully and getting learners back to campus is of course a priority, in part because most institutions rely deeply on the revenues students pay for tuition and room and board. Eventually, institutions will likely remove signs for social distancing, plexiglass barriers, and other tangible reminders of how life was different in the era of Covid-19.

Regardless of the pressure to go back to pre-Covid life, however, there is also a growing sense that the pandemic may well spark potentially substantial and transformative change across higher education. For example, the outbreak drew attention to fundamental questions that were already under consideration, such as whether instruction can be delivered at reduced cost or how institutions could continue to maintain expensive physical plants.

What reforms might now gain more traction? Having broadly adopted remote instruction, institutions may now dive more deeply into full online learning and hybrid modalities. That means that institutions may now re-envision the way they

“The biggest change that we’re seeing is people are thinking about the space they already have versus the space they want to build.”

allocate space for teaching and learning, student life, offices, labs, and other campus purposes. Similarly, universities may



BEN SIEGEL, OHIO U.

Classrooms like the one above at Ohio U. are being refocused to meet multiple needs for room use in an effort to maximize the campus footprint and offset space investments.

rethink the way they use outdoor space. Campus master plans may be redrawn, and approaches to strategic and scenario planning may change.

Consider the configuration of campus space, for example. In July 2020, the design firm Ayers Saint Gross surveyed 71 college officials from 53 colleges and universities about how their institution's responses to the pandemic might affect their future decisions about campus development. One finding was that experiences in the pandemic have helped to accelerate changes in how institutions view their physical space. The report suggested that if more educational content is delivered online, large lecture halls could be converted to smaller, differently configured learning spaces. Similarly, if more staff are working remotely, that could free campus office space for other purposes.

"The biggest change that we're seeing is

people are thinking about the space they already have versus the space they want to build," says Shannon Dowling, a senior associate at Ayers Saint Gross. Dowling says the design firm has recently been seeing campus master plans that reflect institutional interest not in erecting new buildings, but a desire to "know what to do with the buildings that we have right now." Institutions are "thinking about how to reallocate that space," Dowling says. "There have been a lot of questions about the meaning of the physical campus going forward."

Dowling says that the campus of the future will be thought of more broadly as including physical, virtual, and social spaces. Having experimented during the pandemic with repurposing existing space in bold new ways — for example, using a cafeteria as a lecture hall — institutions may be more open to redefining space for different uses. There may also be more openness to

sharing space across disciplines, in contrast to departments restricting space to their own purposes. Dowling has talked recently with one university that is now considering reducing its leaseholds for local office space given that some workers are now unlikely to return to campus offices. Further, Dowling notices a distinct uptick in interest in more modular and flexible laboratory design.

Dowling points to the changes in campus libraries over the last decade or so — including their development as “commons” for access to digitized information and the expansion of library spaces for more collaborative research and learning — as one model for how institutions might envision their physical space moving forward. “How can we take what we’ve learned from the libraries and apply it to the other spaces around campus?” Dowling says.

At Ohio University, the pandemic has accelerated plans already underway to reassign campus space. “What it’s also accelerating is an openness to rethink space,” says Shawna Bolin, the university’s associate

vice president for university planning. “The Carnegie classification of space, which most people use — where you say, this is a library space, this is an office, this is a conference room, this is a seminar room, this is a classroom, and so on — is not the way that we want to classify our space moving forward,” Bolin says. “We want to break down those barriers so that you can see what space the university has and use it when it’s not being used. In my view, conference space, seminar space, meeting space, classrooms, and meeting rooms all do the same thing. They are spaces you can meet in to do an activity, whether it’s a class activity, an administrative meeting, or a student activity.”

Bolin advocates for an approach to space allocation that “allows for the use [of a given space] to be different” depending on the institution’s needs. “One of our primary principles at Ohio University is that space is for function, not people,” Bolin says. “Just because it’s assigned to one unit doesn’t mean that another unit can’t use it.”



BEN SIEGEL, OHIO U

Bradley Naylor, assistant professor and director of choral activities, teaches inside a tent set up outside the music building at Ohio U.

Changes to Housing and Facilities

It's too soon to know for sure how the pandemic could influence future designs of student residences. The emphasis on social distancing today may drive more interest in single-occupancy rooms tomorrow, and the days of communal bathrooms may be over. Coincidentally, the University of Washington changed multiple-occupancy rooms to singles with private baths when it rehabbed old dorm space prior to the pandemic. Many off-campus residences that have recently opened follow similar designs and thus have some degree of social distancing built in.

"Shared facility models will become less popular just as a preventative or proactive measure of convenience," says Laura Pirie, the principal of Pirie Associates Architects. "That goes along with cultural expectations of universities that have to compete for students by providing quality dorms and a level of independence and more apartment-like feeling dormitories that tend to appeal when colleges are having to compete for students."

A rich residential experience will of course continue to be a seminal part of the education that many institutions seek to deliver, to say nothing of a key recruitment

"Shared facility models will become less popular just as a preventative or proactive measure of convenience."

tool, and even in an era of declining enrollments such institutions will likely invest themselves and with for-profit partners in

quality residential life. Post-pandemic, says Greg Havens, a planner and architect with the design firm Sasaki, “there will be even more demand for institutions that offer a very strong residential experience. I think people long to come back to that.”

While many students are eager to get back to post-Covid campus residential life, the pandemic has also underscored how certain cohorts — notably working adults — do not need the trappings of a fancy residential campus and may in fact prefer to study off campus. “The biggest surprise for the universities that I’ve been engaged with is that even given [campus] precautions and [students’] desire to come back, how many students actually chose to work remotely,” Pirie says. She knows of one faculty member who recently gave her 20-student class a chance to meet again in person — and

got only two takers for learners eager to return to face-to-face instruction.

Pirie reports that for both adult students and learners who are feeling a financial squeeze due to the pandemic, some faculty members believe that “their students are actually very well served by being able to flex their schedules” through online learning. At one institution she is familiar with, she says, studying remotely has “enabled a lot of their students who are getting advanced degrees who also work and who also have children to actually more effectively engage in their education, because the remote learning is more flexible for them, with their children in the other room.”

For many institutions, the pandemic has changed traditional thinking about housing staff on campus. In conversations with multiple institutions, Elliot Felix, the CEO of the consultancy



Students listen to a lecture in one of the semi-permanent outdoor structures at Rice U.



TOMMY LAVERGNE, RICE U.

A socially-distanced, covered area for collaboration outside of the Jones Graduate School of Business at Rice U.

Brightspot Strategy, says “one of the common themes was how well remote work has gone. I think everyone is quite surprised that roles that they thought could never be remote are working very well.” Now, he says, “a lot of places are thinking about how they can support remote work in earnest, not in temporary emergency mode, but in the long haul.”

One underlying principle is that universities could streamline space by designing offices to accommodate staff who might work mostly at home but might come to campus occasionally for meetings or collaborative projects. “Typically offices account for about 25 percent to a third of all space on campus,” Havens

“Faculty come to us and say, ‘You know what? We actually don’t think we’re going to need our office. We just need a place to touch down with students.’”

says. “When you look at the amount of time those offices are really used, the cost, and just in terms of energy and maintenance, can we rationalize who is using offices and why they need them, and is there then some savings in terms of space and cost moving forward? Who would it make sense to put in these environments?” he asks.

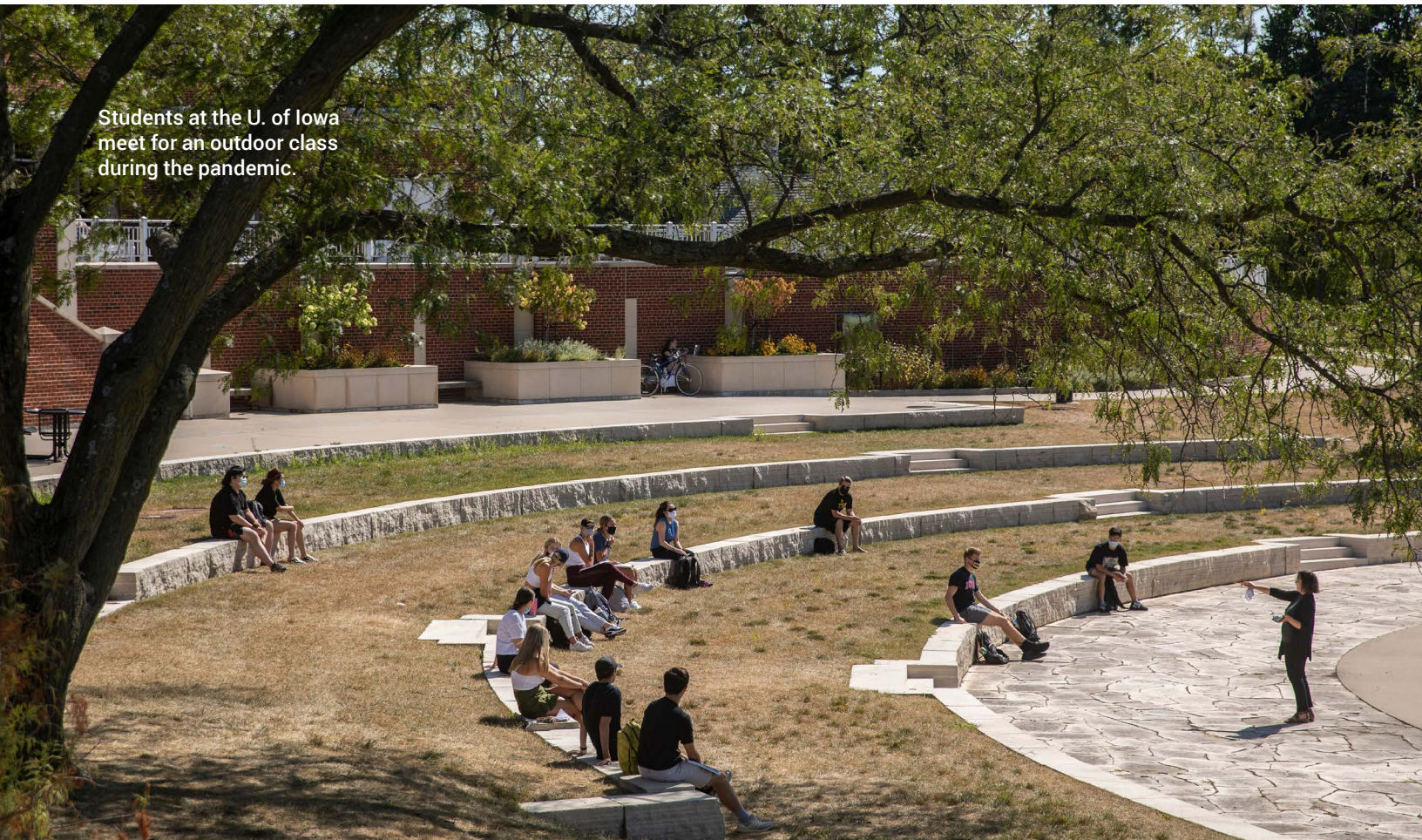
Perhaps surprisingly given historic campus fights for control over real estate, Dowling, of the design firm Ayers Saint Gross, has also noticed that some faculty members no longer seem so entrenched in a desire for office space. “Faculty come to us and say, ‘You know what? We actually don’t think we’re going to need our office. We just need a place to touch down with students,’” Dowling says. “That frees up so much space on campus to do other things.” Havens thinks there might be a generational shift underway in how faculty members think about offices. “If you come from a time where you have a large book collection, that’s important; it’s part of

your academic development, it’s who you are, and you want that with you,” Havens says. “Younger-generation faculty may not have that connection. [Their research] may be more digital. So they’re less attached to that sense of place and space.”

Another pandemic-related trend that may continue will be work by colleges and universities to make better use of their outdoor spaces for learning and socialization. Havens, for example, is currently working on two student-affairs master plans that include development of what he calls “outdoor programming space.” One example: large lawn areas being developed with an infrastructure that would support their use for large events and with slopes that could serve something like an amphitheater. “Yes, it’s in response to Covid,” he says, “but it also reflects that people recognize that there’s something pleasant about [outdoor space], something nice about it, that maybe hasn’t always been deliberately offered in ways that are going to be beneficial.”

KATHRYN GAMLE/THE NEW YORK TIMES

Students at the U. of Iowa meet for an outdoor class during the pandemic.



A FINAL WORD

In terms of strategy, the pandemic may have had a profound impact on how colleges and universities deliver their missions day to day. “I think a lot of places wanted to be more agile and make decisions quicker and have leaner processes and be more collaborative,” Felix, the Brightspot Strategy CEO, observes, “and I think the pandemic forced them to do that.”

Recognizing that institutions still need to navigate the daily changes that Covid-19 continues to foment, Nicholas R. Santilli, the senior director for learning strategy at the Society for College and University Planning, says a key question is: “Are you planning for the pandemic or through the pandemic? If you’re not making strategic choices now, [a productive] future may be more and more difficult to achieve.”

Suggesting that institutions may need to rethink how they traditionally have approached strategy development, master plans, and scenario planning, Santilli says colleges and universities should ask: “What will your institution look like in 2030, and how are you positioning your institution now? Because strategic decisions you make today are going to ripple forward three years, five years, 10 years down the road.”

“The advice that we’ve been giving people is that if the change that you’re making [because of the pandemic] aligns with your mission, strategic plan, and your ultimate vision — if it was something that you had been interested in and wanted to test out for a long time — go for it,” Dowling says. “Invest in it. If it’s something that feels like it’s going against who you are as a university, make it temporary. Don’t dedicate a lot of resources to it.”

“Nobody has a perfect crystal ball, but I think there’s some pretty good bets that you can make on the future,” Felix says. “One is that there’s going to be more remote work and more flexible work. I think a second one is shifts in learning. There’s going to be more online, hybrid, and active learning.” That means, Felix says, that “learning spaces on campus should be flatter and more flexible,” and that some spaces now dedicated to learning and dedicated offices could “probably get decommissioned.”

“A lot of institutions, particularly small liberal-arts colleges and master’s-level universities, have been kind of out over their skis,” Felix says, in terms of “adding space at a rate that outpaces their enrollment.” The pandemic, he suggests, will help reveal that many institutions have a surplus of space. “They’re going to have to think really strategically about what to do with that surplus,” he says. Some institutions might be able to expand enrollment to fill the available capacity of space, he says, but a more likely strategy might be finding other uses for existing space. “Those could be new kinds of partnerships,” Felix says. “Maybe there are co-working spaces, ways to bring in companies, ways to share that space. There might be ways to decommission the space so it’s not using energy. There may be ways to monetize this space, if the real estate is in the right place and there isn’t already a surplus in town.”

“The bottom line is institutions are going to have a surplus of space,” Felix says, and “they should think strategically about what to do with it. They should think about their campus not just as a container for their students, but as something that really advances their goals and builds community and creates a more equitable experience.”

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