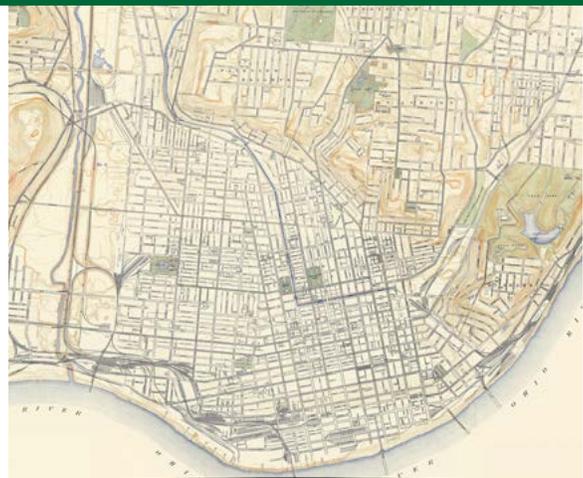


edra core  
**CERTIFIED**

**Certificate of Research Excellence**

**2018 Recipient Project Profiles**

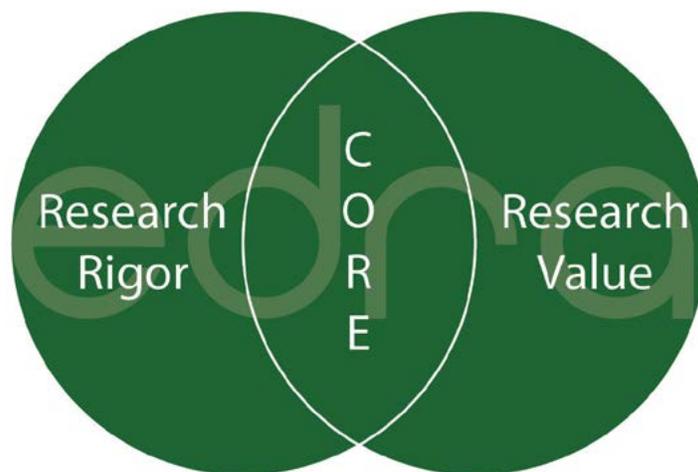


*improving environments through research excellence*

## About CORE

Practitioners who conduct design research as part of their work have much the same interest as academic researchers in receiving validation and credit for the quality of their research efforts. Currently, the credibility of academic research is judged on the basis of well-established protocols and peer-review processes generally associated with the publication of scholarly articles describing their research. However, this means of recognition is not normally available to design professionals, who tend to be focused on project delivery and business, and are less likely to prepare formal scientific reports. The response to this situation, developed by the Environmental Design Research Association (EDRA), is the Certificate of Research Excellence (CORE) program. CORE is a structured evaluation program based on criteria—applied by trained experts—to confirm the quality of practice-based design research.

Applications to CORE undergo a rigorous, double-blind review by an interdisciplinary panel of experts. Evaluations are based on two main dimensions: (1) Research Rigor—the use of recognized scientific approaches (research design, tools, and data collection) and techniques to produce valid results (data analysis and interpretation of findings); and (2) Research Value—the study’s actual (or potential future) impact on the design industry and project stakeholders.



CORE’s unique evaluation framework:

- Identifies practice-based environmental design research that is not only rigorous, but also offers measurable value, meets industry challenges, and advances design thinking;
- Recognizes the importance of design research in practice;
- Provides a compass to guide designers, researchers, organizations, and manufacturers in their design research and evidence-based design efforts; and
- Builds on EDRA’s tradition of inquiry, reflection, collaboration, and commitment to innovation.

2018 was the third and final pilot year for the EDRA CORE program, with seven projects earning CORE recognition.

# Beyond POE: Leveraging Knowledge across Firms in Sutter Health's Facility Evaluation Program

[Sutter Health](#), [HDR](#), [HGA](#)

**Study Team:** Renae Rich, MS; Shahrokh Sayadi, MS; Terri Zborowsky, PhD; Jill Bergman, AIA ACHA; and Jeri Brittin, PhD

Post-occupancy evaluation (POE) is frequently used to determine the success of healthcare architecture projects. Yet, definition and application of healthcare facility POEs has been very inconsistent across the industry, with varied content such as technical and mechanical assessments, sustainability measures, and/or evaluation of occupant satisfaction with an environment. A leading health system engaged two architecture firms to define and leverage facility POE purposefully and proactively to drive ongoing improvement in its expedited project delivery (EPD) program.

The objective of the EPD program is to validate and deliver clinics twice as fast, for twenty percent less, with a twenty percent reduction in post-project non-clinical operational costs, and an increase over time in occupant satisfaction. Achievement of this objective supports the health system's agility in an evolving healthcare market, while ensuring fidelity to its paramount goals of Quality, Affordability, and Access.

To support these goals, the three entities worked in tandem to develop an evaluation framework, create a validated survey tool to measure occupant experience, and initiate an ongoing implementation and feedback plan. The key component of the initial facility performance benchmarking effort was an occupant experience survey intended to gather feedback about aspects of the built environment from the perspective of the employees who work in the clinics, as well as to measure select outcomes potentially related to the facility design. To date, staff at seven facilities have been surveyed.

This effort is important so that the health system will learn how aspects of clinic design impact occupant experience. This will help address the current and future design needs of the clinics with the goal of increasing occupants' satisfaction with, and well-being in, their work environments.

[Read the full study report](#)

# New Evidence Informs Future Living-Learning Residence Hall Design

[TreanorHL](#)

**Study Team:** Sharmin Kader, Nadia Zhiri, Kara Grant, Chareny Rydl, Kyle McCracken, and Carol Binzer

College and university student housing facilities are taking a new shape by developing learning centers within student living environments. This trend has created innovative ideas, but the research on the efficiency of those spaces is missing in literature. This study addresses this issue with a post-occupancy evaluation of a newly constructed (2013) student housing facility that incorporates living-learning components. The residence hall's ground floor contains mixed-use functions such as a community learning center, game room, media room, convenience store, coffee shop, music practice room, tutoring areas and classrooms; the floor and its amenities are accessible to all campus students. The upper four levels are dedicated to housing accommodations and restricted to residents only.

The study's main objectives were to: a) Identify the level of satisfaction with the project mission and the prioritized goals; b) Measure the users' satisfaction with their physical environment; c) Identify successful design features; and d) Identify areas for improvement. The data collection process involved four methods: an online survey to measure residents' satisfaction (32% response rate); face-to-face individual interviews (30-45 minutes) with resident-assistants and students; ethnographic observation by researchers for seven days; and, focus group interviews with eleven stakeholder groups (e.g., academic partners, department of residence life, facilities services, energy services, residence education, housing conference and tours) who were involved during the project planning and programming. The study endeavored to determine what worked, what didn't and possible areas of improvement.

Major findings include: a) the mixed-use model with various social-academic spaces invites more student utilization, creates better social interaction and sense of community, and increases students' satisfaction; b) the community learning center with an advanced computer lab and multiple collaborative study rooms helps support students' academic success; c) in the upper-accommodation levels, diversity in lounge design avoids feeling institutional, and increases mingling among students; and d) combining kitchen, dining and living areas for open-plan community lounges provides opportunities for social-cooking student interaction and creates a sense of home.

This study has identified areas of success and areas of improvement. It also developed recommendations based on the analysis. These recommendations help architects and housing administrators planning and designing future projects (implemented in four new projects). The housing administrators have utilized this knowledge to improve the facility and modify their operation and maintenance, which, in turn, helps the user groups. The significant takeaway for the stakeholders from this study is that university housing is remodeling four residence halls based on these study suggestions.

The study method (mixed-method) also carries significance for future research in these disciplines. Another significant outcome of this POE study is that it has opened an opportunity to develop a student satisfaction survey questionnaire. The survey tool (questionnaire) has been published in a peer-reviewed conference proceeding which provides a standardized tool for the user's evaluation of the physical environment, functional or social environment, and utilization rate.

[Read the full study report](#)

# Behavior Change through Design: The Virginia Center for Behavioral Rehabilitation (VCBR)

[HDR, VCBR](#)

**Study Team:** Susan Puumala, PhD; Renae Rich, MS; Jason Beshore, CDT Assoc. AIA; Anita Schlank, PhD ABPP; and Jeri Brittin, PhD

Recently, there has been considerable attention devoted to the conditions of confinement for those civilly committed under the Sexually Violent Predator (SVP) statutes. One important aspect of those conditions is the actual structure of the secure facility. It is often noted that those civilly committed under SVP statutes must be afforded more considerate treatment and conditions of confinement than those incarcerated in prisons (Chamberlain, 2007). Class action lawsuits alleging unconstitutional treatment sometimes include a focus on the physical environment. For example, in Minnesota, it has been noted that the construction of the facility conveyed “the facility’s intentional punitive design (Frezzo, 2015, p. 673).” It was also noted that the architects that designed the new wing published a statement on their website about how they had developed a “maximum security environment for these extremely dangerous individuals” (p. 673), which was viewed as supporting a ‘punitive’ intent. In addition, the layout of the facility was noted to be analogous to that of Minnesota prisons.

The SVP program in one state is in the process of renovating its current facility and expanding the structure in a manner that would enhance the existing treatment environment, which has been successful in its rehabilitation programs. The planned design responds to treatment and human needs for both residents and staff. Our ongoing research study is focused on the central hypothesis that the architectural design of the expansion will be associated with improvement of specific resident outcomes both while committed and after release. In addition, the project aims to create a supportive environment for staff, potentially decreasing absenteeism, turnover, and injuries due to resident aggression.

The project we present here includes baseline data from the facility that has been analyzed and fed back into the design process. This data included resident demographics, aggression incidents, severity of incidents, and disability status. Differences based on resident and incident characteristics were assessed using Chi-square analysis. Data was also obtained on those conditionally released and failures in that release program. This data was analyzed descriptively.

We found significant differences in involvement in incidents by disability status ( $p < 0.001$ ). This reinforced the potential efficacy of spatial strategies to separate more and less vulnerable groups. In addition, for the conditional release data, the vast majority of revocations were not for a subsequent sexual offense, and many were related to issues of life skills (adequate self-care, maintenance of employment and housing). Based on key findings from the baseline data, we concluded that architectural strategies to strategically locate and separate resident sub-groups and enhance security, and to provide environmental support for life skills and social support enhancing in a dedicated transitional facility, would likely be efficacious in terms of outcomes. Once the new facility has been in use for some time, we will statistically test our hypotheses by comparing follow-up to baseline data.

[Read the full study report](#)

# Mixed-use Learning Zones for Millennials: A Typology for Bridging Learning from the Academe to the Profession - *Merit Status*

University of Florida Department of Interior Design, Engage Design Lab, College of Design, Construction and Planning; The Agency, University of Florida, College of Journalism and Communications; University of Florida, Department of Urban and Regional Planning, College of Design, Construction and Planning; BEEMAPS

**Study Team:** Sheila J. Bosch, Jason Meneely, Margaret Portillo, Candy Carmel-Gilfilen, Nam-Kyu Park, Maria Sanchez, Elizabeth Calienes, Robert Norberg, Abhinav Alakshendra, Jesse Anderson, Brandon Barnett, and Jessica VanderBiezen

The role of interior design in higher education has perhaps never been more important than it is today. In fact, learning space designs rose to the fore in the 2017 “Key Issues in Teaching and Learning” paper reporting survey findings from 900+ affiliates in higher education. New approaches to pedagogy and a generation of students who expect a less didactic and non-hierarchical learning experience have compelled administrators to rethink their facilities. New directions include “mixed-use” spaces supporting a wider spectrum of student-based engagement. However, past research has centered on student engagement within the traditional confines of the classroom walls.

This study examined 5 mixed-use learning zones, where the boundaries between common spaces and classrooms are blurred. These understudied spaces are intended to foster informal interaction, sparking interaction between students, faculty and others while helping foster a sense of community. Yet, to date there has not been an in-depth examination of the efficacy of mixed-used learning zones on campus.

This research employs a mixed-methods, multi-case study approach and involved: 1) surveying a national online community of millennials (n=237); 2) conducting on-site intercept surveys with students enrolled in undergraduate, graduate and professional studies (n=113); 3) on-site behavior mapping (50 hours); and 4) narrative inquiry. A national sample survey was distributed to millennial students enrolled in an online community portal for millennials. Survey questions were aimed at understanding this generation’s attitudes toward and preferences of higher education learning environments. Statistical analyses were conducted. Intercept surveys were distributed on the spot to students in each site to understand space utilization and satisfaction levels. Statistical analyses were conducted. Fifty hours of behavior mapping was conducted using a beta observation tool (MOV) that is in its final stage of development by the SimTigrate Design Lab at the Georgia Institute of Technology. Visual and written stories bring to life the quantitative data gathered for the study. Interviews were recorded for transcription. Content analysis was performed using Nvivo Pro 11. Themes identified were used to inform the development of original mixed-use learning zones typology.

Our multidisciplinary team was comprised of design educators, researchers, interior designers, graduate students and the director of research and strategy for a millennial-focused advertising and public relations firm. The team collaborated with on-campus facilities personnel involved in the planning and design of 5 case study facilities investigated. The team created an original typology of mixed-use learning zones. Namely, “Pride and Purpose Places” define the college or university’s professional identity and mission that is expressed architecturally or in signature spaces. “Pro Zones” allow for networking and professional development, while “Nested Learning Spaces” support active learning in redefined classroom and lecture spaces, as well as in areas for dedicated teamwork and individual study. Finally, “Chill Zones” offer social spaces or places to take a break or continue working, while also helping students feel a part of their university, college or program community. Design considerations for each of these were derived from the multiple sources of data. Narratives to capture primary insights from the typology, including 3D virtual tours and film clips, were developed.

[Read the full study report](#)

# Architecture of Social Learning and Knowing: Using Social Learning and Knowing Perspectives and Design Thinking to Frame and Create Change in a Workplace Redesign Project

[HGA Architects & Engineers; College of Human Ecology, Cornell University; School of Architecture & Urban Planning, University of Wisconsin-Milwaukee](#)

**Study Team:** Amin Mojtahedi, PhD; So-Yeon Yoon, PhD; Brian Schermer, PhD; and Paula Verboomen

There is a consensus among many from fields of architecture, learning, and organizations that the ability to orchestrate learning and knowledge practices in the workplace creates potential for new and valuable ideas to emerge (Duffy, 2008; Wineman et al., 2008; Du Plessis, 2007; Pyke, 2002; Shani et al., 2003; Remmers, 2011). The theoretical plug-and-play between a strand of theories that frames learning and knowing as social and situated processes (Lave, 1988; Lave & Wenger, 1991; Hutchins, 1994; Brown et al., 1989; Wenger, 1998) as well as architects' and environmental design researchers' normative views and empirical findings about the physicality of places supportive of such practices, helped frame this project's research question: Can we impact boundary mechanisms (Wenger, 1998), as practices or artifacts that can be the source of continuity across various social units in an organization, through 'physical space' and the process of 'making the physical space'?

To answer the research question, this project proposed 'architecture of social learning and knowing' – a trinary solution comprised of (1) Design Thinking (DT) methodology (Bjögvinsson et al., 2012; Gobble, 2014; Tonkinwise, 2010; Rodgers, 2013; Brown 2008) as a form of Action Research (Weisman, 1983; Lewin, 1946) for cultivating sustainable change in an organization's existing practices or producing new ones from scratch; (2) a toolset combining People-Space Analytics (Mojtahedi et al., 2017) and ethnographic thick description (Geertz, 1973) to not only map and record the change in users' work practices, but also encourage their engagement to generate insights; and (3) a theoretical lens inspired by social theories of learning and knowing for framing the change in the organization.

This research-design project was conducted in one of the offices of a national architecture firm where the redesign of the workplace was framed as an opportunity to rethink the way work happens. Starting from Nov 2016 and concluding in Nov 2017, they study engaged a total of 63 users in different phases of the DT process to re-imagine their workplace of the future. During the earlier phases of the process, a series of empathy-building exercises and workshops were conducted to generate insights for participatory ideation. After studying the options generated during ideation, a full-scale prototype or mock-up of the new workplace was designed and built in an area as large as 8000 SF inside the office. Using a combination of sensor-network technology and location tracking, participants' social networks and spatial behavior were mapped before and after installing the mock-up to study possible changes in the quantity and quality of the organization's boundary mechanisms.

Results from the mapping study showed a significant increase in the users' brokering behavior and space utilization as well as change in certain groups of users' spatial behavior after installing the mock-up. In other words, the workplace redesign project had an impact on participants' types of interactions and not the quantity of their interactions. These results were then shared and discussed with a smaller group of participants to make sense of the changes captured during the mapping study. Eventually, the thick description revealed the emergence of four complementary types of boundary practices. A second set of findings indicated that in cultivating new learning and knowledge practices, the impact of making-process preceded the impact of product. The study showed that some new learning and knowing practices were often negotiated and produced during the participatory and emancipatory process of 'making' the physical space. It was during this phase that people were empowered to challenge existing practices and were equipped to imagine different ways of conducting work. Finally, the research findings helped the team to further iterate the full-scale prototype to create an environment supportive of emerging practices.

[Read the full study report](#)

# Evaluating the Impact of the First Filipino Design-Build University Program

University of Arizona College of Architecture Planning and Landscape; US Department of State J. William Fulbright Teaching and Research Grant; Philippine-American Educational Foundation; University of San Carlos Cebu College of Environmental Science; Foundation University College of Arts and Science; Foundation University College of Arts and Science Department of Architecture and Fine Arts; Estudio Damgo Design-Build

**Study Team:** Anna Koosmann; Geraldine Quinones; Maria Chona Futralan, PhD; and Kriss Michael Tubog, MPA

Estudio Damgo (Dream Studio in the native Cebuano language) is the first university, design-build architecture program of the Philippines, patterned after a similar program for architecture students in the University of Washington. Founded in 2012 in Dumaguete City, senior architecture students of Foundation University are given the chance to put theory into practice; by researching, designing, and constructing a small structure for a chosen community, that is completed in one academic year.

Estudio Damgo's short-term goal is to provide students hands-on experience using native, sustainable, and alternative materials to construct a student-led design with community input and support. The long-term goal is to provide the beneficiary with a unique, sustainable and affordable asset that showcases innovation in the changing face of architecture. There are 26 Estudio Damgo architecture graduates and 5 community projects to date (2017).

This research aims to evaluate the impact of the first, three years of the program on the university students and the target communities. The Estudio Damgo 1 project (led by 2 students, completed 2013) is a 68-square meter (434-square foot) classroom located in a rural mountain village in Barangay Malaunay, Valencia and 20 km away from the heart of Dumaguete City. The Estudio Damgo 2 project (led by 3 students, completed 2014) is an 82-square meter (850-square foot) multipurpose building located in a farming village in Dumaguete City. The building serves a relief housing project with over 100 displaced flood survivors from Typhoon Ondoy (2009) and Sendong (2011). The Estudio Damgo 3 project (led by 9 students, completed 2015) is a 120-square meter (1,144-square foot) floating structure at the Marine Sanctuary in the Philippine Sea for the Bantay-Dagat (village fish wardens) of Barangay Bantayan in Dumaguete City. The structure served two purposes: during the day, for eco-tourism, swimming and snorkeling; at night, a Bantay-Dagat guardhouse to watch for illegal fishing.

The research was conducted over the course of 5 months (August – December 2015). The study utilizes qualitative methods and is organized into three parts: questionnaires and descriptive tactics, post-occupancy evaluations and site observations, and case studies. The research team consists of university department heads and research faculty, consulting architects, and Estudio Damgo program alumni.

The results generally showed that the Estudio Damgo program has a “very high” impact on the students and the target communities. The findings have been disseminated in a university journal, covered in local media and blogs, presented at universities, and exhibited in galleries. The research has directly impacted the program to highlight best practices and lessons learned, resulting in curriculum changes, improving stakeholder partnerships, and the potential to be a model to other university programs, globally.

The Estudio Damgo program of Foundation University is an acclaimed initiative that has received national and international recognition since it launched its first project in 2012. It is on the above premise that the university researchers prioritized this study to ensure the Estudio Damgo program be successful and long-lasting.

[Read the full study report](#)

# Centers for Healthy Living: Providing Whole-Person Wellness to Seniors

## Perkins Eastman

**Study Team:** Emily Chmielewski, EDAC and Claire Dickey, AIA LEED AP BD+C

A center for healthy living (CHL) is a new building typology that supports whole-person wellness (mind, body, and spirit). A CHL may consist of one program and building or a collection of programs/services and spaces. CHLs are being built all over the US, from Life Plan Communities (formally known as continuing care retirement communities, or CCRCs) to stand-alone neighborhood or regional community centers. CHLs help bridge the gap between the senior living and healthcare sectors, yet they go far beyond the typical provision of clinic and exercise spaces to address all 8 dimensions of wellness (emotional, environmental, intellectual, physical, occupational, spiritual, social, and financial).

As a new building type, little was known about a CHL's key design components, the return on investment providers were seeing, or the benefits that CHL users were experiencing. Thus, to shine light on the growing trend of CHLs, Perkins Eastman embarked on a research study to better understand the value, function, form, and impact of these new facilities, and then subsequently propose several design concepts for the CHL of the future. The study's research questions included: How and why did CHLs evolve? Why are CHLs becoming popular today? What do existing CHLs offer in terms of programming and design? And, what outcomes are CHL providers and users experiencing? In answering these questions, the researchers formed a solid foundation from which to explore what the CHL of the future could look like and accomplish.

The study was conducted over the course of several months in 2016, and was led by an interdisciplinary team consisting of an architect and a practice-based design researcher. Throughout the process, various stakeholders were also engaged, including: designers, industry consultants, and senior living care/service providers. The care/service providers involved in the study were at both the C-Suite and administrative levels, and represented both built and unbuilt (i.e., conceptual design) CHL facilities located across the country. The mixed-method study included a literature review, assessment of archival data (ranging from floor plans to program registration numbers), interviews, questionnaires, and on-site observations. A design charrette was also held to explore the future of the typology, out of which came 4 concept designs. In addition to input collected from nearly a dozen industry experts, the team studied 15 case study CHLs. These CHL sites were intentionally selected to create a broad and representative sample of the industry. Participating CHLs ranged in size, location (region and place density), construction (new and additions/renovations), provider-types, and targeted users (income levels).

The study found that, in addition to supporting whole-person wellness and encouraging healthy living, CHLs are being developed to: address changing consumer demands, leverage partnerships, reach a greater cross-section of the community, offer greater choice, provide better interdepartmental relationships and cross-disciplinary communications, and to create a differentiator from the competition. The study also revealed that CHLs are having a positive impact on: sense of community, users' quality of life and health/wellness, and on organizational finances, marketing/referrals, staff recruitment/retention, program quantity and types of offerings, program attendance rates/popularity, and partnership opportunities.

Though initially conducted as an internal quality improvement project that was intended to assess and improve internal project work, the researchers shared the study publicly so others might also learn from this internal assessment. Of particular use to the larger design community are the original concept designs developed for the CHL of the future, which may help shape the next generation of CHLs. These concepts could provide innovative programs/services within well-designed, attractive, and highly functional spaces and communities.

[Read the full study report](#)