Rethinking Campus Spaces
How to Prepare for the Future of Learning and Work
Introduction

Section 1: The Forces Shaping College Spaces, New and Old
Colleges were already beginning to rethink classrooms, administrative offices, and other spaces on campus. Covid is accelerating that process and underscoring the importance of flexibility, especially for classrooms.

18 Improving Building Ventilation for Long-Term Health

Section 2: Campus Spaces, Post-Pandemic
More than 40 architects and planners shared their thoughts about how Covid will reshape campuses of the future. Expect smaller, adaptable campuses and spaces designed to increase student retention.

27 Case Studies

28 Ohio U.: A Smaller, More Flexible Campus
30 U. of California at San Diego: Tracking Students More Closely
32 Pima Community College: Hostling Live Events Again

About the Author

Francie Diep is a staff reporter covering money in higher education. She joined The Chronicle in 2019. Previously, she spent a decade covering health and science, including funding for academic labs, for publications including Pacific Standard, Popular Science, Scientific American, and The New York Times. She received her bachelor’s degree in English from the University of California at Los Angeles and her master’s in journalism from New York University.
In May 2020, The Chronicle spoke with leaders of colleges that had just started to bring more people back to campus, after emptying their grounds earlier in the spring. They had transformed their spaces — removing chairs, putting up one-way signs, marking six-foot distances on the floors. Although Americans may be accustomed to such measures now, at the time those changes were new.

The effect was eerie. Campuses were like ghost towns. "You don’t have the hustle and bustle of people around," Kevin S. Dean, dean of public health and safety at Western Technical College, in Wisconsin, said at the time. "You walk through the student union and there’s caution..."
tape across all the seating and lounge areas. There’s hardly any movement going through the bookstore.” Western had opened only for hands-on classes in occupational programs that the state deemed essential. “Right now it’s very quiet,” Dean said.

The quiet and the caution tape won’t last forever. But the Covid-19 pandemic has turned out to be a reality-altering event for higher education. Long after the immediate public-health threat is over, campuses will look different, in ways both subtle and obvious, driven by forces including wider adoption of online work and learning, as well as tighter budgets for both colleges and families. “We are going to experience massive changes to everyday life,” says Gary C. Matthews, vice chancellor for resource management and planning at the University of California at San Diego. “We’re going to have to change, and so will our buildings.”

When it comes to space and place, the pandemic’s first several months taught colleges two major, seemingly paradoxical lessons. “We’ve all learned that we can do a lot more remotely, but we’ve also learned how much we value being together, in person,” says Elliot Felix, CEO of brightspot strategy, a consultancy that advises colleges on strategic and space planning. Felix, his team, and many others with whom The Chronicle talked expect colleges both to have people on campus less frequently in the future, and to be more thoughtful about how people move through physical spaces when they are there. Institutions will also seek to maximize how much students and faculty and staff members interact whenever they meet in person.

One of the most precious commodities on campuses is space, which is often limited and takes resources to maintain. With shrinking budgets as a result of the pandemic, colleges may be forced to make the most of their physical spaces, wringing from them multiple uses and more hours of occupancy.

This report will examine the events and trends that influenced campus space-use before 2020, and will show how Covid-19 has changed or intensified them. It will consider how classrooms, offices, residence halls, and other common spaces will look after the pandemic is over. You’ll learn architects’ and colleges’ strategies for doing more in less space, to save money and prepare for an uncertain future.
The Dathel and John Georges Student Center at the U. of Virginia brings together academic-, career-, and personal-support services.
The Forces Shaping Campus Spaces, New and Old

As it has in so many other sectors, the Covid-19 pandemic has intensified pressures on the design of campus spaces. In the past several years, students and families were demanding more value for their money and had grown more conscious of student debt. Today more American families than ever are on tight budgets and aren’t interested in pricey, luxurious dorms. Colleges were already preparing to serve more first-generation, low-income, and nontraditional students. Now, as the pandemic and the recession have hit those students especially hard, institutions have sharpened their focus on retention — including how space design can make things easier for students by, for example, co-locating financial aid, records, and bursar’s offices.

TAKEAWAYS

Ideas about colleges’ physical spaces were already changing. Covid-19 will accelerate many of these shifts, including the need for flexibility.

New pressures on campus spaces include tighter institutional and student budgets.

Having operated virtually during the pandemic, more colleges will continue the trend toward remote learning and telework.

Community and connection with friends are what students may want most from on-campus experiences.
Other trends predating the pandemic include increased flexibility and collaboration spaces in classrooms and offices. Colleges were already looking for flat floors — instead of the tiered floors common in lecture halls — and easily movable furniture, which can accommodate anything from standard lectures to group activities of varying sizes. That way, “any instructor could come into the room and teach that course any way they want,” says Shannon Dowling, an architect at Ayers Saint Gross, a firm based in Baltimore. In planning that began before 2020, Normandale Community College, in Minnesota, sought flexibility for its classrooms because campus leaders figured that teaching styles would probably change long before the college had the chance to remodel again. “We’ve been trying to be conscious of the fact that we don’t know everything we’re going to know in a year or two years, five years,” says Lisa Wheeler, vice president for finance and operations. Then the pandemic underscored just how important flexibility is.

“What you can see is the hunger to come back together once this is all over.”

Colleges sought open areas where students and faculty and staff members could bump into one another. “There was a focus on spaces that bring together those productive collisions,” says Greg Havens, a planner and architect for the firm Sasaki Associates,
“where students and faculty and others casually meet or accidentally meet, and as a result of that, new relationships form, ideas get transferred, opportunities come up.”

For the moment, colleges are doing all they can to prevent unexpected run-ins between people, in violation of social-distancing rules. In the long term, however, institutions will want people to interact again.

“What you can see is the hunger to come back together once this is all over,” Havens says. Many colleges with construction proj-
ects underway aren’t changing their plans for welcoming, collaborative spaces, architects say.

At the same time, as a result of the pandemic, colleges are seeing new forces on the horizon.

Among the most critical of these pressures is an expected drop in budgets, whether from declining enrollment, slashed state funding, or both. Higher-ed enrollment was down 3 percent overall and down 13 percent among first-time students as of November 12, 2020, according to the National Student Clearinghouse. Louisiana, Wisconsin, Ohio, and New Jersey were among states that cut appropriations to their colleges and universities in the 2019-20 fiscal year, while at least a dozen states had already decided on higher-ed budget cuts for 2020-21, according to the National Conference of State Legislatures. To try to make up for those losses, different colleges plan to use their spaces in different ways.

In addition, now that they’ve seen what it’s like to operate partly or mostly online, some institutions expect that more of their faculty and staff members and students will want to work and learn remotely in the future, even when there’s no public-health need. “We know that there will be requests or desire on the part of staff, who have been teleworking, to continue to telework, at least partly,” Wheeler says. At the time of her interview, in late September, about 90 percent of Normandale’s classes were being held virtually. “I mean, I miss being on campus. It’s just energizing to walk down the hallway. But I have to say, when I come in one day a week, I think, ‘Oh my gosh, I have to put on real clothes, I have to pack a lunch, I have to drive to campus.’ And that all takes time.”

Students’ Future Likelihood to Access Support Services Online

When asked whether the shift to online service delivery made them more or less likely to access services online in the future, students gave the following responses.

- More likely
- About the same
- Less likely

28% 28% 44%

Source: brightspot strategy

“I mean, I miss being on campus. It’s just energizing to walk down the hallway. But I have to say, when I come in one day a week, I think, ‘Oh my gosh, I have to put on real clothes, I have to pack a lunch, I have to drive to campus,’ and that all takes time.”
financial-aid services virtually may expect those services to stay online. In a survey of 502 undergraduates conducted by the consultancy brightspot strategy in late April, 28 percent said they were more likely to use online student services in the future. (The same percentage, though, said they were less likely to do so.)

“We’ve learned we can do a lot more remotely and virtually than we ever thought,” Olsen says.

If students prefer to receive at least some services and instruction online, what do they want from an on-campus experience? The brightspot survey offers some clues, although it didn’t ask that question directly. It asked how satisfied students were with aspects of their colleges’ pandemic responses.

One aspect that drew among the fewest satisfied and the most dissatisfied answers was colleges’ ability to make students feel that they belonged to a community. (Only “providing financial support” fared worse.)

Asked what aspect of Covid-19 college life was most challenging, the respondents’ most common answer was “separation from friends.” Students ranked community as the second-most important priority for their college experience, after academic matters — which far more of them felt satisfied about experiencing online.

Together, these results suggest that in a post-pandemic world, one of the forces that ought to shape campus spaces is the creation of community and the bringing together of friends, however that will look.
The Swartz Center for Entrepreneurship at Carnegie Mellon U.’s Tepper School of Business has open, reconfigurable spaces to support classes, workshops, and events as well to incubate new ventures.
Campus Spaces, Post-Pandemic

The Chronicle asked more than 40 architects, campus planners, and leaders in student life and housing about how different categories of campus spaces might be permanently altered by the Covid-19 crisis. As colleges navigate difficult financial straits, many interviewees predicted more public-private partnerships, and renovations instead of new construction. That approach can be less costly and more environmentally friendly. Overall, their answers paint a picture of future campuses that are more adaptable and perhaps smaller, and built around what’s most valuable about seeing one’s peers in person. Here is a detailed look.

TAKEAWAYS

Colleges will move to create more-flexible classrooms to accommodate online learning and the needs of different students.

The pandemic may accelerate the trend toward shifting private faculty offices to shared space.

Institutions will examine whether they’re making the most out of their physical spaces and may shrink their campus footprints to save money.

With the trend toward privacy and single rooms, the future of shared housing remains up in the air.
CLASSROOMS

Online learning during the pandemic has certainly had its hiccups. Yet many of the experts *The Chronicle* spoke with expected hybrid classes to persist into the future, a trend that will reshape the arrangement of classrooms.

Courses with at least some online, asynchronous components can be better for students who work or care for children during the day, who have health needs that are best taken care of at home, or who otherwise face barriers to coming to campus frequently. As students with more-diverse needs have enrolled in college, Doug Kozma, campus-planning director for the architecture firm SmithGroup, says he has seen “a really clear shift in space type.”

“The changing demographics of America are front and center,” he says. “Students of all different shapes and sizes need different spaces, and they need different access to those spaces.”

Even “traditional” students — those who are easily able to attend college full time — want a greater ability to do things when it’s convenient for them. “Everybody wants more flexibility,” says Elliot Felix, CEO of the consultancy brightspot strategy, “and flexibility generally means a mix of synchronous and asynchronous activities and more online.”

Hybrid and online learning may also help colleges deal with shrinking budgets. Both the California State University system and Arizona State University expect their enrollments to grow but fear not having the funds available to build additional classrooms. Cal State saw a $299-million budget cut this year, a result of falling state revenues. Leaders at both institutions are looking to online learning to help fill the gap. “I’m hoping that if there are campuses that are short on capacity for in-person instruction, that we can continue using virtual instruction,” says Elvyra San Juan, assistant vice chancellor for capital planning, design, and construction in the Cal State system.

What do classrooms look like when more students are taking courses online? They need more technology, which many institutions have already installed for fall 2020.

*ANTON GRASSI, ESTO*

Duke U.’s Link Teaching and Learning Center was created from repurposed library space and serves as a demonstration project for innovative space planning.
Flipped classes, in which students watch recorded lectures on their own before coming to campus for guided hands-on and group activities, were widely discussed and put in use before the pandemic. They might become even more common in the years ahead, which could stoke demand for flexible classrooms that can be quickly rearranged for different activities.

Large lecture halls, with their immobile and tightly packed seating, might decline, or so many consultants hope, believing that they’re not ideal for learning. “I typically say that when you have a large lecture hall, distance learning starts at the 10th row,” said Persis C. Rickes, a higher-education space planner who runs her own firm. “You might as well not be in the classroom at that point, because you are not engaged.” Since the pandemic has shown that large lectures can work well online, that realization might push colleges to keep at least some of those courses in that format, several planners said. (Meanwhile, during Covid-19, lecture halls have turned out to be an unexpected).

“We’re going to go into every room and we’re going to say, ‘Is meaningful connection going to happen in this space? Is something going to happen in this space that cannot happen online, that cannot happen at Starbucks?’”
ed asset, allowing small classes to be held in-person with social distancing.)

In an atmosphere of scarcity, institutions will examine closely whether they’re making the most out of their physical spaces and face-to-face time. “We’re going to go into every room and we’re going to say, ‘Is meaningful connection going to happen in this space? Is something going to happen in this space that cannot happen online, that cannot happen at Starbucks?’” says Shannon Dowling, an architect with Ayers Saint Gross. “Can students come here and create learning? And if they can’t, then is this space worth keeping in our inventory and worth paying for?”

Meanwhile, a move to more online learning might create the need for a different kind of space. In 2014, the Georgia Institute of Technology started an online master’s-degree program in computer science that costs $5,400 in tuition and fees for the required 10 courses. To date, the program has graduated 3,795 students, most of them over the age of 25 and already employed. Although they were not required to meet in person, students liked to do so anyway. They organized meet-ups in cities including San Francisco, Austin, and Bangalore. They formed groups like Nerdy Bones, for women, who made up 19 percent of the students in fall 2020. Administrators ran the numbers and found that as many as 80 percent of the U.S.-based

“Even the ones that happen five minutes before class and five minutes after class, those informal learning opportunities are really important to building learning communities.”
students in each cohort lived within a two-hour drive of one of 10 major population centers. That gave the administrators an idea: Build co-working-like spaces in those cities, where online students could work and meet one another. Each space, called an Atrium, would have career and advising services too.

So far, the university is developing just one Atrium, on its own campus, in Atlanta. But the need has become more urgent as more Georgia Tech students, including those who originally signed up for an in-person experience, are taking classes online. Administrators are seeing that students are talking with their professors and with each other less than they did before the pandemic. “The sort of interactions that happen outside the classroom, those are all missing,” says Stephen Harmon, associate dean of research for Georgia Tech Professional Education. “Even the ones that happen five minutes before class and five minutes after class, those informal learning opportunities are really important to building learning communities.”

Students report feeling isolated.

Like leaders on other campuses, Harmon expects that more students will take at least some classes online or in a hybrid format at Georgia Tech long after the threat of Covid-19 is over. In that case, the university will want to find ways to make sure those students feel engaged, which just might mean creating a physical space for them.

FACULTY OFFICES

At Ayers Saint Gross, architects used to call faculty offices the third rail.

Forward-looking campus planners had long advocated for fewer traditional, individual, closed-door offices, and more shared workspaces for faculty and staff members, like what many private companies have. The idea was that open, common work rooms would foster collaboration and make instructors more visible and less intimidating to students. A few phone rooms, meeting rooms, and lockers could serve for whenever somebody needed quiet, privacy, and somewhere to store belongings.

Having fewer private offices could also save on heating and electricity costs. On
Some of the most important Covid-driven changes to campus spaces may be invisible to most of their occupants.

For decades, scientists who study indoor environments have urged better ventilation and more fresh air in homes, offices, and schools. Although most people think of pollution as a problem with outside air, it’s often much worse indoors. That’s because paint, furniture, and even the fabric softener or hairspray people use can all release tiny amounts of chemicals into the air. Over years or decades of exposure, these chemicals can damage people’s hearts, lungs, and brains.

Bringing in air from the outside fixes the problem: Numerous studies have found that higher ventilation rates in K-12 schools are associated with fewer lung symptoms and absent days, and better test scores. But it can be hard to get institutions to prioritize improving ventilation. Indoor-air pollution doesn’t do immediate damage, like a leak or burst water pipe, and it’s not visible, like mold or chipping paint.

Then, in 2020, the coronavirus made everyone hyper aware of the possibility of invisible health threats indoors, floating in the air. “This Covid suddenly colored the air and you could see the problem,” says Jelena Srebric, a professor of mechanical engineering at the University of Maryland who studies indoor and urban health.

An international team of scientists has called for improved building ventilation to help protect people from indoor-air pollution, seasonal colds and flus, and the next respiratory pandemic. “Whatever we do now is not to deal with this pandemic, this virus,” says Lidia Morawska, a professor of atmospheric sciences at the Queensland University of Technology, in Australia, who’s been a vocal proponent of improved ventilation. “We are investing in our future.”

In general, researchers like Morawska are calling for buildings to have ventilation systems that:

- At minimum, meet airflow recommendations from organizations such as the American Society of Heating, Refrigerating, and Air-Conditioning Engineers. In the United States, many local building codes reference the Ashrae guidelines, yet many structures don’t meet them if, for example, they’re older and weren’t subject to the standards at the time they were constructed.

- Are flexible enough that operators can turn them up during respiratory-disease outbreaks or flu season, and turn them down otherwise, to save on energy and carbon emissions.
Some campuses have already made long-lasting changes that fall in line with these principles. To prepare for a coronavirus-plagued fall, Portland State University reviewed its heating, ventilation, and air-conditioning systems and, in some cases, increased the percentage of outdoor air that those systems brought in. Administrators bought high-efficiency particulate air cleaners for some classrooms and offices that were small enough for the machines to be effective, generally less than 1,000 square feet. The university upgraded as many system air filters as possible so that they met the MERV 13 standard. MERV stands for minimum efficiency reporting value, and filters’ MERV ratings indicate the size of particles that they’re able to remove from the air. Higher MERV numbers mean the filter can ensnare smaller contaminants. Unlike the MERV 8 filters that are common in commercial buildings, MERV 13 filters can capture bacteria and viruses.

Not all systems are built to handle upgraded filters, however. Denser filters require more powerful fans to pull the air through. About 10 percent of Portland State’s buildings couldn’t accommodate MERV 13 filters, says Richard L. Corsi, dean of the college of engineering and computer science there. For now, Portland State is not holding classes in those buildings.

Although these changes were made specifically to deal with Covid-19, Corsi believes many will last after the pandemic is over. “I think that many universities will stick with improved filtration and selective use of portable HEPA air cleaners,” he wrote in an email. One benefit that’s especially relevant to western campuses like Portland State: removing smoke during wildfire season.

Kansas State University also comprehensively reviewed its ventilation systems for fall 2020. Administrators decided to bring all buildings up to Ashrae’s standard, even older ones that did not require it. Julia Keen, a professor of architectural engineering who studies HVAC systems, looks forward to reaping the benefits long after Covid-19 is no longer an immediate threat in the United States. “We’re going to have a higher quality of air that we’re breathing on a daily basis,” she says.

Faculty members accustomed to their own offices can be loath to give them up, however. “Private faculty office space has always been a form of currency in higher education,” says Luanne Greene, president of Ayers Saint Gross. They’re a marker of accomplishment and prestige. Sometimes an office is written into tenure contracts. But with the pandemic-driven increase in work from home, Greene and her team have seen a shift.

“Within the last six months,” Dowling says, “I’ve heard many faculty members on the phone going, ‘Huh, maybe I don’t need this private office space after all.’”

Could the coronavirus be the crisis that pushes higher education to consolidate office space? Leaders are divided on this question. On the one hand, the availability of private offices has been crucial to a sense of safety among faculty and staff members coming to campus to work during the pandemic, says Morgan R. Olsen, chief financial
officer of Arizona State University. On the other hand, doing more work remotely saves money and creates a new appreciation of personal interaction. And the move toward more open, flexible, collaborative spaces on campus is long-term.

“Start with the people who are actually going to be in the space and then have discussions with them, and that will change the outcome.”

Jonathan Moody, CEO of Moody Nolan, an architecture firm in Chicago, believes the trend toward more shared offices in higher education will continue despite a temporary premium on private spaces because of Covid-19. Besides, he says, shared work spaces can still accommodate social distancing, should another disease that requires it come along. “The quick math is, if you draw social-distance circles versus if you take the typical square footage that’s needed in a corporate office space, it’s about the same average square foot, per employee.”

Others are waiting to see how the faculty-office issue will shake out.

“We’ve got some more backing and forthing to go,” Greene says.

The University of Washington at Bothell is one campus where switching to smaller private offices and more shared workspace for some faculty members has turned out well. In 2015 the university hired 27 tenure-track faculty members — when it had only one or two private offices available. “We were in crisis mode,” says Amy Van Dyke, director of physical planning and space management. Susan Jeffords, vice chancellor for academic affairs at the time, came up with the idea of moving some administrative units off-campus, then reconfiguring that space as shared faculty work areas.

The team in charge of the remodel initially planned to design the workspace first with architects, then decide who would occupy it and get their input. But David Socha, an associate professor of computing and software systems who joined the remodeling team, disagreed. “From all my experience in software development, because I spent 19 years in industry before coming back to academia, I knew that it would be much more effective if we actually knew who the users were first,” he says. “Start with the people who are actually going to be in the space and then have discussions with them, and that will change the outcome.”

At the University of Washington at Bothell, a plan to switch to smaller private offices and more shared workspace for some faculty members has turned out well.
There was a pause when he aired his suggestion, he says, and then the team embraced it. Socha went out to find who would be interested in occupying the new style of office. He came up with many members of his own department, who were scattered in buildings across the campus and wanted to be nearer one another. “We’re a very social group,” he says. “We like each other.” He also recruited faculty members from the School of Educational Studies.

Faculty members in computing and software systems had long discussions before agreeing to the move. They’d be giving up 140-square-foot offices for 80-square-foot ones. In return, they would get a big conference room and numerous smaller collaboration areas between their offices.

Five years later, Socha says the trade-off was worth it. It’s so easy to pop over to ask a colleague a question. Instructors often hold office hours in the collaboration areas, which can accommodate more students than traditional offices can, so the same questions don’t get repeated as much. It gives adjunct faculty members a dedicated place on campus to work and keep their stuff. Administrators in the parent School of Science, Technology, Engineering, and Math are housed in a different building entirely, but sometimes one or two will come work in a departmental common area, to help them stay in touch with the faculty.

A few longtime CSS faculty members didn’t want to give up their big offices and weren’t forced to. Fortunately, enough people volunteered to move for the university to be able to house all of its new hires.

Not all of the promised benefits of open workspaces materialized. Despite sharing common areas, there’s been little collaboration between faculty members in computing and in the School of Educational Studies, Socha says. He speculated that it might be because they’re not often in the office at the same time. Many computer-science classes are in the evening, so that’s when faculty members are normally there; education classes are more often held during the day.

Of course, few faculty members have gone to work on campus since the university shut down most in-person operations in March 2020. Whenever they can go back, however, Socha is looking forward to returning to his office. The pandemic hasn’t changed his opinion of its rewards.

He credits the office plan’s overall success to the fact that it “supports each faculty member’s uniqueness.” They can still personalize their 80-square-foot individual offices with posters and plants. And those who preferred their traditional setups didn’t have to give them up. “If we really want the faculty to be their best, and I think that’s what students want, then it’s prudent to not force structure,” he says. “We are not machines. The work we do really has to be creative.” It helps if the office kind of feels like home.

**STUDENT SERVICES, LIBRARIES, AND ADMINISTRATIVE OFFICES**

Outside of the faculty, planners have also advocated for more-open floor plans for administrators and staff offices. These kinds of spaces have also been subject to the trend toward consolidation in the quest to save money and retain students.

Where real estate is at a premium, colleges have moved non-student-facing functions to the edges of campus, or even off-campus. Before the pandemic, university advancement and information technology were among the departments commonly located away from the campus core. In addition, many universities with large library collections moved less-accessed stacks out of campus libraries. In the future, institutions may look even more critically at questions such as, “Who needs space in the core of the campus? Why do they own it? How much do they use it? What is it for?” says Kozma, of SmithGroup. Those whose an-
answers don’t suggest they need to be centrally located may find themselves moved out.

The result is space freed at the heart of campus for student services. Staff members at several architecture-and-planning firms say they’ve seen a trend toward one-stop shops for academic or financial support, for example, by housing writing and tutoring centers in the main undergraduate library, alongside study spaces. The library and its services may become even more important if more students take classes online. “Given some of their home situations, they may want to come on campus and use their laptop in the library to take advantage of the WiFi,” says Christine Wolff-Eisenberg, a researcher who has been surveying college librarians for Ithaka S+R, an education consultancy. “They may have families of their own and want some quiet space.”

Or look at what Normandale Community College built just before it went remote in the spring. Worried that first-generation students found its bureaucracy confusing, the Minnesota college created an integrated office where students can come with questions for the financial aid, records, and payments departments. Right inside the front door is a large, open space where staffers and coaches can answer most questions. For students with tougher questions, private consultation
rooms provide space for coaches to meet with them.

Previously, financial aid, records, and payments were located in the same building, but at separate windows, for which students had to stand in line. “A student had to figure out which office they needed. So they may go to payments and billing when really what they had was a financial-aid question,” says Lisa Wheeler, vice president for finance and operations. Or they might have had to visit more than one office and repeatedly wait in line. In the new model, students don’t have to figure that out. “We’ll figure out what they need,” she says. Complex questions are handled in one smooth visit.

At least that was the plan. Covid-19 means that the center hasn’t had the chance to be used as designed. Nevertheless, it has come in handy for those students who come to campus seeking help. The large welcome area has been good for social distancing, and staff members direct students to the consultation rooms to teleconference with coaches who are working remotely. The rooms are cleaned between visits.

The Covid-19 crisis has sharpened higher education’s focus on low-income, first-generation, and other vulnerable students, who are dropping out of college in disproportionate numbers. Where smarter use of space can ease their journeys, architects say, expect those trends to continue.

**DORMS AND DINING**

As residential colleges reopened for fall 2020, many reduced the number of students who shared rooms in residence halls. Where they felt they could, they gave students their own rooms. Meanwhile, at some institutions that allowed roommates, residence halls became coronavirus hotspots.

Having seen their predecessors go through that experience, will future students be wary of the idea of sharing a bathroom with dozens of other people living on their floor? Will they more often demand single rooms? Experts brought up a variety of considerations regarding the outlook for shared housing, post-Covid-19.

Many say there’s long been a trend toward more privacy and single rooms. “It was driven by consumer demand,” says Frankie Minor, housing director at the University of Rhode Island. “About 90 to 95 percent of our incoming students have their own rooms at home, so the concept of sharing space with anyone is a little unfamiliar and uncomfortable, initially.”

In addition, colleges that find themselves serving more-diverse students may also want more single rooms. “There are students with learning differences. There are students with different medical conditions, mental-health conditions. Higher ed has been trying to be much more inclusive to the variety of students that they accommodate,” says Dennis Lynch, an architect at Ayers Saint Gross who specializes in housing and dining spaces. “Singles help give flexibility to be able to accommodate students with a variety of needs.”

Then, when the coronavirus pandemic arrived, it favored those institutions that already had more private student housing. Minor is on the Executive Board of the Association of College and University Housing Officers - International, which has been tracking the capacity of college housing. The institutions that have been able to book their rooms close to normal levels — and therefore didn’t take a big hit to that budget line — have more apartment- and suite-style housing, he says.

At Rhode Island, typically, two-thirds of incoming first-year students were assigned not just to shared rooms but to triples created from what were originally designed to be
doubles. The university eliminated triples for fall 2020, and Minor doesn’t think they’re coming back. They were already unpopular with students, and administrators had discussed phasing them out. Covid-19 accelerated that conversation.

Minor thinks similar discussions are happening at institutions that, like his, had packed extra students in rooms to try to meet demand. The downside of the new arrangement may be that fewer people who want on-campus housing will be able to get it.

Institutions have tried a variety of configurations to build more private rooms on a set budget, and to offer singles more affordably. Moody, the architect, has seen quad setups, in which four singles share a bathroom. Rickes, the space planner, predicted more micro rooms, like the University of British Columbia’s “Nano Suites,” which pack a private bathroom, kitchenette, and Murphy bed/desk into 140 square feet. Such a shift might have further space-use implications. “You start pulling on that thread,” Rickes says. “What happens if you have micro rooms? Well, you might see increased use of the library because students are looking for study space.”

Other planners and housing officers pointed out that over the long term, many institutions can’t afford to rent out their doubles as singles. In addition, barring an infectious-disease epidemic, colleges may want their newer students, especially, to live with roommates.

At Presbyterian College, in South Carolina, many first- and second-year students live in double rooms that share a bathroom with another double. Later the students may move into singles or apartments. The college remains committed to this housing cycle, believing that double rooms teach students valuable lessons about thinking of others and help them make friends early on. “We believe strongly that our residential facilities benefit our students and contribute to the college,” Andrew Peterson, associate dean of students, wrote in an email, “not just financially, but specifically in ways that enhance the academics and development of our students.”

On the other side of the country, the California State University institutions have traditionally been commuter campuses, but in recent years, they’ve sought to build housing that would allow more students to live like those at Presbyterian. “Even with the pandemic, campuses still have, in their five-year plans, additional bed spaces and trying to increase the amount of lower-division students that are on
campus,” says San Juan, the system’s planning-and-design official. The universities found better retention rates among students who live on campus, with roommates, in their first years. “That’s one of the key drivers,” she says.

To further improve retention, Cal State universities have also planned to include counseling, tutoring, and faculty living spaces in their residence halls, a trend architects say they’re seeing nationwide.

In contrast, housing officers and planners say that the age of luxurious dorms, packed with amenities that would seem to have little to do with academic matters, is over. It had already been declining, as students and families became more conscious of college costs and student debt. The current recession is the last nail. “You’re going to see emerging a more heads-down generation,” Rickes says. “They want to be reassured that they can get a job at the other end.”

Other parts of student-life operations that look very different in fall 2020 are expected to return to their pre-pandemic configurations as soon as possible.

In the fall, many dining halls were rearranged for grab-and-go meals, but in the long run, administrators want to see cafeterias as a place where students spend time together. “We haven’t seen people disinvesting in them,” says Kozma, the campus planner. “These are social spaces in which students make memories. They are likely not going to go away.”

Campuses set aside housing for quarantine and isolation in the autumn, in case of Covid-19 outbreaks. Some eventually had to pause or abandon in-person operations because they ran out of room for quarantined students. Yet housing officers didn’t think that, in the future, their peers will aim to keep any more than a small percentage of their housing stock free for emergencies, such as illness, maintenance problems, or irresolvable roommate conflicts. “For most housing operations that operate as an auxiliary, their budgets are getting built on at least 90-percent occupancy,” Minor says. “Some of them may operate even higher than that.” He didn’t see those budgets changing: Many of the costs of maintaining housing operations remain the same, even if fewer students live on campus.

**OUTDOOR SPACES**

There is one post-pandemic change in space use that campus planners see as an
unmitigated improvement: how Covid-19 has pushed colleges to make greater use of their wide green lawns, quads, and terraces.

As the coronavirus crisis progressed through the summer of 2020, it became clear that spending time with other people outdoors was much safer than doing so indoors. Several colleges ordered tents so faculty members could teach outside. Most of those will probably come down with the winter and the eventual passing of the pandemic. But across the country, in varied climates, administrators have made improvements in their grounds that they say they’re glad to keep.

Colleges bought new outdoor furniture or made sure their existing picnic tables were in good repair. Arizona State built permanent aluminum shade structures to make hanging out under the Phoenix sun more appealing. Arizona State, Cornell University, and the University of California at San Diego are among the campuses that improved WiFi coverage and the availability of outdoor electrical outlets. The California State University system held classes predominantly virtually in fall 2020, and several campuses set up WiFi in parking garages so that students without speedy access at home could drive in to complete their coursework.

San Juan, of Cal State, expected these WiFi hotspots to stay even after the system returns to predominantly in-person instruction. In addition, she has seen constituent institutions submit requests for small amphitheaters and landscaping upgrades.

Before the pandemic, there had been a big push for colleges to better use their outdoor green spaces, which studies show can relieve stress and improve concentration. But tasks such as fixing shade umbrellas often fell low on the priorities list, says Peterson, of Presbyterian College. Now those umbrellas have gotten respect, and the campus environment is better for it.
To see how several of the trends discussed in this report can work together on one campus, it’s helpful to consider some case studies. At Ohio University, the planning office is looking at how more hybrid work and flexible, shared spaces can create major savings at a tough time. Meanwhile, the University of California at San Diego shows how changes made now, to deal with the public-health threat, may become a permanent part of the campus environment. Finally, Pima Community College demonstrates how campuses may begin holding large, public events again, even before Covid-19 is fully controlled. In late October 2020, it hosted then-vice-presidential candidate Kamala Harris for a drive-in campaign event.

At a campus that’s seeing major budget cuts in the years ahead, thinking flexibly about campus space may help reduce expenses and even generate new revenue.

Changes that were motivated by public health, such as more touchless systems and room-occupancy monitoring, may linger long after Covid-19 is brought under control.

Drive-in gatherings may be one way for colleges to hold events before a vaccine is widely available.
Even in 2019, before the coronavirus swept the globe, Ohio University recognized that it was too small for its britches. “Our university couldn’t maintain the size that we are with the kind of revenue generation that we had,” says Shawna Bolin, associate vice president for university planning.

Enrollment wasn’t necessarily the problem. For decades, Ohio’s student numbers have climbed; they’ve only started falling since 2017. After long-time declines in state funding, however, the university needed to look elsewhere for revenue. And the campus didn’t always use its space efficiently, Bolin says. She gave an example: Until a recent renovation, a historic paper mill on campus housed of deferred-maintenance needs. But the former industrial warehouse had the structural strength required for labs, for which there was growing demand. Were desks and filing cabinets really the best use of that building? Bolin’s team spent $30 million to overhaul the space, creating labs and moving the offices to a less heavy-duty facility.

Ohio had already been thinking about how to use campus buildings more efficiently and save funds for expanding programs like the health sciences, when Covid-19 transformed its prospects for the future. “The biggest overarching change for us, No. 1, is financial resources,” Bolin says. In early October 2020, after she spoke with The Chronicle, the university reported to its Board of Trustees that it expected a budget deficit of $290 million over five years if it didn’t take action. By then it had already done three rounds of layoffs and nonrenewals of instructional contracts, letting hundreds of people go.

Bolin’s team developed a proposal to stop using enough buildings on campus to shrink its square footage by 25 to 30 percent. (In a draft proposal she shared, the plan amounted to taking more than 50 facilities offline.) The buildings could then be demolished, sold, leased, or managed as public-private partnerships, generating new funds. At the very least, Ohio would no longer be on the hook for the buildings’ heating and electric costs. In an interim proposal that hadn’t yet been vetted by the financial and facilities departments, Bolin estimated the plan would rid the university of more than $70 million in one-time deferred-maintenance costs and more than $7 million in annu-

### University Space Reduction

Before Covid-19, Ohio U.’s space-planning office had already planned for a smaller footprint for the campus. It’s now proposing a further reduction.

<table>
<thead>
<tr>
<th>Gross square footage</th>
<th>Current</th>
<th>Reduction from current proposal</th>
<th>Reduction target, 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>9,749,805</td>
<td>9,554,188</td>
<td>9,261,090</td>
<td></td>
</tr>
</tbody>
</table>

Source: Ohio U. Strategy and Innovation Office
al utilities and operations. It could require some $20 million in upfront funds for relocations, demolitions, and fixes for the next users.

To make the university function on a smaller footprint, Bolin’s team came up with a raft of ideas that embody many of the trends discussed in this report. They also demonstrate a new way of thinking about campus spaces, born out of financial need. “One of the key taglines that we like to say is: ‘Space is for function, not people,’” Bolin said.

For example, about those sorely needed labs: Departments currently have labs only for use by their faculty. To make the most out of those expensive-to-build facilities, the university is working on a new system in which labs are shared and bookable by more people. The same is true for other kinds of campus space. “Where it says that seminar rooms, meeting rooms, classrooms are all different, have different access and scheduling tools, we want to integrate it all,” Bolin says. Department X’s conference room then becomes just a room, with a certain number of seats, that instructors from a different department could book for a small class, or administrators or student leaders could schedule for a meeting.

Ohio is moving forward with plans for more shared, open work spaces and fewer private offices, with the expectation that more staff will work from home at least some of the time, from now on. Like the labs and meeting rooms, some office spots will be bookable, for whenever people are on campus. Depending on how many people agree to the change, Bolin thinks Ohio could shrink its office square footage by half or more.

Since they’ve begun working remotely, as a result of Covid-19, Bolin thinks staff members have been “more accepting and understanding” of shared offices when they do come on campus. The university-advancement division recently sent her its own proposal to fit about 60 staff members into an office space that can hold 30 at a time. She’s also beginning the process of setting up flexible workspaces for faculty members — she’s met with the faculty senate and will be interviewing people about their needs next.

“We recognize that there are external factors that will always be there, that affect what we do, and we can’t control them,” she says. “But when they happen, what we can control are the internal factors and how we respond to them.”
At the University of California at San Diego, enrollment has soared in the past several years. From 2010 to 2020, it rose 34 percent. From 2009 to 2019, the percentage of undergraduates from out of state — who pay a sticker price three times that of Californian students — increased more than threefold. And while UC San Diego is projecting financial losses for 2020 and 2021, they aren’t as great a proportion of the university’s overall budget as at some institutions facing steep enrollment drops.

Thus, instead of consolidating space, UC San Diego is making tweaks to better track density on campus and to minimize the objects and places where many hands touch. Although those changes were pandemic-inspired, they'll remain after the threat is over.

“We are implementing new and innovative ways to keep the buildings safe,” says Gary Matthews, vice chancellor for resource management and planning.

In fall 2020, Matthews’s team began an effort to install occupancy trackers in more than half of the university’s spaces. As of early December, they had completed 30 percent. The trackers use different technologies, including detecting movement in the room (in older buildings) and capturing WiFi and Bluetooth activity (in newer ones). The university has purchased a system from OccuSpace, a company founded by an alumnus, that estimates the number of people in a room using device pings and sends the information to an app. App users can then see how crowded the libraries, gyms, and dining halls are at the moment, and decide where they want to go.

The tracking equipment will stay after the pandemic is over because knowing building occupancy is helpful for emergency management, Matthews says. Plus, as Nic Halver-son, OccuSpace’s founder, told Pacific, a local news website: “Covid helped a lot of people start to see more value in telling people how busy a space is before they come.”

UC San Diego is also making more purchases cashless. It’s installing automatic doors and doors that can be opened with feet. It’s building a fulfillment center in a parking structure, where students can pick up materials they’ve ordered from around campus — library books, items from the bookstore, public records — without having to enter any buildings or interact with staff members.

One major space investment that the university continues to make is on-campus housing. The original motivations included the university’s projected continued growth and the fact that rents in the surrounding neighborhood are high. Then the pandemic demonstrated an unexpected advantage: Compared with off-campus apartment buildings and Greek-letter houses,

“...The occupancy sensors, the sewage review and testing are part of that safety net that we can provide that you couldn’t get in the neighborhood.”
on-campus residence halls are easier to monitor and to enforce rules in. Administrators can take stronger measures to prevent infections originating on campus from migrating into town.

Students living on campus are subject to one particular type of monitoring that’s not available off campus. Matthews’s office tests the sewage from residence halls, to catch coronavirus outbreaks as early as possible. More than 65 colleges are monitoring their dorm wastewater, according to an analysis by NPR. Colorado State University, the Rochester Institute of Technology, the University of Arizona, and the University of Virginia have all detected cases in this way.

“The occupancy sensors, the sewage review and testing, are part of that safety net that we can provide that you couldn’t get in the neighborhood,” Matthews says.

Contrary to what many planners say is a trend away from on-campus amenities, UC San Diego does plan to offer some perks in a future housing complex, including restaurants and a Target store that sells fresh groceries. It’s all aimed at encouraging students not to leave campus. “I think that’s going to make the difference in terms of students staying on campus and feeling safe and, most importantly, supported on the campus,” Matthews says.

After Covid-19, more colleges may invest in their on-campus housing, he believes. “Other institutions may also embrace an enhanced need to have students living on campus. That’s more of a guess at this point, but I think it’s clear to us that our building program has made a difference and will continue to make a difference in terms of providing a safe environment for our students.”

The U. of California at San Diego, which allowed students to move back in during the fall 2020 semester, is closely tracking density on campus and minimizing the objects and places where many hands touch.
CASE STUDY

PIMA COMMUNITY COLLEGE

Drive-in gatherings may be one way for colleges to hold events before a vaccine is widely available.

HOSTING LIVE EVENTS AGAIN

W illiam Ward, vice chancellor for facilities at Pima Community College, in Tucson, is eager to play host again. “I would love to see people assemble,” he says. “I would love to see people feel better about the whole thing.”

Before the Covid-19 pandemic, many colleges rented out their facilities for conferences or sponsored community events. That gave community members a chance to visit and feel connected to the campus. At some institutions, those events were also important sources of revenue. “On many campuses, it is definitely a big part of making their financial model work,” says Dennis Lynch, an architect at Ayers Saint Gross, who specializes in housing and dining. “So they will be highly motivated to have that return as soon as they can.”

Pima got an unusual chance to rent out its facilities deep in the pandemic. In early October, the vice-presidential campaign team for Kamala Harris asked to hold an event on one of the campuses.

The college’s facilities office and police department set up a drive-in rally at Pima Community College West. The campaign invited 100 guests, who had to go through designated entrances and past stations for temperature and security checks. Then they parked about 15 feet apart to watch the speakers on a stage or on the Jumbotron screens installed in the parking lot. Some spectators stood in front of the stage. Har-
ris’s remarks were met with more honks than the usual cheers; one man brought a whistle. “It gave me ideas,” Ward says. “I liked how we set up the parking lot and how they wanted to operate. I thought, ‘Well, that’s pretty cool. We could use that if we did a drive-in event.’”

In fact, Ward and his team have already begun holding several large, weekly, parking-lot events of a sort. Beginning in mid-November, three Pima campuses became drive-through public coronavirus-testing sites. The college has also volunteered to hold pop-up vaccination sites when Covid-19 inoculations become available, Ward says. Those may be drive-through as well. To him, Pima is a good partner for such public events because it has campuses throughout the county.

The college’s ample space has been a blessing and a curse. It has allowed Pima to host services like the drive-through testing, but it’s also been a drain, sitting unused. The problem predated the pandemic: The college suffered enrollment declines as a result of a real-estate crash that began in the region in 2007. Then Pima’s accreditor placed it on probation in 2013. The Higher Learning Commission ended Pima’s probationary period in 2017, but the college is still assessing what to do about excess space should enrollment numbers not improve, Ward says.

“We’re sitting on too much real estate,” he says. “It’s going to be a major issue for entities like us.”

In an unprecedented move, the Arizona Legislature stopped funding Pima and other community colleges in 2016. But Pima still gets revenue from local property taxes, so Ward feels an obligation to open his campuses for community events. “People have got to go back to their work and live their lives,” he says, “or this place is going to be worse off than it is now.”
The Chronicle of Higher Education

Explore the Store

No matter your area of expertise or where you are in your career, the right information is critical to succeeding in a rapidly changing world. Visit the Chronicle Store to get more of the essential tools, data, and insights you need to make the best decisions for your students, your institution, and your career.

Store.Chronicle.com
From breaking news to key insights to real-world advice, *The Chronicle of Higher Education* is dedicated to serving academic leaders and professionals. Our newsletters, subscriptions, special reports, and exclusive data projects provide a comprehensive view of the latest trends and critical issues affecting academe. For more than 50 years, higher-education professionals from around the world have trusted *The Chronicle’s* in-depth reporting and analysis to understand their world and make informed decisions.