

# 2015 PROGRESS REPORT

Design & Health Research Consortium



COVER: Community pool in Mueller, TX.

SOURCE: XUEMI ZHU / TEXAS A&M

# 2015 PROGRESS REPORT

iii	Foreword
01	Mission & goals
05	Six approaches, a singular pursuit
07	Columbia University
09	Drexel University

## Design & Health Research Consortium

**Prepared by The American Institute of Architects, Architects Foundation, and the Association of Collegiate Schools of Architecture.**

Published December 2015

10	<b>SPOTLIGHT: Connecting the ‘Dottes’</b>
11	<b>NewSchool of Architecture &amp; Design and University of California, San Diego</b>
13	<b>Texas A&amp;M University</b>
15	<b>Texas Tech University</b>
17	<b>University of Arizona</b>
19	<b>University of Florida</b>
21	<b>SPOTLIGHT: ‘Active’ collaboration</b>
23	<b>University of Illinois</b>
25	<b>University of Kansas</b>
27	<b>University of Miami</b>
28	<b>SPOTLIGHT: Health in the classroom</b>
29	<b>University of Oregon</b>
31	<b>Conclusion</b>
33	Acknowledgments



moCOLAB at the NBC Health Fair, soliciting feedback on fitness station prototypes (May 2015).

SOURCE: UNIVERSITY OF KANSAS

# Foreword

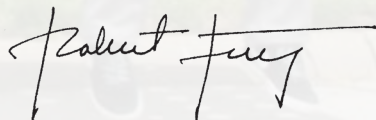
## A message from the CEO of the American Institute of Architects

Common sense, and a growing body of research, point to an overlooked truth: Intentional design decisions can improve our health. Pushed to its logical conclusion, we can now ask, “Can good design help prevent people from getting sick?” Better yet, “Can good design help people live healthier lives?” These are the questions to which we hope to provide an answer in our first *Design & Health Research Consortium: 2015 Progress Report*.

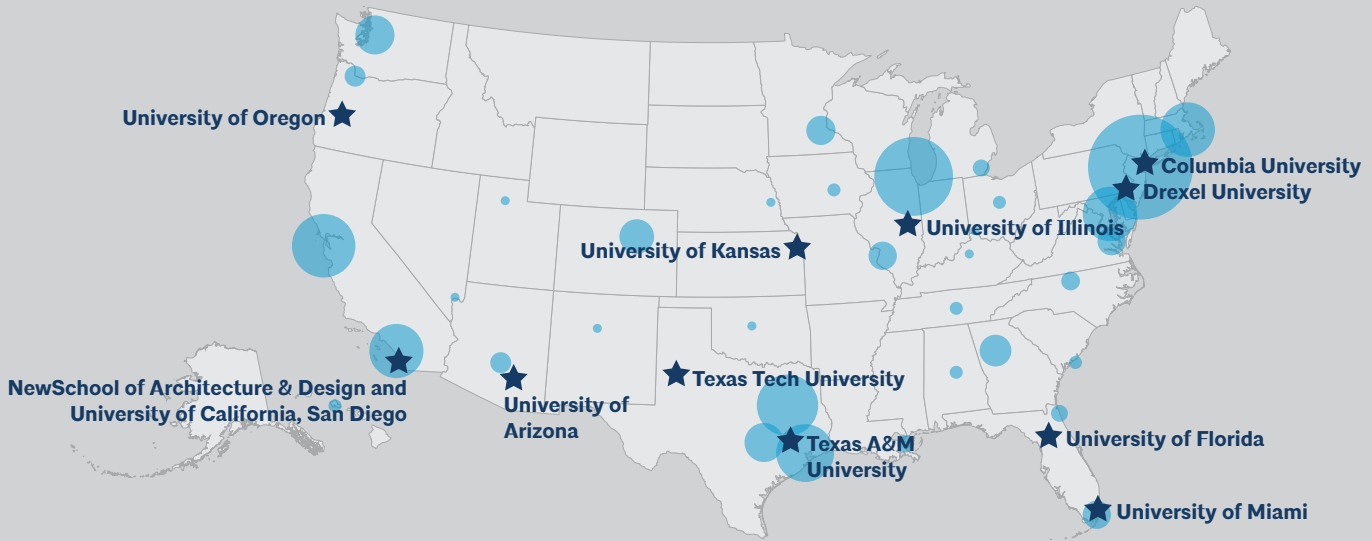
The relationship may not be obvious to you or to others with education and opinions – and may even divide physicians and public health officials. Taking into consideration the variables affecting public health—including diet, heredity, and other social constraints—the argument that design can affect public health may seem simplistic. However, throughout this report, we hope to demonstrate that the physical and built environment can and does play a crucial, often overlooked, role.

While the United States faces a continuing public health crisis, architects are leading the way to a healthier future by employing healthy design tactics. They are working with developers and owners to include infrastructure that promotes physical activity within our cities, and reduces barriers to active transportation. In many workplaces architects are designing locker rooms and showers to provide office workers the space to make an active commute by bike, or take a lunch walk with colleagues. Whether it’s by installing staircases rather than escalators, sidewalks rather than people-movers or biking paths rather than parking lots, architects are the instrumental catalysts for improving public health, through the built environment.

For our children, and for ourselves, we should champion design strategies that encourage more vibrant, active, and healthy living. We are all products of the world we live in. To the extent we can shape that world—and that is both the calling and the responsibility of architects—we should do so in ways that facilitate good health and well-being. Throughout this report you’ll see examples of projects and results that speak to the ways these universities explore, promote, and research for the sake of design and health.



**Robert Ivy, FAIA**  
EVP/Chief Executive Officer  
The American Institute of Architects

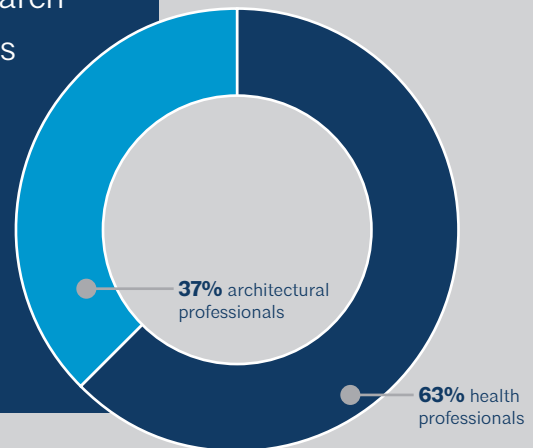
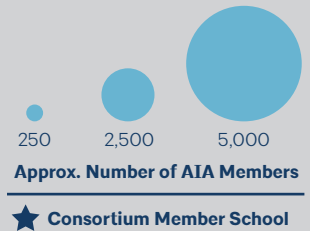


## By the numbers

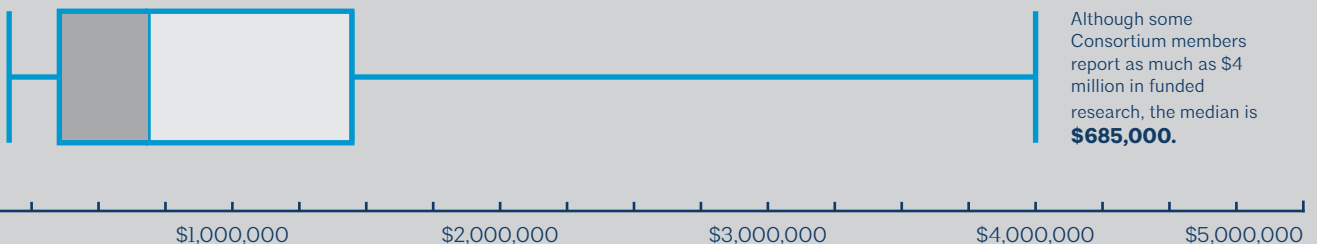
2015 marked an impressive debut year for the Design & Health Research Consortium.

**11** university teams raised nearly **\$12 million** for research connecting design and health. Over **140** public events and nearly two dozen local AIA Component events contributed to reaching **1,800+** professionals from architecture and health. More than **90** university courses were offered, preparing the next generation of leaders for the design-health movement.

*ABOVE: Inaugural Consortium members; RIGHT: Professional engagement by type*



### FUNDED RESEARCH AMONG CONSORTIUM MEMBERS



# Mission & goals

## Multiplying the impact of research in practice and in communities

The Design & Health Research Consortium is a joint program of Architects Foundation, the American Institute of Architects (AIA), and the Association of Collegiate Schools of Architecture (ACSA). The Association of Schools and Programs of Public Health (ASPPH) provides additional support and guidance. The program leverages a multi-disciplinary network of university teams to strengthen the knowledge base and translate research linking the built environment and health for designers, health professionals, policymakers, and the general public.

Public health challenges, which have emerged as a national economic, security, and health issue, often require solutions outside of the traditional delivery of health services. The growing body of work surrounding social determinants of health and the “Health in All Policies” movement birthed in California are driving awareness of diverse solutions to promote health, happiness, and well-being, including those championed by the architectural profession. Surgeons and primary care physicians can only be so successful if their patients return post-visit to places and habits that impeded their health, happiness, and well-being to begin with.

Despite community health provisions in the Patient Protection and Affordable Care Act (2010) and other legislation, and the rise of community health and building rating systems including Enterprise Green Communities, FIT-WEL, and the WELL Building Standard, the consumer demand for healthy places is low and the business case for practitioners is weak.

By focusing on the “multi”—multi-disciplinary teams, translating research from multiple fields, for a multitude of audiences—the Consortium seeks to grow exponentially the impact of work underway and to catalyze higher demand for health-promoting design. Along the way, the Consortium members will deliver tools and resources to current practitioners and influence the next generation of leaders. In 2015, the inaugural cohort offered more than 90 courses that incorporate concepts from the AIA’s [Six Approaches to Achieving Health through Built Environment Design and Policy](#).

### Partnership at the core

The Design & Health Research Consortium emerged in December 2014 as a result of two primary catalysts. The first was recognition that AIA & ACSA’s 2012 pilot effort to fund primary research at a small scale in three schools of architecture was insufficient to address the major public health issues facing America. The second was the call-to-action by then-Acting US Surgeon General RADM Boris Lushniak, MD, MPH, who said, “We have a partnership—public health professionals and architects and planners. Our minds have to talk because we have an influence on America’s public health that we’re only now beginning to grasp.”

For years, ACSA and AIA have worked together to bridge the academy and practice with programs ranging from awards to conferences to publications. In 2012, the two organizations piloted a series of small research grants to three design schools tackling public health problems. The schools— including Texas A&M University, one of the inaugural Consortium teams—garnered industry recognition for their design studio, field evaluation, and curriculum development work; however, they independently lacked the infrastructure to bring their solutions to a scale comparable in dimension to the health problems for which they were solving.

Then came Dr. Lushniak. His remarks were a game-changer for architectural and planning professionals working across the country. In two sentences, the nation’s top doctor explicitly made designers culpable partners in the health, happiness, and well-being of the nation. In two sentences, he validated the architectural community’s pursuit of access to existing research and the methodologies to apply it in communities. The Design & Health Research Consortium meets that demand through partnership, building a network to multiply the work of individual members and accelerate translation for professionals, policymakers, and the public.

**THE CONSORTIUM EXPANDS THE KNOWLEDGE BASE CONNECTING DESIGN AND HEALTH.** Infrastructural constraints, including publication pay walls, the absence of a common language, and differences in research standards, impede the transmission of research between disciplines. Through an online peer-to-peer network and an annual convening, Consortium members are able to exchange opportunities and ideas with their colleagues. Leveraging the partner organizations' communications platforms, members are able to disseminate their work more widely than any one group could independently, thereby ensuring that practitioners can connect with the information and research that they need to make stronger decisions.

**THE CONSORTIUM DELIVERS EVIDENCE-BASED TOOLS FOR PRACTICE.** When trying to solve for the problems facing populations—especially the most vulnerable—it is not sufficient to conclude with “additional research is needed” alone. Research must also be applicable by practitioners in the communities where they live and work. Consortium teams are encouraged to identify specific opportunities for professionals in their work, and to connect with design firms, county and local health departments, and others to meaningfully unpack their work. In the first year, teams connected with more than 1,800 health or design practitioners.

**THE CONSORTIUM CATALYZES DEMAND FOR HEALTHY PLACES BY THE PUBLIC AND IN POLICY.** Well-designed spaces can make the healthy choice the easy choice at an individual site. A more comprehensive orientation of the built environment toward health-promotion requires comprehensive policy support and greater demand by the public. Through community engaged scholarship—a larger higher education trend—the Consortium members work directly with local governments and community members to demonstrate how the structure of policies and the use of public and private spaces affects the health, happiness, and well-being of the community. More than 140 public programs, including University of Kansas's moCOLAB (pgs. 10, 25) and University

of Illinois's “Sedentary Behavior at the Architectural Scale” workshop (pgs. 21–23), brought design thinking to community health challenges.

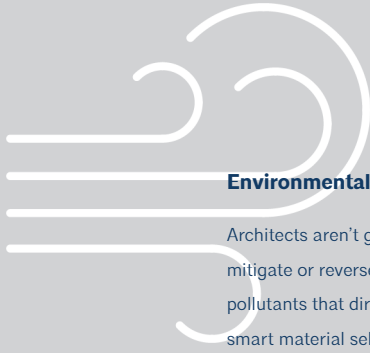
Through partnership, Architects Foundation, AIA, and ACSA are creating a peer network of leading researchers and fostering the concurrent use of vocabularies from health and design to catalyze demand for healthy places and, ultimately, to transform communities. As the program matures, the program partners look forward to fostering continued and deeper collaboration, and to open more opportunities for teams to meaningfully connect with their communities and with local AIA components. Working through the Consortium, the teams need not compete with each other. Rather, they have the opportunity to collectively grow a movement exponentially that realizes health, happiness, and well-being for all, sooner.





Dearborn and Edwards lead the College of Fine and Applied Arts Healthy Places Scavenger Hunt.

SOURCE: UNIVERSITY OF ILLINOIS, COLLEGE OF FINE AND APPLIED ARTS



### **Environmental quality**

Architects aren't green scientists, but the places and spaces they design may mitigate or reverse quantifiable chemical and microbial site, water, and air pollutants that directly and indirectly affect human health. From clean energy to smart material selections, the decisions architects make matter.



### **Safety**

Architects' professional responsibility is to protect the health, safety, and welfare of the public. Design—including active streets, thoughtful lighting strategies, and open sightlines—can protect people from more than physical harm; it can remove real and perceived impediments that cause anxiety, stress, and psychological harm.



### **Access to natural systems**

People are awed by nature. Architects can harness the power of natural systems, including natural forms, diverse species, and calming vistas, to support healthy food production, to provide stress relief, and to improve human performance, especially in periods of intense stress.



### **Physical activity**

Architects should design myriad opportunities for exercise, recreation, and more active daily experiences including labor, chores, and commutes. Promoting individual choice through multi-modal transportation, varied and highly-accessible parks, and appealing stairs are small steps to reducing the risk of cardiovascular disease and other health problems.

# Six approaches, a singular pursuit

It is difficult to compare academic programs, even in a specialty field such as design and health.

Each program contributes its own distinct, rich character and, often, its own nuanced vocabulary. AIA's *Six Approaches to Achieving Health through Built Environment Design and Policy* provide one framework toward common ground by establishing six opportunities for design to positively promote health.

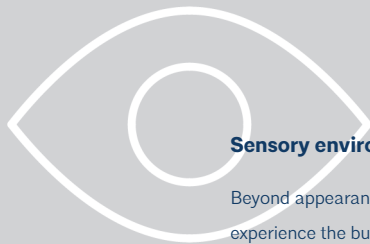
In the following section, Consortium schools provide individual reports on the impact of their research in practice and in communities in 2015. Individually, the reports reflect the diverse experiences and research priorities of the inaugural cohort. Each report is slightly different from any other. Some emphasize examples of community projects and results; others describe research and planning underway.

Collectively, however, they demonstrate the numerous opportunities for the architectural community to partner with health professionals, policymakers, and the community in a singular pursuit: health, happiness, and well-being for all, sooner.



## **Social connectedness**

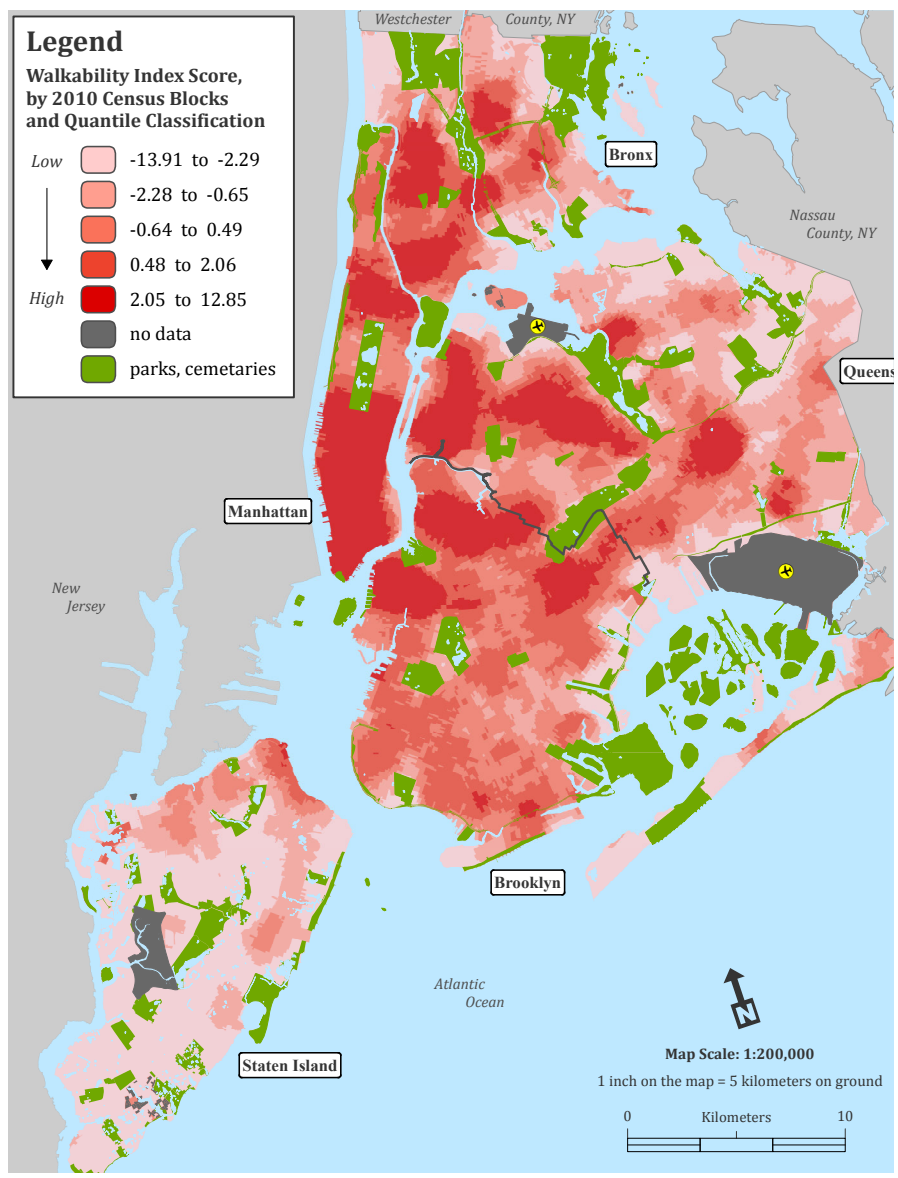
People thrive on relationships with each other. Strong networks within our families, our friends, and our neighborhoods improve our happiness, our well-being, and our resilience. Design that encourages play, communal dining, and a friendly "hello" is fundamental to behaviors such as civic participation, voting, and helping neighbors.



## **Sensory environments**

Beyond appearance—the visible beauty of an architect-designed space—people experience the built environment through touch, sound, smell, and even taste.

Design that embraces varied sensory experiences including circadian rhythms, thermal and acoustic controls, and meditative labyrinths promote mental and emotional well-being, improve quality of life, and predict improved physical health.



Map of walkability in New York City, NY, based on research conducted by the Columbia team. In addition to studying the effect of urban design on physical activity in New York, the Columbia team is conducting community needs assessments in Brazil.

SOURCE: COLUMBIA UNIVERSITY



# Columbia University

Andrew Rundle, PhD & Hilary Sample, AIA

The Columbia University team is working on two major projects. The first is to study the effect of urban design on physical activity among New York City residents using activity monitors and GPS trackers worn by 800 study participants. The project is a partnership with the New York City Department of Health and Mental Hygiene and the first paper for this project was recently published in the *American Journal of Preventive Medicine*. The research showed that study participants preferentially used areas within their residential neighborhoods that were more walkable and had higher income residents and that urban form characteristics (e.g., street network design, public transit access, land use patterns) influenced the total area of residential neighborhood space used by residents. The work also found that higher residential neighborhood walkability was strongly associated with total weekly physical activity as measured by accelerometers. Compared to participants living in neighborhoods in the lowest quartile of neighborhood walkability, participants living in neighborhoods in the highest quartile of neighborhood walkability engaged in 100 more minutes of moderate intensity equivalent physical activity per week.

The second project is to conduct a community needs assessment and series of architecture studios in Rio das Pedras, an informal community (favela community) in Rio de Janeiro. The project will identify individual and collective resiliency strategies in the face of infrastructural challenges and priorities for infrastructural solutions. The Rio das Pedras project includes: health surveys and qualitative interviews with residents; collection of data on neighborhood built infrastructure, environmental concerns and social conditions; GPS monitor based measurement of physical activity and transport; and collaborations with Columbia University student architecture studios to re-imagine the potential for infrastructure in the community.

Regarding work on urban design and physical activity, on November 2nd Rundle spoke at the “Stress and the City” event at the German Center for Research and

Innovation, an event that reached its maximum capacity for attendees. He has also been invited to speak on urban design and physical activity at the Partnership for a Healthier America Summit, May 18th to 20th in Washington, DC. He will be giving two lectures on built environments and health to undergraduates at New York University in December and taught a class on this topic as part of the “Environmental Epidemiology” course at the Mailman School. He also served as an outside advisor for a Columbia University architecture course led by architects from Perkins+Will.

In regards to Rio das Pedras, Sample and her students, along with Studio X Rio, have completed two architecture studios focused on housing needs in Rio das Pedras, and Rundle participated in the mid-term critique of the student projects for one of the studios. Sample published an article on housing in Rio das Pedras in the *Harvard Design Magazine* (“Well, Well Well,” No. 40 Spring/Summer 2015). Along with Studio X Rio, Sample will lead a joint design workshop around the subject of housing and Rio das Pedras. Lovasi, Neckerman and Rundle developed a Community Health Profile document that is being published for the residents of Rio das Pedras and a longer, more in-depth, version is being created for City Agencies in Rio de Janeiro.

More broadly Sample and Rundle will be collaborating on an invited project for The Architectural Imagination, a series of speculative architectural projects for sites in Detroit as part of the US Pavilion at the 2016 Venice Architecture Biennale. Sample and MOS Architects won the 2015 Smithsonian Cooper Hewitt National Design Award in Architecture and Sample participated in an student housing design jury for the New York City Housing Authority.

**For more information:** [www.beh.columbia.edu](http://www.beh.columbia.edu)



Students and faculty work on a design/build project to extend the Schuylkill Trail to Bartram's Garden.

SOURCE: DREXEL UNIVERSITY



# Drexel University

Yvonne Michael, ScD, SM &  
Debra Ruben, NCIDQ, LEED AP, IDEC

Drexel's Dornsife School of Public Health leads the Urban Design & Health team in collaboration with faculty from Drexel's Antoinette Westphal College of Media Arts & Design, Department of Architecture & Interiors. Our research objectives are to 1) generate data and information that are useful to city residents and policymakers in identifying and characterizing the magnitude and causes of urban health problems, 2) identify interventions and policies that are best suited to improve health and eliminate health inequalities, including generating the evidence base for these actions and rigorously evaluating interventions and policies after implementation, 3) train undergraduates and graduate students as well as external partners and community members in design and health issues, and 4) engage with communities, government, non-profits, businesses, and other stakeholders in order to increase awareness of the health issues, create a demand for health and for healthy policies, and translate evidence into effective action. Briefly we outline our 2015 achievements within each objective.

**GENERATE DATA AND INFORMATION.** Our team has published peer-reviewed articles describing the connection between the community environments and health in high quality journals. For example, we published a research note describing the association between tree canopy and crime in *Landscape and Urban Planning*. Additionally, we have provided research presentations at national conferences and meetings including a presentation of a literature review summarizing processes for human centered design and community projects at the Environmental Design Research Association (EDRA) annual meeting in Los Angeles and a paper presented at the Health Care Design (HCD) Environments for Aging Conference in Baltimore entitled "Day and Night: Better Indoor Environments for Improved Health Outcomes in Older adults."

**IDENTIFY INTERVENTIONS AND POLICIES.** Our team published a review of the impact of policy and built environment changes on obesity-related outcomes in *Obesity Reviews*. We have multiple on-going research projects that evaluate interventions and policies in relation to health outcomes, including the impact of building a school playground on a Mantua elementary school on student's health and well-being. We received funds from ASPPH to support student involvement in this on-going research project in addition to funds received to support the playground design/build.

**TRAIN UNDERGRADUATES AND GRADUATE STUDENTS.** We currently teach several courses at the intersection of design and health including a Health Care Design Studio and a BIOdesign course. In addition, two others are currently under-development and will be offered in 2016 including "Neighborhoods and Health" and "Health, Design, and Human Rights."

**ENGAGE WITH STAKEHOLDERS.** We are actively engaged with professionals in the field of health promotion and design as well as a number of community, national, and international organizations that work at the intersection of design and health. For example, we organized a community meeting, a design charrette, and a public forum as part of the development of a creative placemaking strategy for the extension of the Schuylkill Trail to Bartram's Garden. Drexel's Dornsife School of Public Health sponsored a two day symposium on urban health that brought together health practitioners, urban design professionals, and researchers.

**For more information:**

<http://drexel.edu/dornsife/>

<http://drexel.edu/westphal/>



**SPOTLIGHT**

## Connecting the ‘Dottes’

University of Kansas’ Dotte Agency connects design solutions with real community needs.

By Steve Cimino, for *AIA Architect*

Through a University of Kansas satellite collective group known as Dotte Agency, Shannon Criss is leading numerous projects including works of “urban acupuncture” aimed at determining the most helpful adjustments to problems a community may not realize it has. One of those involves remapping the bus system in nearby Wyandotte County to provide more access to healthy food options.

The goal is to rethink the bus paths with consideration given to how they’re used and what surrounds them. Can locals who ride these buses purchase healthy food on their way to and from their homes? Are the buses reachable on foot, but spread out enough to encourage light exercise?

“It’s a complex problem,” Criss says, “but one that’s based in a growing understanding of walking distances and commuter travel, and how they’re both impacted by the built environment.”

This sort of work—gathering and translating actionable research—is step one in a process that’s necessary for change. It’s the current goal of the consortium, and it exemplifies an architect’s ability to use design thinking and data to resolve challenges.

That’s something Criss’ students focus on from day one; along with days holed up in classrooms pondering big thoughts, they’re also tasked with putting boots on the ground and making improvements to the surrounding community. With the help of a “mobile collaboratory”—actually a renovated RV—parks are overhauled piece by piece. New benches and exercise equipment are added to slowly improving areas that have been known for shady dealings and trash-strewn fields. Greenhouses are constructed in abandoned lots, providing vegetables for areas that have previously been food deserts.

And with the recent call to action from Surgeon General Vivek Murthy, MD, on walkability and walkable communities, it seems the work being done at KU is ahead of the curve. But while the nation’s top physician takes on this major concern from the highest levels, the consortium wants to keep its focus on issues that local governments have not yet tackled yet, to show that architects can think beyond hospitals and healthcare facilities to see the impact of the built environment as a whole.

*A longer profile appears in the October 5, 2015 edition of [AIA Architect](#).*

SOURCE: UNIVERSITY OF KANSAS





# NewSchool of Architecture & Design and University of California, San Diego

Eve Edelstein, MArch, PhD, EDAC, Assoc. AIA, F-AAA

The DesignHealth CoLab team combines expertise in medical, education and design professions. Team leaders from the School of Medicine (UCSD), NewSchool of Architecture & Design (NSAD), and San Diego State University (SDSU) focused on design for people with varied needs. Our larger team—including, University British Columbia, Northwestern University, and University of Washington—continues to advance its many initiatives.

## Pedagogy

The Center for Healthy Environments at NSAD launched Certificates in Neuroscience and Architecture and Healthy Urbanism, for current students and non-degree-seeking qualified applicants. Areas of Emphasis in the MS and M Arch programs require lectures in these topics by professors Edelstein, Stepner, Cooke, and ANFA members. Studio workshops included Prof. Sax, SDSU (universal design) and Prof. Frank, University of British Columbia (healthful transportation, landscape architecture and planning). Professionals at Cuningham Group taught a joint healthcare design studio. Edelstein supervised an external doctoral student in the first neuro-architecture course designed for candidates not enrolled in a traditional architectural curriculum. Neuro-architecture thesis studios yielded design for autism and psychometric studies of creative spaces.

Students in Prof. Sax's required graduate course on "Applications of Rehabilitation Technology" conducted ADA Accessibility Surveys and discussed Universal Design's relationship to the built environment and access to higher education, "bridging the gaps between functionality, utility, convenience and style.....and rethinking what 'normal' is."

Dr. Bhatt and the University of Chicago and Chicago Department of Public Health (CDPH) launched the Innovation Challenge on Urban Health competition. With the Chicago Innovation Exchange (CIE), finalists may receive the opportunity to pilot their ideas and funding to help improve health within a city.

## Research-based practice

The Human Experience Lab (HxLab) at the Perkins+Will *First in a Series* workshop with the Center for Disease Control and Prevention (CDC) and ongoing meetings bring together leaders to advance "research-based practice and practice-based research." Literature reviews of medical and psychological tools in the USA, DoD, VA, UK, Australia, etc., informed a new survey approach, piloted with leaders and providers (n=60) at behavioral health facilities.

Prof. Sax joined SDSU's President's committee to improve "inclusiveness" and initiate "Enhancing Campus Culture and Climate" for people of varying abilities (E-triple C). Neuroscience and architecture provides a lens to include disability as part of diversity, improving physical access and offering more subtle ways of welcoming students, faculty, staff, and community members to the campus.

## Dissemination

Publications and presentations at international and national events in design and health included the NSAD Seminar series with Dr. Richard Jackson, Gil Penalosa, Kennedy and others. Edelstein and Kennedy contributed chapters to the *Routledge Companion for Architecture Design and Practice* (in press 2016). Edelstein presented at the World Architectural Festival, Singapore; Healthcare Design Conference; and Greenbuild in November 2015.

The *San Diego Business Journal* article "Vital Forms and Vital Functions," discussed EBD and VR simulations used in UCSD's Jacobs Medical Center. Edelstein and Dannenberg submitted "Why Architects Should Care about Public Health" to *JAE*.

Dr. Bhatt collaborated in hosting colloquia and competitions with the Chicago Department of Public Health, Hope Street Group, Matter, and RWJF, and convened expert groups of 65 change agents and leaders to elevate existing programs and address opportunities to generate greater impact.

For more information: [www.designhealthcolab.com](http://www.designhealthcolab.com)



Three TAMU fellows received a \$2.7 million grant to study the health impacts of a walkable community from the National Institutes of Health. This continues work funded through AIA & ACSA's 2012 pilot effort to fund primary research.

SOURCE: TOM MCCONNELL PHOTOGRAPHY / CATELLUS



# Texas A&M University

Kirk Hamilton, FAIA, FACHA & Xuemei Zhu, PhD

The Center for Health Systems & Design (CHSD) at Texas A&M University (TAMU) is home to the world's largest collection of interdisciplinary faculty, students, and affiliated professionals committed to research and education about environments for healthcare and improved public health. Its research and design projects extend into many other countries (e.g., Singapore, China, Japan, Sweden, Kenya) and address a variety of design and health challenges covering the life span and various scales of design. Examples of topics include healthcare efficiency and quality, physical activity, sensory environments, social connectedness, and natural systems.

The past year has been a busy, fulfilling time for our fellows and affiliated students. Following are some examples of our research, teaching, and service activities that reflect our scholarly endeavor and efforts in translating research for practitioners, policymakers, and the public.

## **RESEARCH PROJECTS ADDRESSING DESIGN**

**TRANSLATIONS.** Our fellows continued to be highly productive in research (receiving over \$4 million new grants in the last year). Many of their projects address design translations. For example, a multidisciplinary team, led by 3 of our fellows, received a \$2.7 million grant to study the health impacts of a walkable community from the National Institutes of Health (NIH).

## **PUBLICATIONS AND PRESENTATIONS WITH A**

**DESIGN-HEALTH FOCUS.** In the last year, our fellows have produced 60+ scholarly publications in a diverse collection of journals related to design and health (e.g., *Preventive Medicine, Environment and Behavior, Health Environment Research and Design*). They have also given 70+ conference presentations.

## **HEALTH INDUSTRY ADVISORY COUNCIL (HIAC).**

HIAC is an important venue for us to stay connected with design professionals. A membership in the HIAC gives our members the opportunity to interact with faculty specialized in healthcare research, design leaders in practice, and students committed to healthcare. We

currently have 6 active member firms, and successfully held our HIAC annual meetings for 2014 and 2015.

## **ARCHITECTURE FOR HEALTH WEEKLY LECTURE SERIES.**

This is a venue for leading healthcare designers and researchers to share the latest news and real-world experience with our student and faculty. It is also open to the public.

## **CHSD FIRST LOOK COLLOQUIUM AT THE ANNUAL HEALTHCARE DESIGN CONFERENCE.**

This event is a platform for our fellows and colleagues to share the latest knowledge in the field of design and health with a broad audience of healthcare designers and healthcare administrators.

**EMAIL NEWSLETTER.** We use our newsletter a way to disseminate out latest research findings with design professionals and the general public.

## **RESEARCH-INFORMED DESIGN PRACTICE.**

Our studio design projects address the intersection of design and health. Examples from last year include the medical city master plan for Nairobi, Kenya and the H-E-B future stores through collaboration with the H-E-B Corporate Headquarter.

## **2015 UIA-PHG INTERNATIONAL STUDENT**

**COMPETITION.** CHSD Faculty fellows co-organized this competition for "A Mobile Isolation, Diagnosis and/or Treatment Unit for Use in Ebola or Other Communicable Disease Epidemics," which attracted 137 entries and 299 participants from 61 schools in 21 countries.

## **For more information:**

<http://chsd.arch.tamu.edu/>

<http://chsd.arch.tamu.edu/news/newsletter/>

**“The physician must be able to tell the antecedents, know the present, and foretell the future – must mediate these things, and have two special objects in view with regard to disease, namely, to do good or to do no harm. The art consists in three things – the disease, the patient, and the physician. The physician is the servant of the art, and the patient must combat the disease along with the physician.”**

–Hippocrates, *Of the Endemics* (ca. 400 B.C.E.)



# Texas Tech University

Ray Pentecost, DrPH, FAIA, FACHA, LEED AP &  
Theresa Byrd, RN, MPH, DrPH

Lubbock, known as the “Hub City,” derives its name from being at the center of economic, educational, and healthcare activities in the multi-county South Plains region. It is regarded as the largest contiguous cotton-growing region in the world.<sup>ab,c</sup> The greater region of “West Texas” spans 131,323 square miles and is home to more than 2.8 million people, or 11.2% of the state’s population. Of the 108 counties in West Texas, 98 are classified as rural and 54 are sparsely populated with fewer than seven persons per square mile.<sup>d</sup>

The central health challenge in West Texas is how to organize the “hub city” to bring top quality healthcare services and health promotion activities to extremely low population density areas. The new Texas Tech Design and Health Institute identified the TTU Health Sciences Center F. Marie Hall Institute for Rural and Community Health (Hall Institute) as a strong partner for its interests and proposed activities for the Design & Health Research Consortium. The Hall Institute has a number of programs, which continue to make a significant impact on West Texas in the areas of health education, health informatics, telemedicine, and rural health research. The team members were chosen to complement the ongoing activities in rural health studies.

The TTU Design and Health Institute has spent the year planning and beginning to build the infrastructure to underpin its activities with the Hall Institute, including:

- Preparation for a new **post professional MS degree in Architecture**, (starting fall, 2016) with a specialization in designing for health in two tracks: 1) health and wellness, and 2) healthcare.

a “Media Resources.” Lubbock Chamber of Commerce. 2006. Archived from the original on May 6, 2007. Retrieved 2006-11-09.

b “Lubbock Community.” Texas Tech University Health Sciences Center. Archived from the original on June 29, 2014.

c Morrow, M. R.; Kreig, D. R. “Cotton Management Strategies for a Short Growing Season Environment: Water-Nitrogen Considerations.” *Agronomy Journal*.

d “Annual Report, 2014.” TTU Health Sciences Center F. Marie Hall Institute for Rural and Community Health.

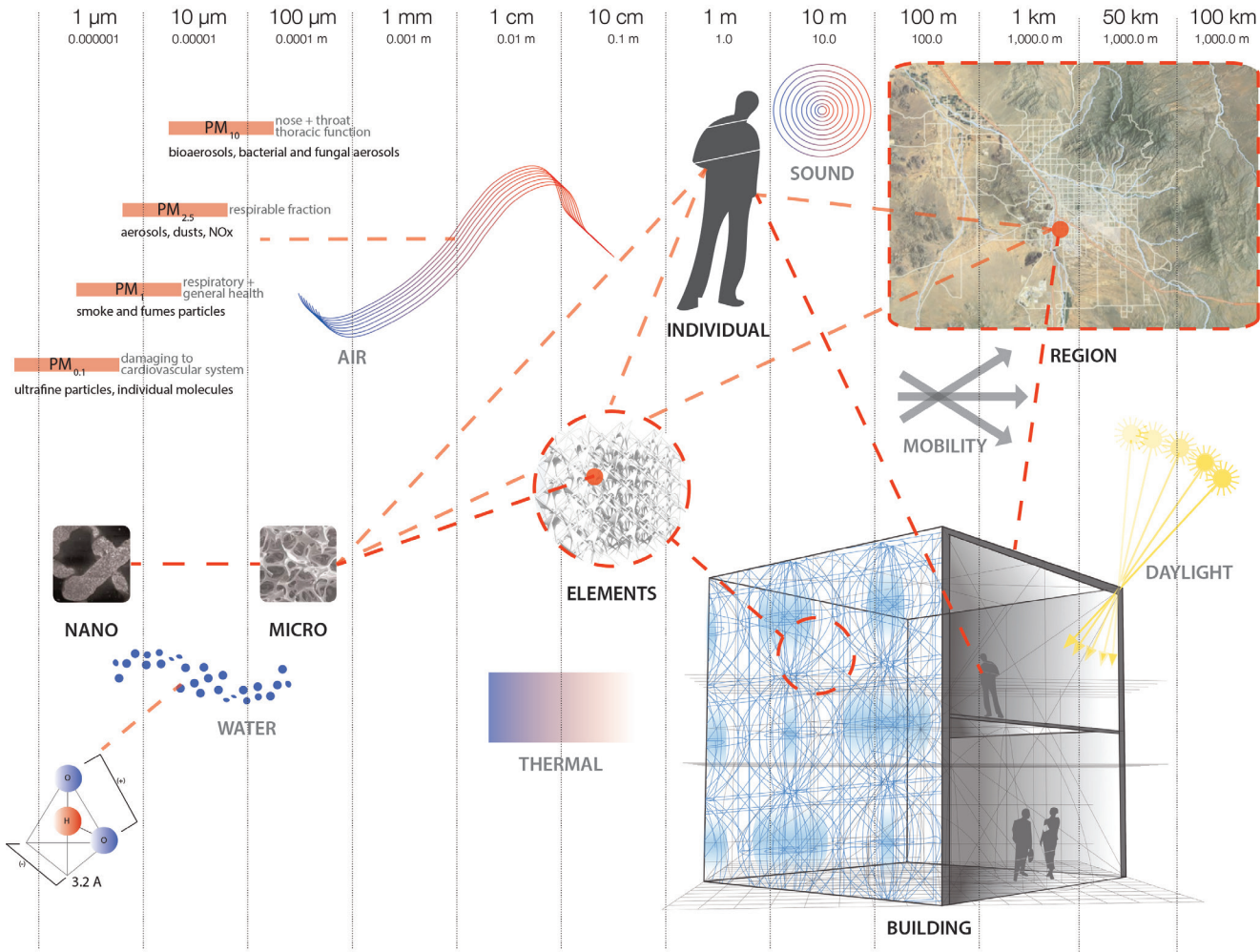
- Preparation for a major **symposium in Spring 2016**, focused on designing for health, including a proceedings document.
- Preparation for a **new website** featuring a database of design and health activities among Consortium members, and an online digital publication.
- **Development of new courses**, and the cataloging of existing courses, to support the design for health initiative certificate and degree programs.
- Preparations for a **new signature research project** that will explore, among other things, the value that individuals place on design as a major influence on their health.
- **Recruiting core Institute leadership** from both the General Academic Campus and the Health Sciences Center for a Steering Committee to complement the rural research agenda.
- Assignment of a Consortium representative to the building committee for the new **\$84 million TTU Health Sciences Center construction project**.

The Design & Health Research Consortium team from Texas Tech University/ TTU Health Sciences Center is excited about the groundwork laid this year academically, administratively, financially, and organizationally. Expectations are high that next year will be strong with research and programmatic activities that can improve the health of West Texans, offer specialized design and health studies both to the profession and graduate students interested in the specialty, and offer design development guidance for a new flagship TTU Health Sciences Center building to ensure that it is designed for health.

**For more information:**

<http://arch.ttu.edu/>

<http://www.ttuhscc.edu/>



The University of Arizona team presented this interscalar diagram at the ACSA / AIA Intersections Conference in May 2015. The work addresses interscalar aspects of design and health research.

SOURCE: SHANE I. SMITH / UNIVERSITY OF ARIZONA



# University of Arizona

Shane Ida Smith, PhD, AIA, LEED AP &  
Esther M. Sternberg, MD

The unique interdisciplinary partnership of the University of Arizona's Institute on Place and Wellbeing (UA IPW) is underway with radical research activities generating new knowledge in biopsychosocial-environmental relationships at the building and urban scales. The team is also implementing these principles to promote healthy built and natural environments, including in underserved communities, through practice, outreach, and partnering between design, planning, and healthcare professionals, and with community leaders, private sector stakeholders, and policymakers.

The UA IPW team is actively engaged in ongoing large-scale funded research activities, including with the General Services Administration and the Department of Defense, to explore the impacts of built environment parameters on human health and well-being. Other significant efforts this year include: 1) the team's interdisciplinary presentation for research integration into curriculum and practice at the ACSA/AIA Intersections Conference preceding the team's panel presentations at the 2015 AIA National Convention; 2) strategic faculty hire and development of the MS. Arch Health and Built Environment program; and 3) regional and federal policy impact through testimony and briefings.

**ACSA / AIA INTERSECTIONS CONFERENCE.** The team's paper publication in the ACSA/AIA Intersections Conference was presented to a peer audience of academics and professionals in Atlanta in May. The work addresses interscalar aspects of design and health research integration into curriculum and practice. Our vision encompasses the individual, building, and community scales, and addresses research outcomes for fundamental knowledge areas of human health and well-being. The data generated will inform primary attributes in design strategies, public health strategies for regions and neighborhoods resulting from Urban Form Index metrics, and design methods integrating health and well-being attributes into material, spatial, and formal configurations. The team also contributed outstanding panel presentations on health in the built environment at the 2015 AIA National Convention.

**MS. ARCH HEALTH AND BUILT ENVIRONMENT DEGREE DEVELOPMENT.** The UA College of Architecture, Planning, and Landscape Architecture in conjunction with the UA College of Medicine is conducting a national search for a tenure-track faculty with specialization in health, well-being, and neuroscience aspects of built environment design. This strategic faculty hire is aligned with the UA School of Architecture's post-professional MS. Arch Health and Built Environment degree development, and the Institute for Place and Wellbeing research agenda.

**LOCAL AND FEDERAL POLICY.** In the regional policy arena, Dr. Esther Sternberg testified before the Pima County Board of Supervisors on behalf of a complex bond measure advocating for a wide range of municipal planning efforts with potential health impacts related to design decisions. She also published an Op Ed piece on this topic in the *Arizona Daily Star*. This effort aligns closely with the Surgeon General's recent Call to Action, "Step it Up!" to promote walkable communities through design. At the Federal level, Dr. Sternberg and colleagues briefed the Acting Surgeon General, The Office of the Surgeon General, the Acting Director of the NIH Office of Behavioral and Social Sciences, and other federal government leadership on design and health. These examples represent only a small part of a wide spectrum of interdisciplinary research, outreach, and practice that the UA IPW team is conducting to advance scholarship and translation to practice.

**For more information:** <https://ipw.arizona.edu/>



In less than twenty years there will be more people over the age of 65 than under the age of 19 – that is, more older adults than children and teenagers.





# University of Florida

Sherry Ahrentzen, PhD, Assoc. AIA

The University of Florida team's focus is on the challenge of facing an aging society with current systems and environments in place that were not built or created with an aging population in mind.

The challenge emanates from the “disruptive demographics” on the immediate horizon: the shift of the population pyramid at all age segments. In less than twenty years there will be more people over the age of 65 than under the age of 19 – that is, more older adults than children and teenagers.

Since older adults spend 80 to 90% of their time indoors at home, the residential environment is the key setting where the designed environment can foster or exacerbate health.



Using the tag **Vital by Design Initiative** to identify our collection of efforts that take on this aging challenge, we are undertaking research and its translation to

craft design and policy strategies that improve occupant safety, environmental quality, active living and social connectedness in the myriad of residential settings occupied by older adults. High-performance buildings are typically associated with energy, water, and resource efficiency. We want to *shift this paradigm* to also include high-performance buildings and community infrastructure for occupant health.

We are partnering with senior living communities, with agencies managing aging-in-place services, and with non-profit organizations advancing lifespan housing and community design. These are our *living labs* where research, innovation, evaluation, and modification occur amid the lived experiences and home settings of older residents. We are also establishing ties with policymakers to ensure that findings of our research help inform building certifications, facility guidelines, standards, and housing policies.

A few examples of our endeavors are described briefly below.

- A HUD-funded longitudinal study examined health impacts of a green retrofit of low-income senior housing. Findings showed that reduction in indoor temperature spikes corresponded to increased number of hours of sleep and decreases in reported depression. Doctoral research is building upon that earlier work to gauge **how best to establish thermal, environmental quality, and daylighting markers and standards for residences of older adults** that go beyond present-day benchmarks and foster positive health-inducing behaviors like sleep, activities of daily living (ADLs), activity bouts, engagement, and reduced anxiety.
- **Active living in an aging context** is more than walking and bicycling; it also means activities of daily living – dressing oneself, preparing a meal, etc. Medical evidence shows that sedentary behavior has a harmful effect on health independently of the total amount of physical activity performed. A recently published systematic research review sheds light on expected and unexpected building characteristics associated with reductions in sedentary behavior and enhancements in active living in an aging context (DOI: 10.1080/09613218.2015.1056336). This research is being presented at “healthy design” workshops in academic and professional venues.
- A proposed study plans to examine **“hot spots” of patient falls** in over thirty VA hospitals, using hospital records, space-syntax and spatial modeling software programs to analyze how spatial characteristics that enhance nurses’ visibility and accessibility of patients may be associated with patient falls.
- **To aid older adults aging-in-place within a New Urbanist neighborhood**, findings from a study showed that attracting older adults and supporting their social needs was primarily a factor

of maintaining a site's natural beauty and locating key retail services conveniently to home and other places visited daily. The most important factors for creating successful social spaces were those that support private conversation as well as group gatherings. The findings were presented to a major Florida land developer and have been published in journal articles.

- While smart home technology is often touted as the silver bullet for aging-in-place while minimizing need and expenses for in-home care services, valid research documenting the factors influencing adoption and gauging effectiveness of such technology in the home is minimal. We are using our *living labs*, some units to be outfitted with **age-receptive sensors and smart devices**, to examine acceptance and effectiveness in residents' actual homes.

In conclusion, the challenge of disruptive demographics is not a “silver tsunami” with its implications of destruction and chaos. Rather America is aging, and Florida with its demographics—where 29% of the state’s households have a householder 65 years or older—provides a frontline opportunity to reshape the mission of environmental design in fostering vitality and positive health outcomes for aging. University of Florida is in the right place and has the right university culture to advance this audacious goal.

**For more information:**

- <http://www.dcp.ufl.edu/vital>
- <http://www.shimberg.ufl.edu/>
- <http://phhp.ufl.edu/>



SOURCE: SHERRY AHRENTZEN / UNIVERSITY OF FLORIDA

## SPOTLIGHT

# 'Active' collaboration

University of Illinois chooses collaboration over competition, and sets the Consortium up for success.

The Consortium is comprised of eleven unique teams, each selected for its unique strength, personnel, technology, and research history. One quickly realizes that the challenge isn't competition between institutions, because each organization is capable of—and is in fact pursuing—territory that it is individually best suited to cultivate. Rather, the Consortium can help each university to identify, celebrate, and multiply their respective strength with the support of their peers.

**Sedentary Behavior at the Architectural Scale**  
Workshop - Architecture design and sedentary behavior  
October 15, 2015, 2:00 PM – 5:00 PM

Thursday, October 15, 2015  
Location: Kranzert Art Museum, Room 42  
500 East Peabody Drive  
Champaign, Illinois

**Schedule:**

- 2:00 - 2:15 - Welcome and Introduction to Sedentary Behavior at the Architectural Scale
- 2:15 - 2:30 - **William Sullivan**  
Connecting the disciplines to Reduce Sedentary Behavior
- 2:30 - 2:45 - **Mohabb Basid**  
Discussion in architectural practice: An architect's take on sedentary behavior
- 3:00 - 3:25 - **Sherry Ahrentzen**  
Sedentary Behavior: Linking Action, The Role of Building Design and Intra-in-Aging Architecture of Home
- 3:25 - 3:40 - **Discussants respond**
- 3:40 - 4:05 - **Fel Bosch**  
Comparing Sedentary Behavior at multiple Scales of the City and Transport/Health Building
- 4:05 - 4:30 - **Lynne Dearborn**  
Sedentary Behavior in Inhabitable Environments
- 4:30 - 4:45 - **Discussants respond**
- 4:45 - 5:00 - **General discussion**

**Speakers:**

- Sherry Ahrentzen**, PhD, AIA, Associate Professor of the School of Architecture, University of Florida
- Lynne M. Dearborn**, PhD, AIA, Associate Professor of Architecture and Urban Design, School of Architecture, University of Illinois
- William Sullivan**, PhD, AIA, Professor and Head of the Department of Architecture, University of Illinois
- Fel Bosch**, 2010 AIA Fellow, Director of Design Practice, Office of Architecture, University of Kansas
- Mohabb Basid**, 2010 AIA Fellow, in the School of Architecture, Design and Urban Planning, the University of Kansas

**Discussants:**

- Neville Owen**, Senior CI Heart and Diabetes Institute, Australia
- David W. Owen**, Senior CI Heart and Diabetes Institute, Australia
- Clare Crane**, University of Colorado, Boulder
- Weimo Zhu**, University of Illinois-Champaign

SEDEDARY BEHAVIOR CONFERENCE  
UI/ASUA CHAMPAIGN, ILLINOIS  
www.sedentarybehavior.com  
Register Now!

Recognizing that opportunity, the **University of Illinois** team shifted their emphasis from a sole focus on being physically active to also include reducing sedentariness as important considerations in the design and health discourse. In doing so, the Illinois team has set itself apart from other institutions exploring physical activity and become an active Consortium collaborator.

In October, the Illinois team hosted the three day *Sedentary Behavior and Health Conference* to provide a forum to address practice concerns, critical measurement, and research issues related to significantly reducing sedentary behavior. The multi-disciplinary conference and architectural preconference workshop invited teams from **University of Kansas** and the **University of Florida** to share their own work promoting physical activity and reducing sedentary behavior through design. Supported by the Society of Health and Physical Educators, the American College of Sports Medicine, and the National Center for Supercomputing Applications, the *Sedentary Behavior and Health Conference* is a model for Consortium collaboration. Capitalizing on their respective individual strengths, participants were able to work across the Consortium network to message their work to a broader audience of community members, policymakers, students, and professionals. Through similar professional programs, including nearly two dozen at local AIA Components, the Consortium teams reached more than 1,800 professional practitioners.

### Other notable 2015 collaborations include:

- Members of the **University of Florida** team visited **Texas A&M's** campus to identify and pursue research opportunities.
- Administrators in the **University of Arizona**, College of Architecture were inspired by **University of Illinois'** Weimo Zhu, PhD, to purchase and use standing desks.
- Eve Edelstein, MArch, PhD, Assoc. AIA, (**NewSchool of Architecture & Design**) joined Sherry Ahrentzen, PhD, Assoc. AIA, (**University of Florida**) for an EDRA plenary presentation, "Designing for the Spectrum: From Neuroscience to Design Actions."



Students participate in “Planning and Designing for a Healthy Environment in Central Illinois,” one of several design-health courses taught at the University of Illinois.

SOURCE: DANIKA COOPER / UNIVERSITY OF ILLINOIS



# University of Illinois at Urbana–Champaign

Lynne Dearborn, PhD

Current initiatives by the University of Illinois's AIA Design & Health Consortium team promote translation of research in multiple realms to inform environment-focused policies and built environment transformations. Alliances with practitioners, our community-based engagement, and academic courses for design/planning majors facilitate this work. Residents of the State of Illinois report some of the nation's highest rates of stress (APA 2012, 2014). Most acute among those in low-income households and for younger adult populations, these stresses grow from concerns of contemporary life and from environmental factors. An appropriately designed environment has the potential to restore us following stressful experiences and can also facilitate healthy behaviors in stressful situations, reducing the negative impact of stress itself as well as the potentially negative impact of unhealthy coping strategies. The University of Illinois team's research and translation work targets the role of contemporary environments in both contributing to and alleviating stress responses prompted by daily life.

Illinois team members study misfits between human needs and conditions in the environment, which may trigger the human stress response. Members bring such misfits to the attention of design and planning students, practitioners, and policymakers who can intervene in the environment to reduce these misfits. We also seek to better understand environmental conditions that have the potential to restore humans following exposure to stressful conditions. Further, we believe it is critical to examine the various coping strategies people employ in response to stressful conditions and to identify prompts for healthful coping through appropriately designed environmental cues and conditions. Restorative environments research currently underway at the University of Illinois has yielded findings regarding conditions in schools and neighborhoods that can reduce stress and improve attention (e.g., Jiang, B., Larsen, L., Deal, B., & Sullivan, 2015, *Landscape & Urban Planning*; Jiang, B., Li, D., Larsen, L., & Sullivan, W.C., 2014, *Environment & Behavior*). Other members

explore ways that policy can work to reduce misfits between needs of vulnerable populations and the housing and neighborhoods where they live. Finally, serving to support members' work to understand sedentary behaviors—some of the most detrimental coping strategies for people under stress—in October our team hosted the *Sedentary Behavior and Health Conference* and preconference workshop highlighting architecture and sedentary behavior.

Illinois team members disseminate their research through **traditional academic venues** but also seek to make their work accessible to **practitioners** and the **public** more broadly and, through these efforts, to influence environmental changes that promote a healthier existence. Illinois Cooperative Extension, a current team partner, is supporting community outreach and translation work in Peoria County. Numerous architectural firms are also part of the Illinois team's design and health efforts. The team believes its greatest influence on future environments comes when design/planning students apply design-health research to address complex societal challenges through active and engaged learning initiatives like the **2015 FAA College Arts Exchange** and interdisciplinary efforts like the **five 2015-16 Peoria-focused studios**. Next year the Illinois team is expanding its instructional efforts through a new campus-wide general education environment-design-health course.

#### For more information:

<http://www.arch.illinois.edu/>

<http://kch.illinois.edu/>

<http://www.sedentaryconference.com>



The University of Kansas' Dotte Agency practices community engagement through maps.

SOURCE: UNIVERSITY OF KANSAS



# University of Kansas

Mahbub Rashid, PhD, RA

Members of the Design & Health Research Consortium team at the University of Kansas are working on projects aimed at improving access to healthy food and healthcare by underserved and vulnerable population through design. In 2015, our team members have received **\$249,000** from various funding organizations for their work. They have taught **11** courses on topics related to design and health. They have hosted at least **15** public-facing events including public symposia, community workshops, presentations to local boards, and/or evaluations of specific design interventions. Also in 2015, they have collaborated with **19** healthcare firms and organizations, and **16** design firms and organizations. Additionally, the team members have engaged with different AIA Component events in 2015, including hosting the *Design Futures Public Interest Design (PID) Student Leadership Forum*. This event brought together more than 100 architecture, design, and urban design students with more than 30 university faculty and leading national speakers in Public Interest Design.

Led by Shannon Criss, Nils Gore, and Matt Kleinmann, our Dotte Agency addresses the intersection of two important health factors for the underserved community in Wyandotte County by improving access to healthy food and promoting walkability in the built environment. The Agency seeks ways to reveal information and test ideas through mapping, visualizations and prototyping. This year, the agency has received \$139,000 from different community and healthcare foundations and organizations.

With a \$35,000 research grant from the University of Kansas Research Investment Council, Hui Cai, Kent Spreckelmeyer, and Frank Zilm are organizing a think tank to build an agenda for research on innovative rural healthcare environments improving access to healthcare by remote and underserved rural population. The think tank will include several health providers,

rural healthcare organizations, health IT firms, and AEC firms that have a focus on rural healthcare design and construction.

Supported by several healthcare technology and design firms and university research centers, our Housing Lab project led by Joe Colistra seeks to develop a prototype demonstration housing unit for improved access to healthcare by the elderly population. The lab will establish best practices in aging-in-place strategies and smart-home technologies, and will investigate prefabricated construction methodologies to bring plug-and-play technology infrastructure to the exploding senior housing market.

Supported by companies such as Ford and Intel, Greg Thomas and his team of design and healthcare professionals have designed the *WellCar*, a vehicle providing healthcare to chronically-ill people who are homebound or unable to travel without increased health risk. The *WellCar* is equipped with the latest technologies in patient health measuring and monitoring capabilities, secure software systems and telemedicine. The *WellCar* will be fully functional by the end of 2015, and will be used in research projects documenting its ability to improve healthcare access at a minimum cost.

With a \$41,000 research grant from the University of Kansas Research Investment Council and another \$25,000 research grant from JMD Architects, Mahbub Rashid is leading a team of Critical Care health professionals and design experts to find ways to improve patient care and safety, and communication and collaboration among stakeholders in critical care through design.

#### For more information:

<https://sadb.ku.edu/>  
<http://www.kumc.edu/>  
<http://kumocolab.org/>



A North Ponce workshop connects University of Miami researchers with local community members of all ages.

SOURCE: UNIVERSITY OF MIAMI





# University of Miami

Joanna Lombard, AIA, LEED AP, Scott Brown, PhD & Maria Nardi

Over the last 15 years, the University of Miami Built Environment Behavior and Health Team has conducted studies funded by the US Department of Housing and Urban Development; National Institute of Diabetes, Digestive and Kidney Diseases; National Institutes on Aging; Mental Health; and Environmental Health Science; and the Robert Wood Johnson Foundation. This work has identified associations between neighborhood organization and building design in the conduct of children in schools; the health trajectory of elders over 5-years; health impacts of proximity to the Urban Development Boundary; and built-environment impacts on the health of Miami-Dade County's 750,000 Medicare/Medicaid beneficiaries. Work has been shared through 13 journal articles, 15 conference papers, 2 book chapters, 2 dissertations, and in local, state and national professional and community-based events.

Through membership in the Design & Health Consortium, with lead partner, Miami Dade County Parks Recreation and Open Spaces (MDPROS), and partners in the Florida Department of Health in Miami Dade County (FDOHMD), AIA Miami, and ASLA Florida, the team has focused on three primary 2015 initiatives:

1. Enhance interdisciplinary academic offerings.
2. Initiate community-based research and intervention.
3. Provide professionals with applicable translations of research findings.

The team has developed a proposal for an interdisciplinary certificate and created co-curricular opportunities; engaged community partners in teaching and research; and participated extensively in events to advance professional and community engagement as follows:

## Interdisciplinary academic offerings

**CERTIFICATE PROGRAM.** Based on research, public outreach, curricular interconnections, and Consortium focus, the team has developed a Health & Built-Environment Certificate program to be offered in both Public Health Sciences (PHS) and Architecture. The proposal awaits program faculty review.

**CO-CURRICULAR EXPERIENCES.** Spring 2015, MDPROS and the FDOHMD partners, with primary-care and emergency-medicine health professionals participated in a design studio for a primary-care clinic and health district. AIA Miami and the Miami Center for Architecture and Design with AIA COTE reviewed student work. With input from representatives of the AIA Academy of Architecture for Health and US Environmental Protection Agency, students developed healthy neighborhood metrics, presented at CNU23. Fall 2015, PHS and Architecture students conducted workshops and a pop-up project for a "Medical Main Street," to raise awareness of built-environment and health impacts. In partnership with AIA Miami, the *Design Thinking Colloquium* with national leaders introduced design thinking methods, followed by a multi-disciplinary workshop.

## Community-based research and intervention

The Consortium team partners will conduct a funded study in 2016 to identify control and intervention park locations for the application of strategies shown to enhance physical activity. The team will assess pre- and post-intervention installations to determine impact and results will guide programs, facility design, policy, and general practices to impact existing and future developments.

## Applications

The team is actively creating community-friendly toolkits for local and national workshops, such as the National Recreation and Park Association and MDPROS inaugural NRPA Innovation Lab in which Consortium members led a hands-on project with park directors and agency leaders from across the US to apply findings in health and environment research to develop innovative solutions.

**For more information:**

<http://www.arc.miami.edu/>

<http://www.med.miami.edu/>

<http://www.nrpa.org/innovation-labs-miami-florida/>



## SPOTLIGHT

# Health in the classroom

Consortium schools offer more than 90 courses on design and health to prepare the next generation of leaders.

In 2015, members of the inaugural cohort offered more than 90 courses on design and health for students studying architecture and public health. Although some of these courses center on the design of primary care facilities, many more adopt the spirit and language championed in the AIA's Six Approaches. These courses explore the value that design decisions have in anticipating and fostering health outcomes in schools, offices, and homes outside the purview of traditional healthcare design.

These offerings are important because they introduce students to a new vocabulary and prepare them for significant shifts in practice. Courses like "Environmental Design Analysis" at **Texas Tech University** and "Urban Environment and Public Health" at the **University of Miami** invite students to work in tandem with researchers to apply health concepts in community assessment and design projects at the undergraduate and graduate levels.

Whereas courses offered at **NewSchool of Architecture & Design** ("Seminars in Neuroscience") consider how neural principles might inform architectural practice, the Armourdale neighborhood of Kansas City, KS, has directly benefit from the work

of Nils Gore's "Design/Build Architecture Design Studio" at the **University of Kansas**. Community-engaged scholarship is critical to the education of future leaders because it helps students to see how we as architects can use design—and evidence—to propose solutions that can improve the life of people in the community.

Courses like "Healing Spaces – Places and Wellbeing," developed by **University of Arizona** for the Leadership Program in Integrative Healthcare at Duke University, demonstrate the capacity of member schools to transmit knowledge between institutions. Peer universities look to the Consortium membership for thought leadership and curricular expertise as they prepare for greater pressure to collaborate within and between universities.

Consortium schools are piloting a variety of collaborative models including dual degrees, certificates, multi-disciplinary Centers, and inter-institutional programming. These collaborations not only reinforce the link between design and public health for students, they also help universities to build efficiencies, practice community-engaged scholarship, and unlock new development opportunities.



# University of Oregon

Kevin Van Den Wymelenberg, PhD

The University of Oregon Biology and Built Environment (BioBE) Center is composed of architects, biologists, health researchers, and landscape architects, and is partnered with the Oregon Research Institute (ORI). The team investigates how the design of the built environment at multiple scales affects human health. Our goal is to optimize the design and operation of buildings to promote both human health and environmental sustainability. The BioBE Center is particularly interested in determining whether and how microorganisms may be part of the mechanism that mediates the relationship between design and human health. ORI is also researching the relationships of physical fitness, food systems, and the built environment.

Over the past year, as an inaugural member in the Design & Health Research Consortium, we have explored:

1. How parks and other green infrastructure may contribute a beneficial diversity of microbes to urban air;
2. How sustainable architectural practices, such as natural ventilation and daylighting, influence indoor microbial communities and antibiotic resistance;
3. How individual occupants contribute their own “microbial cloud” to rooms and surfaces inside buildings;
4. How weatherizing residences impacts the indoor microbial community;
5. How various instructional settings (e.g., classrooms, gymnasiums, outside learning environments) facilitate teacher led physical education instruction and student transitions to classroom activity, attentiveness to task, and behavioral cooperation in the classroom;
6. The nutrition and physical activity environments of childcare centers and home day care programs; and

7. The use of community engaged research to design and conduct school, community, and family-based physical activity and food system interventions.

This research was supported primarily by five new grants. Three grants were funded by Lane County Public Health for our work in nutrition and physical education in schools. We received two grants by the Alfred P. Sloan Foundation (\$1.3M) and the US Environmental Protection Agency (\$1M) for new research of the microbiome in the built environment.

Our research of health in the built environment resulted in over 20 conferences presentations and workshops, and 13 peer-reviewed publications. Our team also participated in several microbiome consortia organized by the Kavli Foundation, the White House Office of Science and Technology Policy, and the American Society for Microbiology.

**For more information:** <http://biobe.uoregon.edu/>



Outreach in Peoria, IL, for “Planning and Designing for a Healthy Environment in Central Illinois.”

SOURCE: DANIKA COOPER / UNIVERSITY OF ILLINOIS

# Conclusion

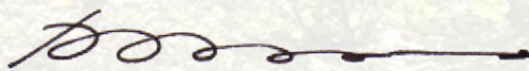
## A message from the 2015 Chair, AIA Design & Health Leadership Group

The honor of selecting the inaugural members of the Design & Health Research Consortium in November 2014 was among the highpoints of our work on this important topic. My colleagues—doctors and architects, educators and practitioners, planners and public health professionals—resolved to help AIA achieve something unprecedented in its history: partnership between architecture and schools and programs of public health.

That was just the beginning. One year later, AIA, the Architects Foundation, and the Association of Collegiate Schools of Architecture have realized gains possible only through close interdisciplinary collaboration. Consortium members are collaborating in novel ways within universities and with each other. The members have reached more than a thousand practicing architects, public health professionals, and community members outside of academia.

As the dean of the School of Architecture at the University of Hawai'i at Manoa, I'm witnessing firsthand the transformative effect of this movement within the academy. Our faculty boasts one of just a few joint appointments in architecture and public health in North America. The uptick in Consortium-offered courses for students studying architecture and public health—more than 90 in 2015—suggests that more joint appointments will follow, catalyzed by efforts highlighted in this report.

In 2016, we will welcome up to six more university teams into the fold, further multiplying the good work of the individual schools and our collective effort to make the relationship between design and health relevant to students, practitioners, and the communities we serve, who are the true beneficiaries of our efforts.



**Daniel Friedman, PhD, FAIA**

2015 Chair, AIA Design & Health Leadership Group



# Acknowledgments

The AIA, Architects Foundation, and ACSA give thanks to the many authors who contributed to this report and to the continued success of the Design & Health Research Consortium.

## The American Institute of Architects

### Robert Ivy, FAIA

Executive Vice President / Chief Executive Officer

### Steve Cimino

### Suzanna Kelley, FAIA, LEED AP BD+C

### Lindsey Mullarkey

### John Schniedawind

### Scott Ward (consultant)

### Matthew Welker, Assoc. AIA

## Architects Foundation

### Sherry-Lea Bloodworth Botop

Executive Director

### Marta Zaniewski

## Association of Collegiate Schools of Architecture

### Michael Monti, PhD

Executive Vice President / Chief Executive Officer

## Consortium members

### Sherry Ahrentzen, PhD, Assoc. AIA, University of Florida

### Scott Brown, PhD, University of Miami

### Theresa Byrd, RN, MPH, DrPH, Texas Tech University

### Lynne Dearborn, PhD, University of Illinois at Urbana-Champaign

### Eve Edelstein, M.Arch, PhD, Assoc. AIA, F-AAA, NewSchool of Architecture & Design

### Daniel Friedman, PhD, FAIA, University of Hawai'i at Manoa

### Kirk Hamilton, FAIA, FACHA, Texas A&M University

### Joanna Lombard, AIA, LEED AP, University of Miami

### Yvonne Michael, ScD, SM, Drexel University

### Maria Nardi, Miami Dade County Parks and Open Space Department

### Ray Pentecost, DrPH, FAIA, FACHA, LEED AP, Texas Tech University

### Mahbub Rashid, PhD, RA, University of Kansas

### Debra Ruben, NCIDQ, LEED AP, IDEC, Drexel University

### Andrew Rundle, PhD, Columbia University

### Hilary Sample, AIA, Columbia University

### Shane Ida Smith, PhD, AIA, LEED AP, University of Arizona

### Esther Sternberg, MD, University of Arizona

### Kevin Van Den Wymelenberg, PhD, University of Oregon

### Xuemei Zhu, Texas A&M University



**The American  
Institute  
of Architects**

**Architects  
Foundation**

 **ACSA**  
ASSOCIATION OF COLLEGIATE  
SCHOOLS OF ARCHITECTURE