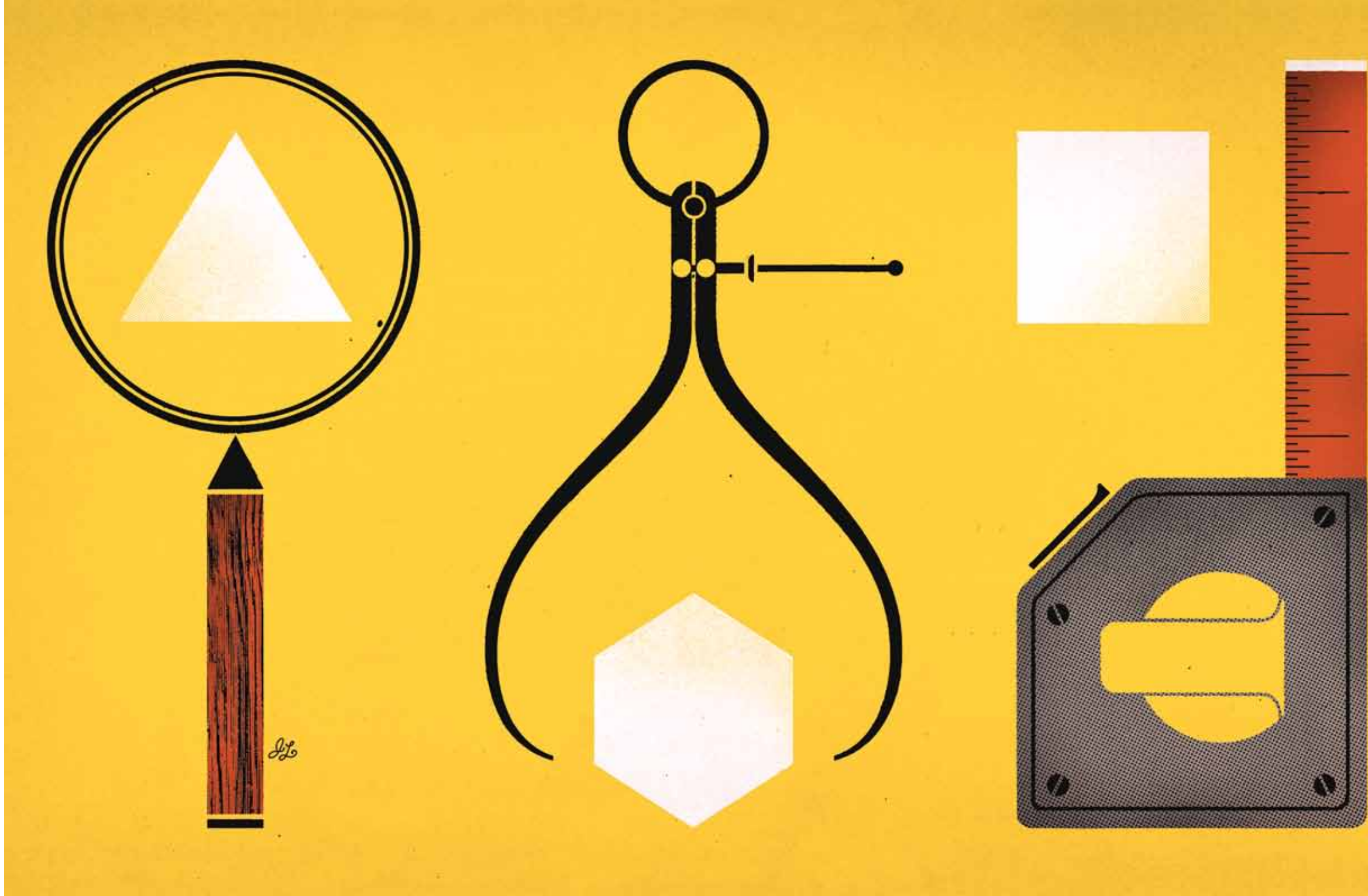

Increasingly designers are flexing their research muscles, clients are expecting informed solutions, and our spaces—and our profession—are the better for it.

TRENDING RESEARCH

By David Whitemyer

Illustrations by Jesse Lefkowitz



“Clients are smarter than they used to be, and they expect us to be smarter than them,” says Jack Weber, IIDA, LEED AP, describing why Gresham, Smith and Partners uses research and data to inform design decisions and to support the best outcomes for built spaces. Weber, principal at the Nashville-based architecture and engineering firm and a vice president of the IIDA Board of Directors, notes that a number of large firms are now focused on the benefits of research. “We’re all trying to raise the level of design for workplaces and other buildings.”

Raising the level of Interior Design through formal research studies can focus on energy efficiency, workplace productivity, materials technologies, health and safety, comfort, and so much more. This concept isn’t brand new. The terms “rational design,” “research-based design,” and “evidence-based design” have been in use for decades, often associated with healthcare architecture, and more recently with sustainable design. The notion is simply that statistical or anecdotal reasoning, combined with traditional aesthetic and instinctive approaches, is applied

to design the built environment.

What is new, according to Weber, is that more clients—of all building types—are demanding that design decisions be scientifically rationalized. “We have to be forward of design trends and technologies and human behavior,” Weber says, “so we can ensure our clients that we have their needs and interests at heart and can advance them in new directions.”

Weber believes that some of the origin for thinking about research-based Interior Design and architecture,

beyond hospitals and clinics, arose with a new type of workplace mindset about 15 years ago. “In the 80s there was a push for making all offices the same—rows of cubicles, identical conference and copy rooms—without digging into the clients’ needs and culture,” he says. “But in the mid-90s a lot of young companies, many Internet-related, started asking questions about the old formulas of workspace design.” That forced designers to rethink the process and to ask clients more questions about how they work. Fast-forward to today, and there’s reams of



“BY SHARING THIS INFORMATION, WE’RE ALL GOING TO BE SUCCESSFUL DESIGNERS.”

—Janice Barnes, PhD, LEED AP, Perkins + Will

data about how office space layouts, lighting, and color can reduce sick days and turnover, and improve productivity.

Gathering Data

At Gresham, Smith and Partners, there’s a single research specialist on board. “She helps the design teams gather, evaluate, and apply research information,” says Weber. As a principal in the firm, she has also led collaborative research with other organizations, such as a recent study on accessibility, done with Georgia Tech.

The 1,500-person firm of Perkins + Will, a leader in the research-based design arena, has a entire team of “Knowledge Managers.” They are tied to market sectors and project types, explains Janice Barnes, PhD, LEED AP: “Designers use them as a resource and ask for data relevant to their projects. They reach across our firm, keeping everyone up-to-date on the latest research.” But in addition to playing the role of librarians, they also generate content, performing studies, such as a recent façade energy analysis conducted in-house. And they collaborate with Center for the Built Environment and universities, such as the University of Minnesota, with whom they recently performed daylight modeling studies on the Great

River Energy’s headquarters.

Perkins + Will is also focused on pre- and post occupancy studies to measure project success, usually about 12 months after completion. Measurements include interviews, surveys, focus groups, and program analysis; and they touch on everything from user comfort to building technologies. “We use multiple ethnographic tactics in our research, which are consistent among pre- and post occupancy evaluations (POE),” describes Barnes, who serves as Perkins + Will’s principal and global discipline leader for planning and strategies. She is clear to note that there’s no point doing a POE without a pre-occupancy study. “If you’re not measuring on the front end, you’ve got nothing to measure against on the back end.”

“We also invest heavily in our journals,” says Barnes. The firm’s monthly research papers and annual Tech Lab reports provide the results of specific project studies and abstracts. A recent journal focused on principles for high performance Interior Design, using data collected from educational facilities, workspaces, healthcare buildings, and civic structures. The notion of sharing findings with the larger design community is an important ethos behind Perkins + Will’s research

initiatives, and these journals are made available to all on the firm’s website. “By sharing this information,” says Barnes, “We’re all going to be successful designers.”

Putting Research to Work

One solid result of research for which Barnes is especially proud is the Perkins + Will Precautionary List. In this instance, Barnes explains, the investigation was not done in-house but drawn from a number of leading research organizations, such as the Agency for Toxic Substances, the Disease Registry, and the EPA. The firm spent thousands of hours to collect, organize, and evaluate the data to create a catalog identifying substances with known toxicity, which their designers take into account when considering building materials and products to create healthier spaces. Instead of keeping this list as a proprietary resource, the firm also makes this publicly available as a service to the design and building community, with the goal of raising the standard of the health and safety of the built environment in general.

Kevin Powell, director of research for the General Services Administration (GSA), agrees that research can drive effective change, which is why the GSA invests in his work and has formed the Applied Research program. With a cache of over 9,000 buildings, totaling 370.2 million square feet of workspace for one million federal employees, the GSA is the United States’ largest commercial landlord. Therefore, it is in their interest to investigate and understand everything about their properties. “The purpose of our research, broadly speaking,” says Powell, “is to help make the facilities more efficient and the people in them more satisfied.”

The GSA currently has about a dozen active projects, notes Powell. They range from a study for guidelines on office acoustics to an analysis of exterior lighting at border stations. One example was an exercise to better understand personnel foot traffic and

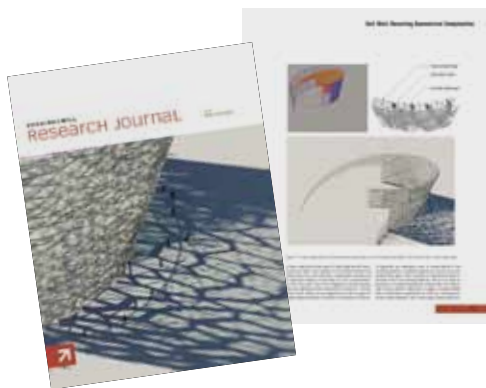
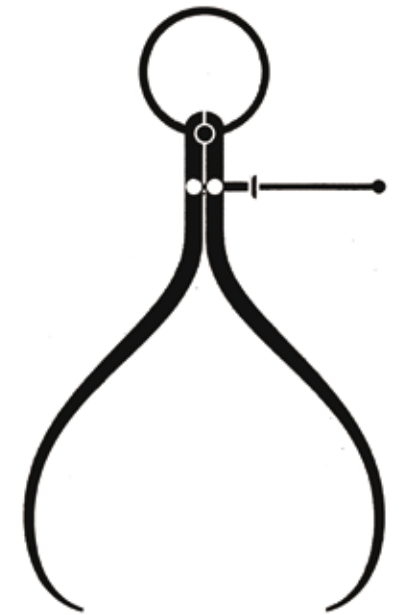
“ONCE YOU HAVE THE INSIGHT OF WHAT PEOPLE ARE REALLY DOING, YOU CAN DESIGN FOR THAT. THE ENERGY SAVINGS ARE REMARKABLE.”

—Kevin Powell, Director of Research, General Services Administration

light use for a huge GSA property. “We placed a dense network of sensors in the floors of a data center in order to manage the space more effectively.” Afterwards, the center saw a 47 percent increase in energy efficiency.

One recent study by the GSA, “Leveraging Mobility, Managing Place,” attempted to get to the root of how modern work habits impact energy usage. Using techniques as simple as walking around and observing people, results showed that office workers are only at their desks around a third of the time. The other two-thirds they’re off-site or in meetings. An inevitable question Powell asks is why lighting is being provided 100 percent of the time. “Once you have the insight of what people are really doing, you can design for that,” he says. “The energy savings are remarkable.”

Powell enjoys telling the story of another GSA research project where an entire office space was fit out based on existing data. They located private offices near the core, and ordinary workstations were placed at the perimeter, along the windows. Large meeting rooms were installed in the premium corner locations. The space worked so well that the GSA was asked to reproduce it in Chicago’s Kluczynski building for President Obama’s transition team in 2008.



Perkins + Will and University of Minnesota performed daylighting studies on the Great River Energy HQ (top). The peer-reviewed Perkins + Will Research Journal documents and presents practice-related research with articles, case studies, and guidelines.



“Leveraging Mobility, Managing Place: How Changing Work Styles Impact Real Estate and Carbon Footprint,” is the latest of the GSA’s Workplace Effectiveness Research publications.

RESEARCH AT YOUR FINGERTIPS

There is a growing list of organizations and companies that are collecting and sharing design research; providing tools, resources, and case studies. Topics touch on energy efficiency, workplace productivity, health, comfort, and much more. This list of organizations is by no means exhaustive but is starting place to dig into some ongoing research and data.

Architectural Research Centers Consortium, Inc (ARCC)
www.arccweb.org

BetterBricks
www.betterbricks.com

Center for Advanced Design Research & Evaluation (CADRE)
www.cadresearch.org/

Center for the Built Environment (CBE)
www.cbe.berkeley.edu/

Design Research Network
www.designresearchnetwork.org

Environmental Design Research Association
www.edra.org

IIDA Knowledge Center
www.knowledgecenter.iida.org

U.S. Green Building Council (USGBC) Research Program
www.usgbc.org/DisplayPage.aspx?CMSPageID=1718

Part of the Service

As research-based design takes greater hold in the interior design and architecture industry, it will eventually become an expected part of the service, perhaps even mandated by public agencies. Clients will require quantified design solutions. Firms will face increased competition within specialty building types. HKS Architects, a 25-office firm headquartered in Irvine, California, recognizes the competitive edge that research provides. "It makes Interior Design more about intellectual knowledge than just about aesthetics," says Maria Martinico, IIDA, LEED AP.

As associate principal and managing director of HKS's Orange County office, Martinico expresses that HKS is "not just designing spaces but helping clients meet their business objectives," meaning that they're digging into user behavior and building technologies, and using data in ways that will positively affect a client's bottom line, whether that be in worker productivity, energy use, or branding.

The value of HKS's research comes from its 70-year history and extensive portfolio of work. "We look at our past designs and put information into a

database for benchmarking," she says. "It spits out statistical averages and trends so that our clients can gauge what their competitors' buildings are doing." Benchmarking is only as good as the quantity of input, and because HKS has so much data, the results are more comprehensive and valid than what most firms can offer.

HKS put itself another step ahead with its 2010 launch of the nonprofit research organization, the Center for Advanced Design Research and Evaluation (CADRE). Martinico explains that CADRE has primarily been used for healthcare work but has just recently been dabbling in commercial, aviation, sports, and workplace design research. This kind of entity enables firms to more freely collaborate with external interdisciplinary groups of experts in the pursuit of scientific research and knowledge. Directly and indirectly, research and development activities such as this benefit a firm's clients and augment its reputation, as well as contribute to advances in the industry.

The future of research as an integral part of the design process is around the corner. Many large firms are already on board. Both they and the buildings they design are profiting

from this service. Small firms have opportunities to learn from the data made public by the big A-Es, and may even be able to partner with them on relevant research projects. Barnes believes research helps the entire profession excel. "If we're successful as designers, then everyone will be pushing the train in the same direction."

