24.

Talking about...
Communities in the Future Tense

Education Shifts the Frame
The Town Square Reimagined
Airports with a Human Touch
The Social Art of Staying Well

A Gensler publication
I’m interested in applying the idea of experimentation to cultural mechanisms of production. How do you do it? You look at the places where there’s a need for new tools, the kind we associate with performance or filmmaking.

R. Luke DuBois, a founder of MAGNET, a shared program of NYU and NYU-Poly
EDUCATION

SHIFTS

THE FRAME
Workplace revolution? Now it’s education’s turn, for many of the same reasons: to make programs more effective, spur productivity and innovation, and give its facilities greater flexibility and operating efficiency, and far more intensive use.

Shedding its cloistered traditions, the sector is turning to collaborative, project-based learning, where the instructor is as much facilitator as teacher. Hallways? They’re places for serendipitous encounters. Faculty lounges and offices? They’re being supplanted by “third places” for mobile work and conversation—used by faculty, staff, and students. The rise of interdisciplinary programs means that artists, designers, engineers, and scientists are often sharing the same space.

“All this means that we have to be 10 steps ahead of the curve,” says Gensler’s Maddy Burke-Vigeland. “The programs have changed and some disciplines are entirely new.” Technology, while ubiquitous, is equally in flux as the institutions struggle to support information sharing and access to communication and tools. “Everything is on the table,” adds Gensler’s Josh Katz. “Our academic clients’ demands and aspirations aren’t being met by current models, so they’re looking for new ones.”

Questioning assumptions
Consider technology: wired is not necessarily inspired. On their own, Wi-Fi, high-definition monitors, and other bells and whistles can’t ensure that a setting will even be functional, let alone attractive. Indeed, many academic institutions have reached a tech saturation point. Its inclusion is not enough, they realize, to create a dynamic learning environment.

Then there’s collaboration: a Gensler survey of college and university students found close to a 3-to-1 preference for solitary over group work. “I get more accomplished when I’m alone. I can focus more easily on the task at hand,” wrote one respondent.

This finding maps closely with Gensler’s 2013 U.S. Workplace Survey. Like the office workplace, interdisciplinary settings have to balance interaction with the ability to work without distractions.

A feasibility study for Cornell University’s School of Operations Research and Information Engineering (ORIE) addressed the reverse situation: isolated in their individual offices, its graduate students wanted to function more as a team. In a visioning session, “they told us to open up the floor and create social zones where they could interact with the faculty and each other,” Gensler’s Mark Thaler explains. “Isolation in large doses is as harmful to researchers as too much distraction.”

Housing interdisciplinary R&D
Gensler’s ongoing involvement with interdisciplinary R&D in university settings gives its teams a leg up in understanding the issues and how to solve them. At New York University (NYU), for example, Gensler designed a social-science research setting. “When space is at a premium,” says Burke-Vigeland, “the ability to adapt quickly and responsively to the changing needs of these grant-funded, interdisciplinary programs is where the value is. Flexibility is mandatory.”

The Richard C. Blum Center for Developing Economies at UC Berkeley supports an interdisciplinary R&D program addressing the endemic problems of developing

above: The University of Pennsylvania’s Wharton School campus in the Rincon district of San Francisco.

opposite: The new campus of the independent K–12 school, Campbell Hall, Los Angeles, with artwork by Mary Woronov.

interdisciplinary, interactive, and hands-on.
countries. Blum faculty and students share a building with the College of Engineering that’s designed for a constructivist—learn-by-doing, hands-on—learning model. The heart of it is the lab as the center of inquiry. Blum’s lab concept takes its cues from collaboration—real and virtual. When you see it, though, it doesn’t look like a lab. “The old paradigm tailored the lab to the engineer or the scientist,” says Gensler’s John Duvivier. “Blum’s labs are open-ended. Whatever direction the research takes, the labs can support it.”

Another example of the trend is the International Design Center in Cambridge, Massachusetts, jointly developed by MIT and the Singapore University of Technology and Design. It combines elements of an engineering laboratory, design studio, and fabrication facility, providing a collaboration hub for the sponsors and their institutional partners.

At a much larger scale, Gensler is working with Renmin University in Beijing—China’s “People’s University”—to develop a second campus focused on science and technology. Just outside the capital’s urban core, its state-of-the-art research and teaching facilities are organized as clusters in a parklike setting, connected to each other by courts, plazas, and walkways. The Duke University campus in Kunshan (DKU), opening in 2014 near Shanghai, will also encourage people from different fields to walk and mix.

K–12’s interdisciplinary revolution

As K–12 schools refocus on team-based, interdisciplinary learning, they are moving away from standardized, teach-to-test programs that assume a one-size-fits-all approach to teaching. Instead, there is a growing awareness that students learn in a variety of ways, and the differences should be supported. The students often learn better by doing it themselves, so teachers are there to facilitate, not just to instruct. Technology is there as a tool and resource, not as a visual aid or talking head.

Gensler is working with one of the global pioneers, the PlayMaker School in Los Angeles. Behind the venture is GameDesk, the recipient of the largest-ever AT&T education grant. GameDesk views gaming as an interactive medium for learning. Launched with a sixth-grade class, the PlayMaker program builds on play and explores how its young students can use a variety of tools and games to learn in new ways. Instead of classrooms, PlayMaker School has a suite of spaces that are interconnected physically and visually. There’s an idealist lab, a maker space, and an immersive gaming and learning zone where the students can try out the games they create and the software they develop. “There’s no teacher at the front,” says Gensler’s Shawn Gehle. “The rooms are like different scenes in a video game. They inspire active learning.”

Also in Los Angeles, Wiseburn High School will collocate three charter schools into a renovated 330,000-square-foot building, the former high-security offices of an aerospace firm. Given the radical change in function, “we’re basically hacking an office building, using strategic interventions to reshape it to fit the schools’ project-based curricula and support their combined staffs and 1,200 students,” says Gensler’s David Herjeczki. Like PlayMaker, Wiseburn moves away from the traditional classroom, opting for neighborhoods of teaching spaces—“pods”—that open out to a large commons area for each school and an atrium that interconnects all three but provides each with a unique address.

Embracing STEM

Two buzzwords in K–12 education are STEM (science, technology, engineering, math) and STEAM (STEM plus art). Both prioritize inquiry-based learning that can equip students with the ability to think out all the angles of a problem. STEM has real implications for how teachers interact, says Thaler. “When you put

The rise of interdisciplinary programs means that artists, designers, engineers, and scientists are often sharing the same space.
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Making of art and music. Studio spaces for hands-on making of art and music. When Gensler first looked at the Dwight-Englewood School in New Jersey, its campus planners realized that the STEM program had separate buildings for math and science. "It wasn't really STEM," Thaler says. "The new campus plan called for a building that would support a truly interdisciplinary curriculum."

"They have to stretch their conception of what's being taught." They have to cross-collaborate on lesson plans. Math and science teachers together, they can do a math lab at the table or a science lab at the bench. The lab classrooms can shift easily between modes: students seated around a large table or working as teams around a lab bench. The lab classrooms can shift easily between the two modes, so they're slightly larger than tradition dictates. The idea is that you can do a math lab at the table and a science lab at the bench. The labs have all the traditional equipment, but—designed for mobility and portability—they can be quickly reconfigured. "What's radical about the building is that it can support the gamut—biology, chemistry, whatever anyone wants to teach," Thaler says. Elective affinities: Within K–12, interdisciplinary programs are a top-down mandate. Within higher education, experiments and initiatives to break down walls are often undermined by tradition and turf wars. Lately, though, the tide has turned. It's not just because of financial pressures and scarce real estate—interdisciplinary learning has traction because everything is moving that way.

"To succeed, STEM and other interdisciplinary programs need to create propinquity—literally, nearness—among their participants." To its credit, NYU has doubled down on interdisciplinary education. "We learned that a top-down mandate. Within higher education, experiments and initiatives to break down walls are often undermined by tradition and turf wars. Lately, though, the tide has turned. It's not just because of financial pressures and scarce real estate—interdisciplinary learning has traction because everything is moving that way. Emblematic of this sea change is the Gensler-designed Media and Games Network (MAGNET) facility in Brooklyn's MetroTech Center. MAGNET brings together faculty from four different schools at NYU and the Polytechnic Institute of NYU (NYU-Poly) to establish a new digital design program that, by combining talent and resources, creates synergies that go beyond what the participating schools could achieve on their own. MAGNET, which opened in September 2013, collocates teaching and research programs in such areas as a creative art form, game design, digital media design, computer science, and engineering. Each program retains its department affiliation and school identity. Gensler’s design team worked closely with the faculty to understand the needs of its bleeding-edge curriculum. MAGNET "is designed to foster interaction," says Burke-Vigeland. It does so by trading traditional classroom settings for a much greater proportion of open spaces for interaction and collaboration. R. Luke DuBois, NYU-Poly Assistant Professor and founding member of the MAGNET faculty, is excited. "In its credit, NYU has doubled down on interdisciplinary education," he says. "The new facility means "we're all in each other's faces." Along with collaboration space, there are places for hands-on work—making digital art, design, and music; developing software; and other creative activities. The space, one floor of a 19th-century loft building, wasn't an obvious fit for traditional academics, but works fine for MAGNET. There are typical classrooms with four walls and furniture to match, but the spaces in-between grab attention. Writable surfaces line the hallways, and the learning spaces are designed to be visible from the common areas so that learning can move freely between them. NYU Steinhardt Professor Ricki Goldman, also a MAGNET faculty member, sees it as a template for other new teaching and research settings at NYU. "When people meet and share viewpoints, they need to find a structure that helps them understand one another, that builds commensurability among the group," she says. In her view, design for education is moving "from a closed to an open space, and from fixed to flexible." The academic setting should be
Talking About Community

A place of balance where light and dark, activity and rest, find an internal harmony that frees students and faculty to achieve their creative potential. That’s as true for science and technology as for art. STEM and STEAM leaven the learning process as their fast-changing worlds play out in real time as conversations, arguments—spirited engagement that motivates students and researchers alike. “This is an amazing time for designers of educational campuses and facilities,” Katz observes. “There’s a real desire among academic clients at every level to break the mold and find solutions for a new era.”

Allison Arieff is a content strategist at San Francisco’s SPUR and a contributing columnist for the New York Times.
**What’s MAGNET and why is it interdisciplinary?**

Ricki Goldman: MAGNET is our new interdisciplinary and inteschool teaching, learning, and research site at NYU’s expanding campus in Brooklyn. MAGNET’s focus is on design, research, and experimentation with new kinds of digital media environments, such as games. It’s also a place where scholarship meets maker and game culture. My hope is that MAGNET will become an exemplar of studio-based learning and design that takes full advantage of what these emerging media technologies afford.

MAGNET brings together programs from four schools at NYU—Steinhardt, Tisch, Courant, and NYU-Poly—to look at complex design issues from a range of viewpoints and disciplines. Disciplinary knowledge from our schools becomes a vehicle for interdisciplinary design and invention in this new setting. A synergistic layering of ideas can occur as we meet and interact in the hallways, classrooms, and lab spaces. Several of the faculty have worked collaboratively on grants and research over the past few years. Now our students are also part of the evolving, interdisciplinary “atelier” culture, where ideas, knowledge, and technologies become the basis for a new kind of 21st century learning environment on our campus.

R. Luke Dubois: In engineering, experiment means something really specific. It’s the iterative testing of a hypothesis, something you think might happen. You try it out and if it doesn’t go as you expect, you adjust and try again. You keep doing this until you get an answer. I’m interested in how you can take that idea of experimentation and apply it to cultural mechanisms of production. It means looking at places where there’s a need for media research or for tools borrowed from performance, filmmaking, or theater. You find them and apply them. The gaming component of MAGNET is a really useful point of departure, prompting conversations around human-computer interactivity. Games are linked to the performing arts. You can technology to evoke a kind of mediated theater. It all gets mashed up so there’s no genre, not even a name. I want the students at MAGNET to be exposed to that sensibility: that the boundaries are really fluid.

**Do individual disciplines just fade away?**

RG: Not really, because it’s the interchange and exploration among disparate disciplines with overlapping concerns that create interdisciplinary knowledge. Over time, new disciplines emerge. Knowledge is never fixed. New fields of scholarship are continually evolving as cohorts with similar concerns come together to share their different perspectives and understandings. What’s exciting about MAGNET is that we can do this in a space that’s designed to facilitate it.

**I want the students at MAGNET to be exposed to that sensibility: that the boundaries are really fluid.**

—R. Luke Dubois

**How is MAGNET new?**

RG: Over the last few years, a group of us at Steinhardt tried to create an atelier-like classroom using traditional teaching spaces in our building on Washington Square. But there was no place to keep the flow of ideas that we generated in the classroom alive after class was over. Now we have a place to spark or capture ideas before and after group events. MAGNET blurs the lines between the formal and informal learning spaces. It’s filled with nooks and corners to continue conversations and whiteboards to jot down ideas. There are places for solitary work, as well as production spaces where groups of students and faculty can create and invent. MAGNET is designed to promote serious interaction and stimulate deep engagement. It’s a place where people from different disciplines—each representing a different discipline—can meet, converse, be inspired, design, invent, solve intellectually-important issues, and have quite a bit of “hard fun” along the way.

**“It doesn’t go as you expect, you adjust and try again. You keep doing this until you get an answer. I’m interested in how you can take that idea of experimentation and apply it to cultural mechanisms of production.”**

—R. Luke Dubois

**What’s your goal for it?**

RG: At MAGNET, we explore the interstices of diverse disciplinary viewpoints on designing digital environments. We also experience alternative ways of conducting university learning, fully integrated with emerging technology. In fields of study like ours, it is not enough for students to attend classes and then connect virtually for homework and discussions. To make things and see how they work in the real world, both students and faculty need to interact in real time, face to face, supported by online resources. My goal is to study how best to prepare the next generation of digital designers and makers to contribute to a healthy, creative society. It will be a many years before we are at the point yet where we have a virtual tutor that appears as a hologram and can show everything digitally. I don’t know that it’s even useful to try to get there, since most of what MAGNET is about you can’t convey in a lecture—the students just have to try it. We want them to drill down on problems and come up with really exciting, publicly-visible things that can get out into the world. That’s the Holy Grail. They, not us, will call the shots at MAGNET about the platforms and software they’ll need to accomplish this.

discipline/blend experience to a program and facility brings their tech/culture—blending software. NYU’s new mAGNeT colleague, makes art and writes music, ricki Goldman Children’s Thinking As she wrote in Points of Viewing ideas and tech mix An atelier where
"Nobody else has built one of these."

How does STEM fit into your school?

Rodney De Jarnett: As an independent school, Dwight-Englewood is able to experiment with what the most recent research says we should be doing in schools today. One thing we’ve learned is that noncognitive characteristics are closely correlated to success in school and in life. We’re not doing the best for our students if we just teach them cognitive skills without giving proper attention to noncognitive characteristics. So we’re creating an environment that nurtures them in the context of the important characteristics that will serve them to better understand this concept mathematically, let’s present it together, using an integrated, experiential approach in which students work on meaningful problems and are motivated to learn whatever they need to know in order to solve them.

Tell us about the STEM Building’s design.

RDJ: The entire community was initially involved in our campus master plan. Once we had an approved plan, we agreed that the STEM Building would be the first step toward making it real. To the mathematics, technology, and science teachers involved in its design, I said, “Probably nobody else has built one of these, so let’s go.”

How will it work? What’s your approach to STEM?

RDJ: We put science and engineering in the same building—not only in the same building, but with the classes, teachers, and students located next to each other. A teacher could say, “You know what? For us to really understand this concept mathematically, let’s step over here to the lab and do this experiment that will really help us understand it better.” We’ll no longer have a group of science teachers and a group of math teachers—we’ll have a group of faculty working together as one body of educators. And we’ll have a common space where they talk and learn from each other.

It’s that collaboration over time that will change the curriculum, so the building has to encourage collaboration among departments that used to work in isolation. At some point in the future, we might not have a lot of courses that are titled as they are now—like a biology course or a chemistry course. Instead, course titles might reflect specific types of problem-solving skills. I don’t think we’re ready for that yet, but moving our STEM Building the flexibility to change as faculty collaborate, learn together, and rethink how and what they teach.

What about the classroom in this scenario?

RDJ: Five or ten years from now, the classroom as we know it today may not be relevant. We’re creating a lab structure based on what current research tells us about how we learn best. It points to collaborative, problem-based, interactive learning. We also believe the rapid pace of change will continue, so we don’t want to be as specific about what or how students are going to learn in the next few years as we might have been in the past. The STEM Building is designed to give us the opportunity to change and grow. It provides an environment that sets an overall direction, but isn’t so foreign to our faculty that they won’t know how to teach in it.

How do you convey this to the students’ parents?

RDJ: When I talk to parents, I always tell them, “We’re educating our children for their future, not for our past.” We may be the first generation of adults ever to admit to ourselves that we don’t really have a clue about what our children will be doing when they’re our age. The students we’re educating today will reach the peak of their careers in 2040 to 2050. Eighty percent of them will be in jobs and fields that don’t exist today. So we place a high value on learning and lifelong career development, as well as on creativity, curiosity, and entrepreneurship.

As an undergraduate, I was led to believe that my role was to master a set content, gain some skills, and go on to earn a living based on the knowledge and abilities I’d gained in college. Today’s students are growing up in a very different world. They acquire knowledge and skills by interacting with information and collaborating with other people. You can’t just tell students, “We’re going to teach you a whole bunch of biology, in case you ever need it.” That doesn’t work anymore. Nor will they remember it. What will stay with them is the knowledge gained by solving problems they found meaningful.

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Walkable
To ensure accessibility, 88 percent of MLKMC and environs are within a two-minute walk from a bus or shuttle stop.

Traditional health care assessed health and treated disease. It was a model that took a time-lapse view of patients, urging them to take care of themselves between visits. Illnesses were episodic, big events in people’s lives. “Get well,” we told our ails. Today, “stay well” is on everyone’s lips.

We have the baby boomers to thank for this. Staying vibrantly healthy is a widely shared goal among this huge cohort. Working longer and playing harder than their parents, they approach health care like the consumers they’ve always been. “They expect to have choices,” says Gensler’s Sarah Bader. “That’s pushing health care in new directions.” It’s why there are mini-clinics in drugstores, health-advice kiosks in supermarkets, urgent care centers down-the-road, and doctors making home visits. The other driver in the US is the Affordable Care Act, which mandates wellness measures to stop the unchecked rise of health-care spending. The goal is to keep people healthy, not just treat what ails you. And wellness is a community affair.

By Alec Appelbaum
Both the quality of the user experience and the engagement of a community of supporters are gaining ground within modern health care, Leiserowitz notes. In the heart of Silicon Valley, a new R&D facility by Siemens includes an innovation center focused on developing and testing ultra- sound equipment, an ongoing marriage of high tech and high touch. The Ability Institute of the Rehabilitation Institute of Chicago, which recently broke ground, is designed around ability labs. Each focuses RIC’s medical and research expertise on the unique and evolving needs of individual patients, tailoring the treatment.

Moving into the community

Due to the transformation, many urban medical centers are opening outpatient clinics, offering health management classes, and in other ways becoming the anchors of healthier neighborhoods. Several medical centers in Los Angeles are examples, Gensler’s Barbara Bouza says. “Their whole approach is to go into the community. The reason is simple: people prefer having the doctors nearby, so they can walk or drive there easily. If the doctors are local and their kids go to school with your kids, so much the better.”

In and around Los Angeles County’s Martin Luther King, Jr. Medical Center Campus—MLKMC for short—Gensler looks community ties several steps further. Fostering local trust in the institution meant working closely with its stakeholders—a 60-meeting process that Gensler facilitated. The result is a master plan for both the campus and the surrounding area. Wellness goes beyond just providing health care. When the neighborhoods listed their priorities, jobs were high on the list, but so was personal security—the campus has a strong workforce, but if people don’t feel safe there, local retail won’t thrive. For example, and the neighborhood won’t benefit as much from its presence.

Gender planner Claudia Carol reports that active retail matters to the stakeholders. "Their whole approach is to go into the community. The place itself has to encourage all ages to be active." Carol says. "The place itself has to encourage people of all ages to be active."

Anchored by the ambulatory center and a newly reopened hospital, the redeveloped MLK campus will be surrounded by a mix of community-serving uses, from shops and restaurants to recreation and wellness. In the past, MLK was an outpost, serving the neighborhood but detached from it. The plan—the community’s plan, in fact—restores the ties.

On the community side, service providers like Chicago’s Center on Halsted are also focused on wellness. In 2007, the LGBT-centered nonprofit opened its doors in the lakefront neighborhood. Collocated with a Whole Foods Market, Center on Halsted provides a vital range of support to the city’s LGBT community. Now it is partnering with Heartland Housing, an organization focused on developing healthy communities, to develop 79 units of affordable senior housing, plus space for programs and services. Located next door to the existing building, it shares a retail street frontage and a green roof as features.

The necessity of wellness

Medical care used to be inexpensive—and life expectancy was relatively short. Today, people are living longer and longer. They’re also living better—healthier than previous generations. Meanwhile, the cost of medical treatment has skyrocketed. These shifts are pushing back the retirement age and raising questions about the assumptions on which many pensions and health-care insurance plans are based—assumptions that often date back to the 1950s.

The wellness movement is a response to this—a new social contract in which responsibility for health is shared between communities and their constituents—residents, customers, students, visitors, and employees, among others. An awareness of health gains greater importance in the 21st century. People are living longer and longer. They’re also living better—healthier than previous generations. Meanwhile, the cost of medical treatment has skyrocketed. These shifts are pushing back the retirement age and raising questions about the assumptions on which many pensions and health-care insurance plans are based—assumptions that often date back to the 1950s.

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The Star Alliance Lounge at Los Angeles International Airport takes advantage of LA’s warm and sunny climate.

Soon after opening its Gensler-designed Terminal 5 at New York’s JFK Airport in 2008, JetBlue began augmenting its domestic service with Latin-American and Caribbean routes. Rather than make those travelers clear customs next door, JetBlue opted to add a 170,000-square-foot international arrivals facility at JFK. Gensler knew that JetBlue didn’t want its passengers to experience gloomy corridors leading to windowless rooms as they came off long flights. “The arrivals facility is filled with natural light,” says Gensler’s Ty Osbaugh. Its clean, dynamic look fits seamlessly with T5 and supports JetBlue’s reputation for low-cost, high-value travel.

Meanwhile, on the West Coast, the Gensler-designed Terminal 2 at San Francisco International Airport celebrates its Bay Area roots. Completed in 2011, the terminal features shops and restaurants with authentic local connections. Passengers spend more money at T2 than at SFO’s other domestic terminals. This led the airport to ask Gensler to help create an “identity statement” that articulates the requirements for a heightened passenger experience at every SFO terminal. That way, whenever the airport plans an expansion or upgrade, this proven and jointly developed approach will be built into the process. “We’re taking the lessons of Terminal 2 and applying them across the board,” says Gensler strategist Amy Kwok.

In both New York and San Francisco, Gensler is defining the airport of the future. Not the distant future—the province of science fiction writers—but the near future, where invention meshes with the needs of airline passengers, incorporating technology that is being invented even as the terminals are being designed.

Changes afoot in airports around the world point to a sea change in how well they support air travelers. Even domestic terminals and their passengers are getting A-List treatment.

BY FRED A. BERNSTEIN
Gensler is so keenly interested in moving airports forward that a team of architects and designers at the firm has launched a research project to study the airport of the near future. The initiative is supported through Gensler’s comprehensive research program, which includes 29 ongoing studies. The aviation research follows three threads, says Gensler’s Jim Stanislaski. First is improving the passenger experience, which involves creating customized journeys through airports. Second is increasing non-aviation revenue—a priority as more airport facilities are privatized. And third is the greening of the airport, to address issues such as on-site power generation and trash recycling.

One aspect of air travel that may change most in the near future is the arrival experience. “Until now, we’ve put a lot of effort into passenger departures,” says Osbaugh. “That’s going to change in the future, when we’ll put more emphasis on arrivals.” Revenue is one factor that’s driving the change. After long competing on the basis of price, airlines are now battling for passengers based on quality of customer service, says Bill Hooper, co-leader of Gensler’s global aviation practice. Airlines that improve the ease and comfort of the arrival experience gain a competitive advantage, he says. Fortunately, large ticketing halls, which occupy the prime real estate in airport terminals, are much less essential. “Most people buy their tickets online,” says Stanislaski. As a result, airports can be reconfigured to alter the relative importance of functions such as baggage claim that once were relegated to cramped sublevels. Gensler is working currently with airline clients on terminal rehabs at two different airports in the US. Both carve out sections of the ticketing hall to bring daylight into baggage claim areas below.

Just as design can help by making airport arrival more appealing, so too can technology. One near-future possibility is real-time tracking of luggage, with smartphone apps that identify the precise location of passenger bags. Technology will also transform the departure experience. “Soon you’ll check bags yourself and use self-boarding technology,” Stanislaski says. “At security, you’ll walk through and be scanned from all directions, without having to remove parka, belt, or shoes.” But things won’t improve at the same rate for all passengers. Airlines will offer an easier journey from curb to cabin to its elite travelers first, says Gensler’s Keith Thompson. “We’re seeing stratification in the passenger experience, with extraordinary catering to air travelers in the elite and full-fare categories.”

Even waiting will get a high-tech upgrade. Airports will use geofencing—software that enables businesses to target customers with messages based on their proximity—to suggest things to do. Knowing where they have to be and when, with smartphones issuing reminders, will free up passengers to make better use of their time before and between flights.
Some design trends are unrelated to commerce. Kwok says SFO, for example, is committed to improving the passenger experience by duplicating spaces like the “recompose zone” found in Terminal 2. “After passing through the stress of security,” Kwok points out, “there should be an area where you can gather yourself in comfortable seating with access to natural light, restrooms, and hydration stations.”

While some Gensler designers are improving airport amenities, others are envisioning entirely new airports, such as London Britannia Airport, a Thames River alternative to Heathrow. Proposed by Gensler, the airport would help London solve capacity overload problems at its other airports. It could also be designed to maximize efficiency, exchanging conventional gates in favor of shuttling passengers to and from aircraft in airline-branded capsules, says Chris Johnson of Gensler London. The capsule approach would reduce the distances passengers have to walk and eliminate boarding bottlenecks.

Gensler is helping clients envision airports in more remote locations than the Thames, including several cities in North Africa. Developers are interested in building “airports as destinations” that incorporate schools, hospitals, and shopping malls. More and more, airports are being designed or expanded as self-contained urban centers. A version of the airport city now taking shape is Denver International Airport, which is being transformed into a quasi city center with a hotel and conference center. The new hotel will also house a transportation hub, with links to downtown Denver via commuter rail.

South Korea’s Incheon Airport reflects another trend that Gensler’s aviation team is researching: the greening of airports. The new Terminal 2, designed by Gensler, integrates state-of-the-art systems that will make it a model of sustainability. The terminal won’t just be green, it will also feel like an extension of nature, thanks to features such as two large parks, a rushing brook, and habitats for birds and butterflies.

Likewise, at Chennai International Airport in India, new domestic and international terminals feature enclosed glass bridges over tropical gardens filled with palms, orchids, and other indigenous plants. The experience is meant to feel restorative. Chennai’s new terminals elevate the passenger experience, a hallmark of Gensler’s approach to air travel. That emphasis—along with other issues being studied by the research team—generates new ideas that are reshaping the airport of the future. It’s a future that’s coming soon.

“The cloud” gives a lighter-than-air spin to all our connectivity and data sifting. In reality, they consume energy like there’s no tomorrow. Next-generation data centers aim to fix that.

Data centers are changing. And that can’t happen too soon. “These buildings use an enormous amount of power,” says Geneser’s Bonny Woytek. “We’re talking millions of kilowatts per year—it really adds up.” After one data center client recently consolidated into a single new facility, its five-year savings in electrical power was $5.6 million.

The trends for future data centers are clear, says Woytek’s colleague Joe Lauro: “Smaller, more compact, and aggressively energy-efficient.”

So do you go there? Flexibly applying new technologies is a big part of it. Woytek cites liquid cooling as an example. A standard approach in the early 1960s, when mainframes ruled, it was replaced by air cooling as computers shrank to a fraction of their behemoth size. Now, with computer’s power output constantly rising, liquid cooling is making a solid comeback.

“As the power density ramps up, the amount of heat the computers generate goes up tremendously. How hot? Picture a closet,” Woytek says. “You’re in there with 150 air handlers, but only to clean it.” Manufacturers are steadily increasing heat tolerances for servers; in some cases allowing them to operate at temperatures as high as 86 degrees Fahrenheit. The previous standard operating temperature was 68 degrees. “The change doesn’t affect the power consumption of the servers, but it lowers the amount of power needed to cool them,” Geneser’s Robert Duran explains. “Raising a server’s operating temperature by just one-degree cuts its associated energy costs by about four percent, so this adds up to big savings.”

Data center design now recognizes that housing servers is a different proposition from accommodating the people who run the centers or share the buildings with them. “People like a steady 72 degrees within a certain humidity range,” Duran says. “Servers don’t really care. As long as they don’t overheat or make errors, they don’t need people-friendly conditions.”

“We reason that data centers are being built in cooler regions that you can get as much free cooling as possible,” Lauro says. “It still goes through air handlers, but only to clean it.”

The building envelope is another important factor in improving the data center’s energy performance. “You don’t want a glass box, but you do want to focus on the glazing and insulation to get a high R-value exterior skin,” Lauro explains. “(R-value is a measure of thermal resistance.) The overall goal is computability and simplicity, adds Duran. “A big rule of sustainable design is to minimize the amount of materials and resources. That approach is usually more cost-effective.” When the envelope and systems are compact, cooling and powering the data center are more efficient because there is less resistive material. That means fewer power losses due to heat, and a cooling solution that’s coupled directly and efficiently to the equipment.

All of these strategies aim to reduce the data center’s energy use without affecting its performance. “It’s a dual focus,” Lauro says. “We’re optimizing for the mission and for the building’s impact over time—its cost to build and operate, as well as its carbon footprint.” Energy use is by far the biggest issue, given the sheer amounts of power consumed. “It’s not uncommon for a data center to have the power needs of a small town,” Gross says. As they look for new ways to bring that energy load down, the idea of a net-zero data center always presents itself. Technically, net zero is possible. “I know of at least one data center in planning that will run off of solar panels,” Woytek says. It requires about a 100-kw array to power the data center for 12 hours a day; the other 12 it has to draw on battery storage or the grid. In theory, the array could generate twice as much power as the data center needs, transfer it to the grid, and then pull it back at night. “Is that net zero?” Woytek asks. “Operationally, maybe, but the whole package—including the embodied energy in the up-front materials and the new equipment that’s needed every three or four years—would fall short.”

But Woytek and his colleagues aren’t giving up. “We’re cutting closer and closer but getting to net zero is like moving along one of those curves that stretches further out as you close in on it. You never quite get there.” Michael Welton writes for Dwell, the New York Times, and the Washington Post.

How do you get to net zero?
The road to net zero takes in everything that contributes to a data center’s resource efficiency; from the equipment it uses to the design of the building to maximize the opportunities to incorporate new higher-performing systems as they appear.

**High performing**
- **Designing a building that can quickly and flexibly accommodate expansions and upgrades to servers and equipment will extend useful life and save energy.**

**Future-positive**
- **Designing a building that can quickly and flexibly accommodate expansions and upgrades to servers and equipment will extend useful life and save energy.**

**Running hot**
- **Companies are designing their processing chips to run at higher temperatures, requiring less energy to keep them in a safe operating temperature range.**

**Power density**
- **With server power output doubling every 18 months, liquid cooling is essential to allow higher power density without an energy penalty.**

**Solar power?**
- **Today’s data centers would require massive arrays of photovoltaics to power them. Using current technology, solar is prohibitive as the sole source of power.**

**Free cooling**
- **Data centers in colder locations benefit from outside air that takes less or no energy to cool down.**

**Operating temperature**
- **1 degree of upward change in operating temperature for the overall system cuts energy costs by 4 percent.**

**Liquid cooling**
- **Chilled water cabinets are more energy efficient than air-cooled, but direct liquid cooling of servers and chips is more so and supports an even higher power density.**

**Virtualization**
- **Single-application servers may not operate at capacity and idling servers take up space. Multi-application servers can consolidate processing needs and space.**

**Exhausting heat as quickly as possible**

**Stored energy can be used for lighting or security systems**

**Cool air from chiller**

**Chilled water is circulated directly into the cabinet**

**Cooling temperature range**

**Running hot**

**High performing**

**Power density**

**Solar power?**

**Free cooling**

**Operating temperature**

**Liquid cooling**

**Virtualization**
The good news for cities is that it doesn’t necessarily take a huge investment to reimagine the town square. “So many existing assets in cities are underutilized,” says Gensler Co-CEO David Gensler. “It just takes the power of design to transform them into vibrant public space.”

One example: Gensler’s inspiration for the streets of Manhattan, in which they tested the idea for a net-zero park along three blocks of the Allen Street pedestrian mall, a median wedged between four lanes of traffic. Sustainable features incorporated in the park include lounge areas shaded with photocell canopies; electric-car charging stations; bicycle racks that collect rain; and organic waste collection bins. Plug-in spaces—like a pop-up library—would be available on demand. Staggered by the devastation of Hurricane Sandy, the team also expanded their proposal with solutions for resilient infrastructure including waste disposal, renewable energy, and storm-water retention.

Similarly, Gensler’s Las Vegas proposal turns the city’s strip into an ad hoc town square using pop-up structures to house various activities. Their Urban Mosaic system links modular, steel-framed cubes in any configuration to create public space for special events. This strategy would energize the legendary Vegas New Year’s Eve celebrations, with the structures hosting countdowns from around the globe in a 24-hour cycle. Also envisioned: a culinary village combining cuisine and performance.

**Seeking to re-energize the role of public space, Gensler launched Reimagining Cities, a decade-long initiative aimed at making a difference in our communities. In year one, each office was challenged to envision a new town square tailored to its locality. “What we learned is that regardless of the city where you live and its defining culture, improving the public realm means rehumanizing it,” says Gensler’s Mischa Ickstadt.**

**BY KEVIN CRAFT**
Spurred by the redevelopment of the Old Street roundabout, the hub of a new Tech City in London’s East End, Gensler London anticipated the area’s rapidly changing future and the growing need for public space that caters to pedestrians and encourages street life. Using a broad lens, the team looked at open space as part of a larger network of spaces, seeking to better connect the up-and-coming technology district with its surroundings.

The team analyzed the entrance to the adjacent Shoreditch district, redirecting traffic flow, reshaping the intersection as a prominent landmark, expanding space for pedestrians, and creating new social space. Nearby Finsbury Square is conceived as a gateway. And the very function of connecting streets is challenged by expanding pedestrian use, introducing places to rest, providing locations for idea exchange, and recommending public use of neglected private land.

Gensler’s Seattle office focused on reweaving pedestrian and social connections on a single site—the city’s Westlake Park. On weekends, the 3-acre park is a busy plaza, filled with people arriving via four modes of transit on three distinct levels. It’s also a nexus of traffic, with a wide road that bisects the plaza. The team proposed repurposing part of the street to link the transit tunnel, mezzanine, and ground level. This step would reveal the transit entrance and enliven the space with fresh air and light.

Kevin Craft is a Gensler senior writer and the editor of its thought leadership blog, GenslerOn.

“Tied to the idea of ‘tactical urbanism’—an emerging practice of organizing quick, often temporary, projects aimed at making fragments of a city more livable—the design team developed an easy-to-follow flowchart to facilitate these activities. Team members created hypothetical designs in four city locations to visualize the possibilities.

Among their examples: a gallery, farmers’ market, film screening venue, and learning center.

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In Houston, a city whose high-tech economy, role in international trade, and multicultural population prefigure 21st-century life, the Gensler team looked to move beyond the days of automobile dominance. To do this, they proposed a mix of mini town squares that valorize foot traffic over traffic jams. The scheme takes many forms. One is on-demand public space that can rise anywhere using portable clouds that define space and provide shelter. Another is a strategy to reconnect neighborhoods split by highways—activating leftover spaces, such as the dead areas beneath overpasses.

Waterfronts offer a great opportunity for creating a new social hub. In Washington, DC, for example, the Gensler team aimed to connect people to the city’s great natural resource, the Potomac River. Their vision is not for more bridges, however, but for more people-focused spaces to enjoy—and opportunities to walk across the river and soak up the city’s sights. Among the interventions they proposed: pedestrian pathways across the car-dominated Key Bridge that let striders explore the bridge’s contours and arches, a new waterfront terrace for the Kennedy Center, and Paddleshare, a boat-sharing service similar to Zipcar.

In Bangalore—a city that seems to have shuffled its polluted and misused lakes—Gensler designers proposed a series of interconnected ‘lakesquares.’ The plan would reclaim, recontextualize, and rejuvenate the lakes, helping to mitigate the problem of the city’s dwindling water supply while creating a more appealing lakeside experience. The team envisioned how to improve Bangalore’s lakeside connection to the city by activating its edges, creating a sustainable prototype for this important natural feature of the city that is rooted in its local culture.

To learn more about the Reimagining Cities initiative and its proposals, visit dialogue.gensler.com/v/24
The Genevieve and Wayne Gratz Center at Chicago’s Fourth Presbyterian Church brings new energy to the congregation, strengthens its community ties, and brings the venerable Michigan Avenue church, designed by Ralph Adams Cram, into a dynamic present. Sited behind the church, the new Gratz Center provides the congregation with alternative worship space and additional areas to support its vibrant programs and community outreach.

The Gensler-designed 76,000-square-foot wing features a preschool, library, classrooms, dining hall, kitchens, multifunction spaces, and a 350-seat chapel. A double-height gallery connects the new building graciously to the existing church. The marriage of past and present required delicate handling, says Gensler’s Brian Vitale. He and colleague Todd Heiser searched for a reference in the original church that they could weave into the new building. That thread was copper. Used sparingly in the historic church’s details, copper appears prominently in the Gratz Center façade. Generous use of glass on the east and west façades creates a sense of connection with passersby, making the work of the church more visible and welcoming. The limestone-floored Buchanan Chapel offers all a place of contemplation and respite from the pulse and pace of urban life.
Gensler has revitalized a corner of Chiba, Japan, near Tokyo, with a new headquarters for QVC Japan that highlights connectivity, a culture of individuality, and a colorful aesthetic that is just as entertaining as the multimedia shopping company’s lively content. In August, the project won the prestigious Ministry of Economy, Trade, and Industry Award in Japan’s 2013 Nikkei New Office Awards Program.

Designed by a team drawn from Gensler’s Tokyo and San Francisco offices, the seven-story, 403,500-square-foot building commands a strong presence. Using precast concrete panels, the team forged a cost-conscious structure enlivened with color, graphics, and loftlike interwoven spaces. Gensler worked with Tokyo-based architect Nihon Sekkei to create a building that would encourage communication and incubate new ideas among its employees. Transparency is at the core of the design. On the first floor, guests can explore the “QVC Street,” where the studios, preparation rooms, kitchen, and storage spaces “let visitors feel like they are part of the show,” says Gensler’s Shuichiro Hirano.

Each floor has a different character with collaborative work pods for every department. A central break room and library on the fourth floor overlooks the soaring atrium. QVC’s 24/7 operations is an important emphasis. Employees can access the cafeteria around the clock. They can bask on the outside deck by day or take a break in the relaxation area at night. “QVC wanted a headquarters where people want to be,” says Gensler’s Daichi Amano. “After all, QVC is known for making shopping fun. Its workplace needs to have the same spirit.”
Reunion Tower redefined Dallas’s skyline 35 years ago. Now, after a yearlong renovation, the landmark attraction is back—with an interactive edge. The timing is perfect, says Gensler’s Judy Pesek. “Dallas has some stellar openings recently—including the George W. Bush Presidential Library and the Perot Museum—and the crowds have far exceeded expectations. The new observation deck is a must-see.”

“We worked with some of the brightest minds in the city to revive Reunion Tower as a premier destination in Dallas,” adds Gensler’s Jennifer Kolstad. The team’s redesign of the observation deck riffed on the unique geometry of the tower’s dome. The deck integrates new interactive elements that use sophisticated software developed with San Francisco’s Simulant, a specialist in digital experiences. The “Big Sky” installation is 17 interlinked screens that ensure real-time 3D simulations of Dallas weather patterns in the café/lounge, Kolstad explains. Within the observation deck, an array of 46-inch monitors deliver computer-enhanced perspectives of the city that visitors can control using high-definition cameras. “We’ve made Reunion Tower a true 21st-century attraction,” Kolstad notes.

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