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ABSTRACT BOOK

ACSA 114th Annual Meeting: Convergence/Divergence

March 26-28, 2026 | Chicago, IL

ABSTRACT BOOK

ACSA Peer-Reviewed Research Abstracts

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CONTENTS: Conference Sessions

Material and Health Pedagogies

Thursday, March 26, 2026
2:00pm-3:30pm

A Place Between Places, Built for Everyone
Lucas Brown, Indiana University

While the culmination of this design-build project resulted in the construction of a new bus stop shelter for the ColumBUS transit system, its broader significance lies in how it exemplifies the J. Irwin Miller Architecture Program's pedagogical commitment to community engagement, material experimentation, and experiential learning. This initiative was embedded within a three-course sequence spanning an academic year and involving two graduate cohorts. The project received funding and support from the American Institute of Steel Construction, the Heritage Fund of Bartholomew County, the City of Columbus, and an extraordinary team of local collaborators. The curriculum was deliberately structured to integrate community-engaged research, material studies, and hands-on fabrication, which reflects the program's mission to engage the social and cultural fabric of Columbus, Indiana. In the fall semester, third-year students led a stakeholder engagement seminar, while second-year students deepened their understanding of material processes through a steel-focused digital design and fabrication elective. These parallel courses converged in the spring design-build studio, where second-year students designed and implemented a new bus shelter with local stakeholders. This progression from engagement to fabrication provided a comprehensive framework for students to link theoretical inquiry with applied practice. It also fostered a sense of civic responsibility amongst students and faculty by addressing an essential and often overlooked aspect of the city's public transportation infrastructure.

Pixels as Pedagogy: Reframing Color, Computation, and Authorship in Postdigital Architecture

Hyojin Kwon, Georgia Institute of Technology

“Color is a key producer of what Baudelaire described as presentness, of what I have called contemporaneity, todayness, or the now”1 — Sylvia Lavin, What color is it now? If, as Sylvia Lavin argues, color today functions less as symbol than as effect, then the digital image—pixelated, rasterized, and algorithmically mutable—constitutes architecture’s most contemporary medium. This paper situates Images as Instruments, a research seminar conducted at Harvard Graduate School of Design, within that expanded horizon. Here, color and image are not cosmetic overlays but computational infrastructures: datasets of hue, brightness, and saturation translatable into massing, porosity, and tectonic articulation. What follows is a call for reorientation: to treat digital color and pixel-based imagery not as secondary embellishments, but as primary media of architectural formation, pedagogy, and authorship. Drawing upon image-processing techniques—filtering, moshing, warping, and displacement mapping—the seminar reconceptualized the image as a structured dataset in which chromatic values, brightness gradients, and pixel resolution operate as generative parameters. In this framework, the image functions not as a static surface but as a computational script capable of producing form, encoding material behavior, and modulating atmosphere. This shift relocates architectural thinking from geometry to gradient, situating design within perception, computation, and culture. The seminar’s pedagogy foregrounded this shift through a scaffolded curriculum integrating theory and technical practice. Students learned to read images as analytic instruments, redeploy them as generative scripts, and articulate them as material systems. Outcomes ranged from chromatically modulated wall prototypes to voxelized architectural assemblies, demonstrating both speculative openness and methodological rigor. The approach cultivated new literacies—computational fluency beyond scripting, material intelligence embedded in image data, and a critical mode of authorship that reframed software as cultural infrastructure rather than a neutral tool. By reframing digital imagery as both epistemic and affective medium, the work directly addresses the conference theme of Convergence/Divergence. It demonstrates convergence through a shared methodological pipeline linking media theory, computation, and architectural pedagogy, while enabling divergence through heterogeneous outcomes shaped by image-specific parameters. In an image-saturated culture, the paper argues that architectural design may increasingly emerge not from drawing form, but from allowing images themselves to operate as architectural intelligence.

Radical Rooms: AI and Research-Driven Design for Wellbeing in Interior Architecture

Casey Franklin, University of Kansas

This advanced human factors project required students to identify impactful, far-reaching Radical Problems, conduct human-centered research through Radical Questions, and ideate how architectural interiors can take an active role in human wellbeing through the design of Radical Rooms; speculative spaces that rethink approaches to health and wellbeing in interior architecture. Students investigated diverse issues, including access to movement in workplace design, relationships between healthcare stress and restoration spaces, access to hygiene facilities for houseless individuals, and the impacts of gendered office environments on women's mental health. Each student developed a survey to explore user perspectives on environmental variables and the application of human factors theories, relying largely on AI-generated image prompts. Survey findings directly informed the design of a Radical Room intended to meaningfully address the identified problem. Collectively, the project demonstrates how research-driven design and critical use of AI can equip future designers to address complex, human-centered challenges through interior architecture.

Bailey Park Stage: Modular Design for Community Performance

Lee SuHuang, Lizabeth Wardzinski & Katie Goldberg, Lawrence Technological University

This project documents the design and construction of a modular performance stage developed through a large-scale, community-engaged design-build studio in Detroit's McDougall-Hunt neighborhood. In Summer 2025, a sixty-student Design Build Studio at Lawrence Technological University partnered with the Bailey Park Neighborhood Development Corporation (BPNDC) to conceive and fabricate a flexible structure capable of supporting performances, gatherings, and cultural programming. The stage design was informed by three defining characteristics of the neighborhood. Triangular geometries reference the acute street intersections that shape the surrounding urban fabric. A branching column system evokes the historic tree canopy that once occupied the site, reintroducing shade and vertical articulation. Interchangeable colored roof panels establish a playful identity and link the project to the neighborhood's strong artistic culture. Together, these elements position the stage as both an architectural object and a cultural artifact embedded in local narratives. Pedagogically, the project was structured as a three-phase online design-build studio. During the first eight weeks, students worked remotely in collaborative teams, developing site research, digital models, and tectonic studies through iterative reviews. In the ninth week, all participants converged on campus for an intensive six-day Build Week, during which digital models were translated into full-scale assemblies. Fabrication crews prepared materials, erected modules, and coordinated logistics and safety. The final week focused on documentation and collective reflection, reinforcing design-build as an integrative model that synthesizes research, design, and construction. At the foundation of the stage is a modular deck system derived from standard lumber dimensions. This strategy minimized waste, reduced cost, and simplified construction while enabling hand transport and rapid assembly. Six modular shear wall units provide lateral stability without introducing central columns, preserving an open performance space. Salvaged wood cladding sourced from Detroit's Architectural Salvage Warehouse connects the project to local material cultures and practices of reuse. The most expressive architectural element is a series of branching "tree columns" fabricated from clustered 4x4 posts internally bridged for rigidity. Each column is uniquely angled, producing a spatial condition that filters light and air while casting dynamic shadows across the stage. During full-scale testing, the roof evolved from a fixed canopy into a responsive system of interchangeable nylon fabric panels, allowing the surface to move with the wind while introducing color and motion. Mobility was central to the project's logic. All components were sized to fit on a flatbed truck and designed for stacking and transport. Modules were pre-assembled, tested, dismantled, and prepared for relocation to Bailey Park, where they will be permanently installed on concrete footings. The Bailey Park stage demonstrates how modular architecture can operate simultaneously as civic infrastructure, cultural expression, and pedagogical framework. For BPNDC, it provides a versatile venue for neighborhood activation. For students, it offers a formative experience in translating design intent into buildable systems at full scale. More broadly, the project argues for design-build education as a mode of public-interest practice, where architectural research is tested through construction and embedded directly within community life.

Community, Preservation, and Adaptive Re-use

Thursday, March 26, 2026
2:00pm-3:30pm

OCA: A Chapel for the Ocupação 9 de Julho in Downtown São Paulo

Eduardo Aquino, University of Manitoba
Amanda Reis, Rochester Institute of Technology

OCA emerged as an opportunity to address the confluence of two common research interests: community-oriented design and popular culture as manifested through urban materiality. Ocupação 9 de Julho, a occupation community in São Paulo, Brazil, posed a challenge to conceive a “chapel” (or “oca”), addressing a central need: a space for social and spiritual sustainability. The project resulted in a structure fabricated from used public market crates discarded on the streets of São Paulo. The project emerged at the intersection of housing injustice and popular culture through the creation of a “chapel” made of market crates. The ubiquitous crate became a vehicle for a participatory installation based on the community's desire, addressing the circular economy, while simultaneously uplifting the soul. These market crates are simple, made of stapled wood and fabricated with elemental methods—a character highly identified by the community. The crates also symbolize Brazil's agricultural strength and the culture of informality found in urban Brazil, as they are used as seats, tables, parking spot markers, street vendor displays, and devices to make life easier for the city's less fortunate. The material selection and assembly processes involved close collaboration with community participants and engineers, responding to various site and construction challenges together. This participatory approach contributed to a heightened sense of authorship, leading to a sentiment of ownership and pride amongst the community members.

Framing the Modern City

Thursday, March 26, 2026
2:00pm-3:30pm

Glitch: Decoding the Frames of Modernity
Madalyn Asker& Randall Teal, University of Idaho

What we call architecture is inseparable from empire; it is the operating system that coded conquest as durable, scalable, and repeatable. Papal bulls authorized slavery, cadastral surveys fragmented communal worlds, plazas and grids domesticated sovereignty into spectacle. Architecture did not merely shelter empire—it programmed it. Modernity's universal promises—progress, democracy, prosperity—were executable scripts of power, overwriting life with property and cosmology with classification. Rather than a mere malfunction, the glitch becomes a critical device—an activist repertoire for decoding how the colonial operating system structures space and for unsettling its ingrained logics. Preservation and sustainability often announce themselves as insurgent practices, yet their protocols remain tethered to property and enclosure. These are not exceptions but system updates—patches that extend settler infrastructures under the guise of reform. To decode these glitches is not to design decolonization— decolonization demands the repatriation of land and life, a horizon beyond the discipline—but to expose the fictions that made conquest appear inevitable. Decoding is an act of epistemic reconstitution: unsettling modernity's linear temporality, its proprietary thresholds, and its classificatory architectures of race and gender. Against these overcodings, communal grammars of reciprocity, resonance, and rotation reveal the pluriverse. For pedagogy and practice alike, the glitch is not an analogy but a method. It trains students to recognize architecture's executable fictions and equips practitioners to confront sustainability, repair, or affordability without confusing them for decolonial acts. To read for the glitch is to sharpen critical literacy—keeping contradictions visible, refusing premature resolution, and disclosing the limits of architecture's operating system while gesturing toward other repertoires of space and relation.

Spectacle for Stewardship: 2025 Osaka World Expo
Ryan Yin, Washington University in St. Louis

The World Expo has long served as a fleeting microcosm of the future, staging architectural and technological experiments that converge around shared ideals of progress in it's pavilions while diverging into plural, and often contradictory, grandiose visions of society in the themes of the masterplan. Japan's participation in the World Expo started in 1970, as a vision for the future progress and harmony amongst humanity, contending with the idea of infinite progress, where space frames and technocratic thinking reigned through the lens of Metabolism. With the advent of instantaneous communication via the internet, a world where resources become more and more finite, the Expo now contends with a new expression. This research examines how contemporary architecture in Japan contends with the finite across social, economic, environmental, and cultural dimensions. Through literary reviews of primary and secondary sources from architects analyzing their design philosophy, interviews with project managers, architects, and professors, and qualitative on-site analysis of the focused projects, the research uses the Osaka 2025 World Expo as the testing ground for visions of the future, as the architects of 1970 did for the Expo then.

From Geddes to Housing Cooperatives: The Global Flow of Participatory Urbanism

Patricia Fraile-Garrido, Tulane University
Inés Martín-Robles & Luis Pancorbo, University of Virginia

This research explores the influence of Patrick Geddes on key figures such as Jacqueline Tyrwhitt and Giancarlo De Carlo, and how their ideas shaped modernist debates, international development programs, and participatory design movements in Latin America. The text focuses on the Uruguayan cooperative housing movement as a direct continuation of Giancarlo De Carlo's roots-up planning and participatory architecture principles. The self-managed cooperative housing experiences in Uruguay serve as significant case studies for understanding broader discussions of dense urban living in Latin America and for evaluating Patrick Geddes' influence within this specific geographical and cultural context.

Ecology

Thursday, March 26, 2026
2:00pm-3:30pm

Design Tools for Multispecies Flourishing
Eva Perez de Vega, Parsons School of Design

Architecture remains predominantly ecophobic and human centered. The field has long assumed that the built environment serves humans alone, ignoring the many species it displaces or harms. Confronting the climate crisis demands conceptual and practical tools that move design beyond human exceptionalism toward ecological empathy. This paper explores three design tools for multispecies flourishing: Tool 1: (Re)DRAWING more-than-human life, which uses the act of drawing as a mode of thinking in order to reimagine architectural typologies that acknowledge - and make space for - the presence of more-than-human life; Tool 2: MATERIALITY for multispecies care, engaged with the full lifecycle of species that it affects; and Tool 3: SPECULATIVE FUTURES, which challenge anthropocentric assumptions through imaginative future-oriented scenarios. Grounded in ecofeminist theory and informed by Indigenous and posthumanist perspectives, these tools propose a methodology that fosters enmeshment with the more-than-human world, offering a critical and practical framework for architecture as an agent of multispecies coexistence and ecological care.

Retrofitting Seawalls with 3D-Printed Tiles to Revive Marine Habitat
Sara Pezeshk & Shahin Vassigh, Florida International University

Coastal communities face the dual challenge of protecting shorelines while preserving marine life. This short paper presents a modular, robotically 3D-printed seawall retrofit that leverages aperiodic tiling, curvature-aware growth patterns, and a sine-based height field to modulate near-wall hydrodynamics and enhance larval recruitment of filter-feeding invertebrates. The approach links ecological targets (refuge, micro-flows, settlement cues) to fabrication constraints (toolpaths, nozzle size, layer height), offering a framework for nature-positive hybridcoastal infrastructure.

Unstack and Reframe: A Pedagogical Framework for Circular Construction Through Stereotomic and Tectonic Systems

Jongwan Kwon, Carnegie Mellon University

This paper presents a pedagogical framework that reimagines architectural education's engagement with circular construction through the foundational constructional modes of stereotomy and tectonics. Responding to the urgent need to shift architecture from extractive practices toward regenerative paradigms, the framework develops two complementary methods: "Unstack" and "Reframe." The "Unstack" method investigates stereotomic systems using locally reclaimed building materials, transforming existing built environments into material repositories through protocols for dismantling and reassembling salvaged masonry. This approach reveals how standardization becomes obsolete in circular construction, embracing material variability and systemic flexibility as core design criteria while exerting influence over local resource networks and supply chains. The "Reframe" method explores tectonic assemblies designed for complete disassembly using regional biomaterials such as timber and bamboo, embedding lifecycle sustainability and material mobility from initial design. By prioritizing participatory construction accessible to non-skilled labor, this method democratizes construction knowledge and positions tectonic culture as a vehicle for equitable and resilient communities. Through systematic research into local material sourcing protocols, labor practice analysis, site mapping, and full-scale prototype development across diverse geographical contexts, students develop literacy in regional material cultures and accountability for the environmental and social implications of design decisions. By positioning material circularity as foundational to design thinking, this framework cultivates competencies essential for ecological and ethical practice, fostering new aesthetic sensibilities rooted in transparency, adaptability, and material stewardship. This pedagogy represents a paradigm shift, moving architectural education toward reparative outcomes that directly address the discipline's role in the climate emergency.

What if! Infrastructure + Ecology
Roya Plauche, University of Houston

This paper presents the pedagogical framework of an advanced design studio, ARCH 5500: What If? Infrastructure + Ecology. The studio seeks to initiate a conversation by questioning the role of infrastructure within a broader ecological context. The topic is situated within the discourse on climate change and the 2019 World Scientists' Warning and the declared climate emergency, which identify the depletion of ecological systems as a critical point of investigation. "Climate change threatens biodiversity globally, on land as in the ocean. At the same time, biodiversity is a key feature of stable ecosystems, providing—among many other services to humanity—carbon stocks and sinks (absorbing about a quarter of human emissions) and thereby guarding the earth system's resilience against disruption from anthropogenic carbon emissions."[1] The studio organizes ecological inquiry across three domains. The domains of terrain, water, and air are understood as distinct carbon sinks with specific ecological characteristics. These domains operate through a modular framework consisting of container, collector, and housing systems. The studio demonstrates how architectural pedagogy can integrate ecological theory, systems thinking, and design through research-driven design exercises and speculative infrastructural proposals.

Eggregate: Architectural Resilience by Material-informed Design and Fabrication of Food Waste Bio-composites

Laia Mogas-Soldevila, Yasaman Amirzehni, Bhavana Prya Balasubramanian & Abigail Weinstein, University of Pennsylvania

Eggregate introduces a bio-based composite derived from unavoidable food waste, including eggshells, fruit peels, and agricultural byproducts, processed into castable and extrudable blends. Unlike conventional clay, which requires energy-intensive firing, Eggregate cures under ambient conditions, reducing environmental impact while achieving structural integrity, biodegradability, and functional performance. The project integrates material science, computational geometry, and additive manufacturing to fabricate a cladding system prototype. Mechanical and environmental assessments verified the composite's multifunctionality, demonstrating fire resistance through controlled surface charring, thermal insulation via heat transmittance testing, UV sensing through geometry and micro-texture optimization, bio-receptivity for ecological integration, and pH-responsive soil toxicity detection using natural colorimetric indicators. By coupling waste valorization with multifunctional design, Eggregate advances research in sustainable bio-composites, distributed sensing, and adaptive building envelopes. This work highlights the potential of ambient-cured, waste-derived composites as scalable alternatives to energy-intensive ceramics in architectural applications.

Housing & Thermal Comfort

Thursday, March 26, 2026
2:00pm-3:30pm

Radon Concentration in Residential Buildings in New England

Fernando del Ama Gonzalo, Donna Paley, Hayden Goodenough, & Justin Nicolas, Keene State College

This study aims to gather empirical data on thermal loads, air quality parameters, and radon concentrations to identify patterns of energy use and associated health risks in residential buildings in New England. It examines the relationship between energy consumption and indoor air quality during the winter months when heating energy demand is increased. A reduction in ventilation rates adversely affects indoor air quality (IAQ). This phenomenon can lead to the accumulation of carbon dioxide (CO_2), volatile organic compounds (VOCs), and particulate matter (PM2.5) to levels that may pose health risks. Moreover, radon, a radioactive gas commonly found in basements, poses additional hazards, with the region's geological characteristics facilitating its formation. By integrating simulation models and field tests, this research aims to provide data on the relationship between energy consumption, indoor air quality, and Radon concentration in the context of residential buildings in New England, US.

Technology, Ecology and the Housing Crisis
Steven Beites, Laurentian University

The dual crises of housing supply and climate change demand innovative solutions that transcend conventional policy approaches. This research, positioned at the intersection of sustainability and technology, addresses the critical issues of housing affordability, construction inefficiencies, and environmental impact. In response to escalating housing costs and a growing shortage of skilled labor, the Canadian government has set ambitious goals to double housing construction over the next decade. However, current efforts have fallen short of achieving these targets. Simultaneously, the built environment continues to be a major contributor to global carbon emissions. The presented research explores the integration of natural, renewable bio-based materials with advanced technologies and robotics to both decarbonize and enhance construction processes. The development of a semi-automated mobile platform combined with prefabricated bio-based materials, provides a sustainable solution for scaling housing production while mitigating greenhouse gas emissions. The work led to an exhibition with government officials and industry leaders in attendance, underscoring the potential for more rapid, efficient, and environmentally sustainable practices in the Architecture, Engineering, and Construction (AEC) sector.

States of Matter: Reconvening First Principles in the Material Practice of American Housing

David Kennedy & Alyssa Kuhns, University of Arkansas

Since its founding, economic forces in the Unites States have depressed the integrity and durability of construction materials systems, continually diverging them from first principles and culminating in the current ephemeral state of housing. Housing is not built to last, let alone withstand the devastating effects of climate change-driven weather events. A hallmark of durability is repairability, and it stands to reason that deploying irreparable, fluid-applied materials will only hasten their demise. Manifest in contemporary American housing construction practices, this condition does not emerge for lack of alternative strategies; the most enduring architectural texts privilege durability and repairability as fundamental values in good, ethical architecture. From the early American context, the forces of capitalism diverged the disciplinary connection to these staid theories, yielding materials systems innovations with little regard for repairability nor durability. This paper will examine canonical texts for their stances on durability, argue that their undoing is endemic to the American condition, explicate this through a case study, and examine how a re-convergence with 'first principles' may provide an avenue towards a more durable, equitable housing future.

Housing & City Form(s)

Thursday, March 26, 2026
4:00pm-5:30pm

Housing Insecurity and Solidarity Architecture: An Educational Intervention in Pécs, Hungary

Tibor Dányi, University of Pécs

This paper examines experiential architectural education at the University of Pécs, developed to embody the “Copenhagen Lessons” articulated by the UIA World Congress of Architects in 2023. These principles emphasize inclusive design, prioriti zation of vulnerable groups, and the reuse of existing building stock. Within this framework, the Lakni Kell (“We All Need a Home”) program, organized by Research Group for Solidarity in Architecture, seeks environmentally, economically, and socially sustainable responses to the regional housing crisis. The initiative involved the renovation of a vacant 33 m² municipal apartment for a young family at risk of homelessness, realized through a multi-stakeholder partnership including the municipality, NGOs, educational institutions, vocational schools, and private firms. University and vocational students participated in both design and construction, following principles of minimal intervention, cost efficiency, and passive energy performance. The project highlights the potential of solidarity architecture to integrate social inclusion, housing preservation, and sustain- ability. Findings suggest that such interventions offer replicable models for municipalities, while also cultivating socially responsible architectural practice.

A Taxonomy of Vacancy II: Testing Multifamily Housing Strategies on Underutilized Land Along Commercial Strips

Ian Caine, University of Texas at San Antonio
Wei Zhai, University of Texas at Arlington
Huanchun Huang, University of Texas at San Antonio
Gabriel Diaz Montemayor, University of Arkansas
Esteban López Ochoa, University of Texas at San Antonio
Rudy Niño, City of San Antonio
Chris Quattro, Appalachian State University

Cities in the United States experiencing rapid population growth and housing shortages must identify alternatives to outward expansion and greenfield development. In San Antonio, Texas—one of the fastest-growing large cities in the U.S.—projected growth of more than 600,000 residents by 2050 will require approximately 238,000 additional housing units. This paper presents Phase II of a yearlong research project that responds to four converging trends reshaping metropolitan development: rising retail and office vacancies driven by e-commerce and hybrid work, major public investment in rapid transit, zoning reforms that reduce parking requirements, and emerging transportation technologies expected to lower long-term automobile dependence. Together, these conditions position aging suburban commercial corridors as strategic sites for multifamily infill housing. Phase I of the project employed parcel–level geospatial analysis across seven proposed rapid transit corridors to identify, classify, and evaluate vacant and underutilized land. The analysis documented 8,700 vacant parcels totaling 7,537 acres, with 2,720 acres classified as highly developable. Phase II, reported here, translates these findings into design research by testing how normative suburban commercial typologies can be retrofitted to support walkable, mixed–use housing environments. The paper proposes infill scenarios for eight common suburban typologies—including bungalow strips, drive-through restaurants, roadside motels, strip malls, office parks, neighborhood box stores, big box stores, and regional malls—and evaluates their potential to integrate multifamily housing while preserving existing commercial structures. Rather than wholesale demolition, the design proposals prioritize building around, above, and behind existing buildings, framing adaptive reuse as a pragmatic response to economic constraints, zoning regulations, and embodied carbon considerations. The study also assesses how these typologies align with the City of San Antonio's 2024 amendments to the Unified Development Code (UDC) that establish Transit-Oriented Development (TOD) zoning, identifying regulatory constraints and areas requiring variances or policy adjustments.

Analyzing Energy Efficiency and Cost-Effectiveness of Adobe Wall Panels for use in Hot-Humid Climates

Smita Sabnam & Ulrike Passe, Iowa State University

Dhaka, Bangladesh, is one of the most densely populated cities in the world. Due to increasing temperatures, reliance on air conditioning units is rising, yet most households cannot afford either the units or the electricity bills. Interior wall panels made of locally available materials like adobe offer a promising retrofit solution. However, retrofit decisions often prioritise steady-state insulation metrics, assuming lower U-values ensure lower operational energy. This short paper examines that assumption by analysing the convergence and divergence between thermal transmittance (U-value) and annual Energy Use Intensity (EUI) for adobe panels as interior retrofits in Dhaka. Using Climate Studio simulations in Rhino and Grasshopper with a thermal comfort range of 24–32°C, a baseline brick wall is compared against 11 adobe panels with different thicknesses and insulating materials. Results show that although the rice husk adobe panel achieves the lowest U-value (0.24 W/m²K), it does not deliver the lowest EUI. In contrast, the wood-chip option (1.12 W/m²K) and rammed earth panel (1.51 W/m²K) reduce EUI by 22–23%. The findings demonstrate that annual energy performance can diverge from U-value rankings because thermal mass combined with ventilation opportunities can outweigh extreme insulation. The paper concludes that in hot-humid climates where natural ventilation supports thermal comfort, moderate insulation combined with high thermal mass can outperform super-insulating composites. Effective retrofit panels must store heat, not just block it across the diurnal cycle.

Small City Stories: Building a Disciplinary Knowledge of Smaller Places
Wesley Hiatt & Isabelle O'Toole, Lehigh University

The majority of Americans live in small cities with less than 250,000 people, with more people moving to them every year. Yet we don't know very much about them: architects, planners, and policymakers have limited research or tools to act in small cities, with the vast majority of scholarship, "best-practices," and existing state and federal programs tailored to challenges faced by larger metros. Scholarship in the fields of architecture, urbanism, and planning has overwhelmingly focused its study of cities on large metropolitan areas like New York, Los Angeles, and Chicago where patterns of urban change and responses differ from smaller cities. A canon of Western cities like Paris, London, and Rome loom large in urban histories and theories of city life. Despite their critical importance to the American urban system, smaller cities remain understudied and underserved.2 The resources and literature that do exist tend to focus narrowly on post-industrial cities in the American midwest.3 As a result, smaller cities are typically discussed as a monolith – often labeled as "Rust Belt" cities defined by economic hardship and population decline. This reductive framing presents small cities as a singular category, leading policymakers, architects, and planning consultants to propose universal "solutions" to urban challenges faced by these places that are evolving in vastly different ways. The mission of the Small Cities Lab – our research unit at Lehigh University in Bethlehem, Pennsylvania – is to challenge monolithic narratives about small cities and to address critical gaps in knowledge and resources that are found in these places. While small cities are frequently grouped together based on population thresholds, they have different urban forms, development patterns, socio-economic conditions, and trajectories. To develop a deeper understanding of small cities and their variety, the Small Cities Lab launched Small City Stories: an oral and material history project that is disseminated through a postcard series and a web-based archive. This project is an outcome of an ongoing roadtrip and relational work throughout Pennsylvania where researchers document the built environment and interview planners, policymakers, and residents in small cities across the state. This approach asks: How can story-based tools like these shape new policy frameworks and design interventions? And more fundamentally, how can we develop planning frameworks that are adaptable to the unique conditions of small cities rather than applying big-city assumptions to smaller contexts? This paper presents emerging research and the early steps toward building a broader knowledge base for context-sensitive design and policy in small cities.

Material Processes

Thursday, March 26, 2026
4:00pm-5:30pm

Neighborhood Scale Carbon Analysis: Developing Methods for Large Scale Material Reuse

Fleet Hower, Peyton Catarelli & Jayden Huang, Rensselaer Polytechnic Institute

As cities encourage increased housing development it is critical that they implement effective strategies for reusing materials in order to reduce embodied carbon. Cities across America are creating policies to enable expanded housing construction. A notable example is New York City, which in December 2024 passed City of Yes for Housing Opportunity (CHO), a series of updates to the city's building code aimed at easing the way for the construction of new housing. It is estimated that CHO updates will enable the construction of up to 80,000 new residential units. Components of CHO such as 'Town Center Zoning' (TCZ) and 'Transit-Oriented Development' (TOD) may have a considerable impact on urban development in less dense areas of New York City. CHO allows for lots currently containing single story commercial buildings in TCZ and TOD zones to add up to four stories of residential units. CHO has the potential to produce a tremendous amount of landfill material, presenting both an opportunity and a challenge from an embodied carbon perspective. Presented here is a method of evaluating building lots for redevelopment by considering embodied carbon in existing materials, potential savings through reuse, expected carbon impact of new development, and potential number of residential units. Students used accepted industry practices and software and worked with officials from the New York City Economic Development Corporation (EDC) as well as the New York City Department of City Planning (DCP) throughout the project in order to maintain accuracy in the model presented. Employing a neighborhood-wide survey of existing buildings and potential redevelopment enabled by CHO, this project situates material and carbon considerations as equally important as the urgent need for additional housing.

Valence Pavilion: Molecular-Inspired Sustainable Architecture Through the [Xyl]ode Joint

Ralph Steenblik & Alireza Alikaei, Indiana University

The Valence Pavilion, presented by the Design Education Team led by R. Spencer Steenblik, represents a paradigm shift in sustainable architectural design, translating carbon's molecular efficiency into practical building systems. This design project, created for Exhibit Columbus demonstrates how the patent-pending [Xyl]ode joint within the Carbon Natural System (CNS) enables standard dimensional lumber to form complex geometries inspired by carbon's bonding structures, creating a multi-functional potential. This CNS instantiation serves as exercise space, outdoor classroom, and social hub while embodying circular design and educational collaboration principles.

Design and Performance Analysis of an Innovative Composite Steel Structure in Freeform Architecture

Hongxi Yin, Xinyu Zhao, Chin Tial, Ryan Yin, Bao Nguyen, Andres Fernadez-Aguilar, Washington University in St. Louis
Sam Schlegl & Alaaeldin Elsisi, Southern Illinois University Edwardsville
Ming Qu, Purdue University
Xin Yan, Beijing University of Civil Engineering and Architecture

Wire Arc Additive Manufacturing (WAAM) is an emerging steel construction technology that enables freeform design, mass customization, and material efficiency. This study investigates the development and performance of a WAAM–HSS Composite Steel Beam (WHCSB), which integrates linear hollow structural section (HSS) steel members with WAAM-fabricated connectors. The beam's geometry was generated through a topological optimization algorithm and evaluated using Finite Element Analysis (FEA) to assess its structural performance. In addition, a cradle-to-gate Life Cycle Assessment (LCA) was performed to quantify the environmental impacts associated with producing the optimized steel element. The results demonstrate the potential of combining WAAM with topological optimization to produce structurally efficient, resource-conscious, and environmentally sustainable steel components, offering guidance for future applications in construction.

Design as Agency

Thursday, March 26, 2026
4:00pm-5:30pm

Design and The Poetics of Everyday Life: Exploring The Tangible and Intangible Dimensions of Modern Vernacular Architecture

John Reynolds, Miami University

The prospect of a Modern Vernacular Architecture and the propositions presented in this paper begin with Henry Glassie's vernacular vision that "favors completeness, recognizes diversity, and seeks ways to use buildings as evidence to tell better versions of the human story."[i] While snapshots, these propositions attempt to advance conceptions of how a Modern Vernacular Architecture of "climate, culture, myth and craft"[ii] informed by contemporary, political, scientific, and technical forces can address the paradox proposed by Paul Ricoeur as "how to become modern and return to the sources; how to revive an old, dormant civilization and take part in universal civilization…"[iii] Positioned in the context of this yet unresolved dialectic, the vernacular inspirations and modern trajectories proffered in Design and The Poetics of Everyday Life seek to advance architecture's contributions to humankind's "ethical and mythical nucleus"[iv] and, in so doing, construct a more humane and engaged architecture that ennobles the human condition and its setting. As a point of departure, this paper will explore the spectrum of Modern Vernacular Architecture's tangible and intangible dimensions. The Oxford English Dictionary (OED) refers to the tangible as having the qualities of physical touch or feeling, appreciable, or clearly understood and grasped by the mind, and ultimately real and substantial, as opposed to imagination and abstraction. Examples of Modern Vernacular's tangible qualities include climate, topography, materiality, type, and technology. Intangible as noted by the OED refers to the impalpable in that it cannot be perceived by touch as found in the non-physical or corporeal that also may be difficult to define, understand, or measure. Modern Vernacular Architecture's intangible qualities include, temporality, historical gesture, culture, metaphysics, and spirituality. Their expression is often latent or veiled, hidden beneath the surface of their more blatant tangible counterparts. Modern Vernacular Architecture's tangible (physical/haptic) and intangible (metaphysical/ideal) dimensions are intertwinedwith site to form an amalgam comprised of phenomena, memories, rituals, symbolism, materiality, and craft that articulate the social, cultural, and spiritual patterns of everyday life and inform architectural experience. [i] Henry Glassie, Vernacular Architecture (Bloomington: University of Indiana Press, 2000), 21. [ii] Kenneth Frampton, "Prospects for a Critical Regionalism," in ed. Kate Nesbitt, Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995 (New York: Princeton Architectural Press, 1996), 471. [iii] Paul Ricoeur. "Universalization and National Cultures," in History and Truth (Evanston: Northwestern University Press, 1961), 276-283. [iv] ibid.

Peripheral Mechanisms
Zachary Tate Porte, University of Texas at Arlington

This essay re-examines frames, captions, and pedestals— devices often dismissed as marginal in art and architecture—and shows how centering them reveals the critical potential of the periphery. Case studies from Mondrian and Ruscha to Noguchi and Brancusi demonstrate how these devices disrupt hierarchies of object and support, center and margin, figure and ground. Drawing on Derrida, Barthes, and Foucault, the essay connects these shifts to wider critiques of textuality and authorship. By linking art and architecture, it argues for a design practice that treats the periphery not as marginal or subordinate, but as generative terrain, capable of producing new meanings and reshaping the logic of spatial and visual engagement.

The Territory as Construct
Andrea Alberto Dutto, University of Idaho

This paper examines the concept of the architecture of territory, understood as an interpretive framework that extends beyond conventional approaches to urban and territorial design. Originating in debates initiated by Vittorio Gregotti in 1966, the notion underscores architecture's ability to read and reinterpret territory as a cultural construct. Building on earlier contributions, the architecture of territory sought to connect geography and architecture by recognizing the interpretive power of architectural representation. The dialogue between architecture and other fields of knowledge, mediated through representation, is explored through the work of two federal agencies: the U.S. Geological Survey (USGS) and the U.S. Forest Service (USFS). Viewed from an architectural perspective, axonometric diagrams, cross-sections, and block diagrams produced by the USGS not only depict geology and topography but also evoke architectural forms such as walls and tectonic partitions. Similarly, planimetric maps and cabin designs created by the USFS reveal functional and trans-scalar connections between shelter and land. This interpretive reading emphasizes architecture's cultural engagement with representation and does not claim authority as a scientific source of knowledge. Reinterpreted through student projects, these practices illustrate how rhetorical figures such as metonymy and synecdoche can intervene to enrich this hermeneutic process. The argument positions representation as an active mode of construction, drawing on Freud's notion of construction in analysis, alongside principles such as the ambiguity between nature and culture, interpretive plurality, and imagination as a cognitive faculty. From this perspective, representing territorial forms helps recognize and align the intentions of different actors, ultimately serving as a tool to guide design action.

Wartime Survival: Lilly Reich's Labor and Mediation in the Making of Mies's Legacy

Laura Martinez de Guereñu, IE university

This paper examines the professional agency of Lilly Reich (1885–1947) during the Second World War and argues that her wartime labor was constitutive of the postwar legacy of Ludwig Mies van der Rohe (1886–1969). While Mies emigrated to the United States in 1938, Reich remained in Berlin, devoting herself to cataloguing, packing, and safeguarding his work amidst wartime destruction. This act of preservation ensured the survival of Mies's European oeuvre, while simultaneously contributing to the historical erasure of Reich's own authorship. Rather than framing this paradox as biographical, the paper situates it within the structural conditions through which architectural legacies are constructed and attributed. Drawing on correspondence between Reich and employees such as Eduard Ludwig (1906-1960) and Karl Otto (1904-1975), as well as writings by Sonja Günther and Dietrich Neumann, the study traces the trajectory of the Mies–Reich archive from wartime Berlin to Mühlhausen, then back to Berlin, Chicago, and ultimately to the Museum of Modern Art in New York. This reconstruction highlights both Reich's decisive role in securing the material legacy of modern architecture under bombardment and the mechanisms through which her labor—the work she developed over a decade in creative partnership with Mies—was rendered invisible in postwar historiography. The loss of Reich's studio and personal belongings during the November 1943 bombings of Berlin emerges as a material index of this asymmetry, marking the disappearance of her authorship from the historical record. By examining the persistence of this erasure in postwar scholarship and curatorial practice, the paper reframes Reich's decision to remain in Berlin as an act of professional and ethical endurance, embedded within unequal structures of labor and recognition. Her late self-identification as an "Architektin" is read not only as a personal claim, but as a critical assertion of authorship that underscores the collaborative realities of modern architectural practice. Her co-authorship—entailing equal responsibility in multiple projects—challenges the myth of the singular male genius, as well as the posthumous misattribution of many of Reich's works to Mies's estate.

Designing Care, Health, and Memory

Thursday, March 26, 2026
4:00pm-5:30pm

Microhistories of Containment: Spatial Practices during the 1972 Smallpox Outbreak in Kosovo

Erona Bexheti, University of Cincinnati

The 1972 outbreak of smallpox in Kosovo stands out as one of the most significant public health crises of late twentieth-century Europe. It had substantial ramifications for the built environment, shaping architecture and urban spaces in ways that are conspicuously neglected within both architectural and public health historiographies. By employing a microhistorical reading of Rilindja's daily newspaper reporting, this study investigates how the 1972 smallpox outbreak in Kosovo shaped urban and architectural responses and what the accounts of that period reveal about the built environment's adaptability in moments of crisis. The archival research foregrounds the daily stories of doctors, patients, health workers, writers, photographers, and journalists, through which a temporary architecture of containment takes form: rapid spatial conversions, reorganization of circulation and access, and the administrative practices that enabled quarantine, treatment, and population surveillance. By scrutinizing seemingly peripheral urban and architectural details of emergency measures, the study shifts the narrative of the disease outbreak from epidemiological summaries of transmission and vaccination logistics toward the material and spatial transformations that reorganized everyday life. Ultimately, it argues for epidemic response as a legitimate object of architectural historiography and illuminates the importance of the multiplicity of voices and ground-up actions when assembling the spatial conditions of containment.

The Pleasure Paradox in Designing for Drug Users
Lucy Satzewich, University of Louisiana – Lafayette

Exploring architecture's capacity to address the ongoing synthetic opioid crisis in the United States, this research focuses on the design and implementation of Overdose Prevention Centers (OPCs), a typology that, despite its proven global effectiveness, is still illegal in the American healthcare matrix. It examines methods and precedents for how architecture can effectively contribute to turning an illegal typology into a legal one by broadening and complicating how physical structures determine safety differently in the harm reduction landscape. Constructing an architectural definition of OPCs will assist in navigating safety concerns for drug users and non-drug users alike and contribute to the development of a typology that will combat the largest drug-related public health crisis of our time. OPCs play a integral role in providing emergency overdose responses, serve as public declaration of the spatialization of rights for PWUD all while seemingly paradoxically, lowering levels of public drug use, decreasing syringe litter and affiliated harm in shared civic spaces. Drawing on ethnographic observations and case studies from six OPCs in Vancouver, Toronto, Amsterdam and Copenhagen, this research highlights how site and user-specific design choices, spatial organization, privacy and thresholds contribute to culturally safe and pleasurable environments that support people who use drugs (PWUD). This project is grounded in a 'nothing about us, without us' framework, emphasizing collaboration with drug user organizations and peer workers whose lived expertise shapes effective architectural solutions. Architectural design and analysis can serve a foundational role in creating emergency healthcare environments, ensuring that the burden does not fall solely on already overtasked public health workers or government agencies. This paper asserts that, in concert with these drug user organizations, architecture can act on an ethical imperative to intervene in public health emergencies. By transforming an illegal typology into a legally recognized one, architecture can mediate the tensions between public safety and the safety of drug users, offering a new model for life-saving interventions rooted in contemporary public health best practices.

Pedagogies on Carbon and Computation

Friday, March 27, 2026
9:00am-10:30am

Rowhouse Redux: On Thinking Computationally to Refabricate a Block
Heather Ligler, Florida Atlantic University

Rowhouse Redux, an undergraduate design and research studio, focused on engaging the logic of housing typologies and their urban implications toward regenerative design proposals for the refabrication of an existing block of row houses in Pittsburgh, Pennsylvania. A primary basis of the studio was a motivation to learn to think computationally to develop resourceful, affordable housing models through the imaginative transformation of building stock in lieu of demolition, while a secondary interest was to investigate how a framework of analysis-synthesis feedback loops would reinforce a move from linear to circular design processes in the studio. The computational thinking embraced by the studio is derived from the shape grammar discourse and its emphasis on spatial relationships as procedural generators for rule-based design.

Computational Design as a Mode of Inquiry: Teaching Paradigms Unplugged

Jinmo Rhee & Eunjoo Oh, University of Calgary
Pedro Veloso, University of Arkansas

Computational design in architectural education is often reduced to software training or programming instruction, approaches that risk widening disparities among students with varied technical backgrounds. This paper presents an alternative pedagogy that frames computation as a mode of inquiry rather than technical skill, conveyed through unplugged enactments that render abstract paradigms tangible without coding. Guided by constructivist and experiential learning principles, a graduate course was designed around four computational paradigms—rule based, agent based, parametric, and learning based systems—each introduced through embodied exercises before being extended into architectural design projects. Evaluation employed a scholarship of teaching and learning approach, drawing on student work, classroom observations, and reflections to examine how computational concepts were encountered and applied. Findings revealed that students moved from initial skepticism to conceptual recognition when ideas were enacted in tangible form. Unplugged exercises clarified underlying computational logic, reframed it as generative process rather than finished product, and established a shared vocabulary for design reasoning. However, their limitations also underscored the need to scaffold toward eventual technical fluency. The pedagogy demonstrates how unplugged approaches can broaden access to computational design thinking, cultivate dispositions of iteration and emergence, and reposition computation in architectural education as a reflective and generative mindset rather than software proficiency alone.

Design Thinking for Climate Resilience: A Pedagogical Framework for High-Performance and Net-Zero Design Studios

Tian Li & Yujia Wang, University of Nebraska-Lincoln
Yi Lu, Carnegie Mellon University

As the urgency of climate change accelerates, architectural education faces a pivotal shift toward integrating environmental performance, data-driven reasoning, and creative design thinking. This study presents a pedagogical model that reframes the traditional design studio as a trans-scalar laboratory for high-performance and net-zero design learning. Developed through a graduate-level design research studio, the framework guides students from conceptual speculation to evidence-based decision making across three stages: (i) sustainable campus planning, (ii) high-performance individual building design/development, and (iii) AI-assisted energy and carbon simulations. By coupling analytic rigor with visual imagination, the studio cultivates "systems of thought and imagination" where design thinking becomes both method and mindset. Students employ iterative workflows that merge composition, systems analysis, urban fabric, cultural study, and environmental simulation, using tools such as ClimateStudio®, ZeroTool®, and MEBA Tool, to quantify energy use, optimize renewable strategies, and visualize site-scale decarbonization. The studio structure encourages collaborative learning, peer critique, and performance-driven design communication, linking abstract environmental goals with architectural form-making and storytelling. The study documents selected student project samples that explore low-rise net-zero cultural and research campuses. Through these works, students learn to balance ecological metrics with spatial, social, and aesthetic values, reframing sustainability as both measurable and experiential. Ultimately, this study argues that future design education not only involves systematic design thinking but also evolves beyond prescriptive sustainability checklists toward an integrated, data-informed design philosophy. By embedding AI-enabled simulation and systems literacy into the creative process, the studio prepares the next generation of architects to envision and realize climate-responsive, regenerative futures.

Pedagogies of the Plasticene: Material Agency and Civic Architecture
Hyojin Kwon & Darby Fly, Georgia Institute of Technology

As a temporal embodiment of the Anthroprocene, plastic waste is a civic material: its extraction, production, and disposal have global implications on municipal systems regardless of individual engagement. It is, as Roland Barthes observed, “less a thing than the trace of a movement”: condensing the paradoxes of modernity it exacerbates. What would it mean for architectural pedagogy to treat plastic waste as an endemic condition rather than an extrinsic threat? Positioning waste-as-curriculum is a pragmatic engagement of this material landscape: an approach that reframes plastic waste as a new type of raw matter and reorients architects and designers as mediators in distributed networks of people, matter, and industrial processes. Originally developed as Plastic Reimagined: Material Agency and Circular Design, a graduate design-research studio and public exhibition at Georgia Tech, the project engaged local waste streams as pedagogical sites. Through a series of comprehensive partnerships—including the Institute’s Office of Sustainability, School of Materials Science and Engineering, campus maker spaces, regional recyclers, and NGOs—students collected, shredded, and remanufactured High-Density Polyethylene (HDPE) and Polylactic Acid (PLA) diverted from institutional and municipal waste ecologies. Three phases structured this pedagogy: first, discursive research reframed plastic as cultural artifact; second, prototyping established workflows of material and methodological experimentations as modes of inquiry; third, the Adirondack chair served as typological scaffold, transforming vernacular furniture into proto-architectural public artifact. The chairs—staged across three public exhibitions—functioned as civic arguments, catalyzing dialogues around ecology, labor, and design ethics. By treating waste as curriculum and exhibition as community encounter, the studio enacted pedagogy as public practice.

Structuring Relationships: Design Education and Community Practices

Friday, March 27, 2026
9:00am-10:30am

Breaking Cycles: Planning and Design Tools for Systems Change
Cathi Ho Schar, Dan Milz & Lorinda Riley, University of Hawai'i at Manoa

In 2022, Governor David Ige signed House Bill 2171, which became Act 278, re-establishing the Hawai‘i Department of Public Safety as the Department of Corrections and Rehabilitation (DCR), which manages eight adult jails and prisons for the state. The new motto, “He Au Hou,” translates to “a new era,” highlighting a renewed emphasis on rehabilitation and comprehensive support for those in custody. Notably, 86% of Hawai’i’s total correctional population demonstrates a need for substance abuse treatment; 20-30% are homeless immediately prior to entering corrections; and 36% identify as Native Hawaiian, a reflection of the underlying health, housing, and social inequities that are root causes of incarceration. A third of the overall correctional population is housed in the O‘ahu Community Correctional Facility (OCCC), Hawai‘i‘s largest jail, an outdated facility with overcrowding, lack of program space, deteriorating infrastructure, staffing shortages, and the center of ongoing debates over the need for broader justice reform and new models for institutional and community-based care. With planning already underway for the relocation of OCCC, DCR contracted an independent university team spanning architecture, planning, peace studies, public health, social work, law and Hawaiian Studies to explore alternative models and to collectively reenvision a community-based continuum of care across health, housing and justice systems. This prompted a 2-year research, community engagement, planning, and design process that implemented a range of knowledge-sharing, relationship-building, and change-oriented tools to work toward holistic systems redesign. This paper highlights the methods and tools that were developed and implemented to facilitate this work.

Co-Design In the Studio: Voicing the Community Perspective

Timothy Griffin, Savannah Steele, Kayla Ignatowicz, Anukriti Misra & Julia Robinson, University of Minnesota

Empowering the community voice is a role that the University architectural design studio can play in urban design, especially for underserved communities. Complementary to the work of urban planners and architectural designers, and prior to engagement with the city, the University studio can be leveraged in co-design with the neighborhood, to envision projects that benefit the neighborhood and derive from the community expertise. The goal was to collaborate with the community rather than design for the community. (van Kampen, S., & Giraudy, C. (2021). Building “Working with, not for” into Design Studio Curriculum (1st ed., Vol. 7). Athens Journal of Architecture, and for note 18- now 19 or 20 as op.cit.) Successful work with disinvested communities can be challenging because it involves developing trusting relationships with individuals and organizations. The project presented here began with a joint concern of two community members and a design studio instructor about the isolation and poor condition of the neighborhood, and an opportunity to develop land along the Mississippi River to revitalize the North Minneapolis neighborhood. The project was a combined research and teaching effort in which the scholarly question was how to amplify the voices of the community employing the design studio. From the beginning it was determined that the project would be experimental, developing pedagogical practices and knowledge that could be advanced in future studios. The approach included working with University students to understand how to collaborate with the community members (and, in this case, youth interns), including research on the existing situation and exploration of possible new opportunities and directions. The three-year evolution saw changes in the participants, the instructors, and the teaching and design methodology that increasingly engaged the work of the studio with community members to create project proposals that represented community ideas and values.

Architecture after Participation: Co-design as a Decolonial Project

Lola Sheppard, University of Waterloo
Mason White, University of Toronto

Architecture struggles with relinquishing authorship. However, since the 1960s, there has been an undercurrent call to rethink authorship and the bias of expertise of the architect. This movement has grown in the last fifteen years, and the urgent need for more inclusive design approaches has become particularly obvious in considering architecture serving Indigenous communities. This essay explores the possibilities and challenges of co-design as a decolonial approach that recenters Indigenous voices and knowledge systems. A series of recent co-design projects working with Inuit communities in Arctic Canada serve as case studies on the role of innovative physical and digital tools in collaborative design. Decolonizing research methods, storysharing, and the role of language and tools in co-design processes create opportunities for a more participatory design process.

Systems of Architectural Inquiry

Friday, March 27, 2026
9:00am-10:30am

The Virtue Of Misalignment: Visual Superimposition As A Method For Architectural Inquiry

Mike Christenson, University of Minnesota

This paper argues for visual superimposition – the deliberate layering of multiple, often conflicting, source images – as a method for architectural inquiry. Moving beyond conventional approaches that prioritize geometric accuracy, this method treats discrepancies between representations not as errors to be resolved, but as opportunities for interpretive potential. By foregrounding misalignments, the technique can reveal latent architectural propositions and challenge singular understandings of a building. Through case studies of the Hawa Mahal in Jaipur and the Barcelona Pavilion, this paper demonstrates how superimposition can function as a generative tool, shifting the goal of existing-building representation from accurate description to open-ended analysis.

Reciprocal Lattice Column: A Self-Balancing Interlocking Tension- and Compression-Bearing Spatial System

Sina Mostafavi, Bahar Bagheri, Tahmures Ghiyasi, Edgar Montejano Hernandez & Cole Howell, Texas Tech University

This paper presents the Reciprocal Lattice Column, a self-balancing interlocking spatial system capable of resisting both tension and compression through a jointless, dry-assembled configuration. The system avoids adhesives, nails, or mechanical fasteners by integrating geometric reciprocity and structural interlocking in a tetrahedral–octahedral voxel configuration. A voxel-based computational design workflow defines spatial and structural logic, enabling the generation of a reciprocal arrangement of timber plates and inclined dowels. Timber plates are topologically optimized using principal stress trajectories, while dowel profiles vary according to localized force magnitudes. Components are fabricated with high precision through multi-axis robotic milling, and two assembly strategies, bottom-up and top-down, are tested using either augmented reality (AR) guidance or instruction-based workflows. A 6-foot-tall timber prototype is fabricated and assembled to validate the system's performance, demonstrating stability under both compressive and tensile conditions. The top-down assembly, conducted while the column is suspended, confirms its tensile capacity in reverse-loading scenarios. Additionally, to refine and evaluate the integrated computational design-to-robotic-production workflow, a comparative full-scale column is fabricated using dowels and 3D-printed joints. This joint-based version supports assessment of performance, precision, and assembly sequencing. The Reciprocal Lattice Column advances a fabrication-aware methodology for timber structures through jointless construction and design for assembly and disassembly.

Dumbing Down: A Tactical Repositioning of Fabrication through Computation

Blair Satterfield, University of British Columbia
Marc Swackhamer, California Polytechnic State University

This paper proposes a reframing of digital fabrication that privileges access, strategic simplicity, and computational robustness over technical escalation and optimization. Building on prior work with Zippered Wood, a design platform for producing curvilinear and twisting timber elements from standard lumber, the project introduces a lo-fi evolution: a custom system of jigs that dramatically reduce fabrication complexity while maintaining high-resolution geometric control. Rather than investing in increasingly exclusive tooling strategies, our research approach embeds computational intelligence into lo-fi jigs, templates, and parametric workflows that operate through ubiquitous tools. In doing so, it challenges the prevailing narrative that equates digital fabrication with robotic precision and multi-axis automation. Here, simplicity and access become the innovations. Precision and dynamic form are delivered not through costly infrastructure, but through calibrated tooling, choreographed process, and adaptable systems. It relocates authorship. Here, the architect invests in materials and processes, defining which behaviors are made available to others rather than dictating outcomes. This new phase of Zippered Wood research offers a hybrid theory-method: a materially grounded, computation-enabled fabrication approach that considers material circularity through adaptable toolmaking. It repositions digital fabrication as a cultural tool, one capable of broader participation, deeper engagement with waste streams, and a more democratic approach to design agency. The whole future of fabrication may not lie wholly in smarter machines. Perhaps it also lies in more thoughtful relationships with the tools and materials we already use.

Urbanism & Community

Friday, March 27, 2026
9:00am-10:30am

Revisiting Genius loci: A Temporal Critique via Mandegari (Māndigārī)
Shahead Maghreby, Blinn College

Christian Norberg-Schulz's theory of place, developed in the 1980s, has been a cornerstone in architectural theory, focusing on genius loci through a phenomenological lens. Genius loci is the spirit of place, the unique character that arises from the interplay of a location's physical form, cultural meaning, and atmosphere. Norberg-Schulz argues that architecture should reveal and strengthen this spirit, enabling people to dwell meaningfully within their environment. His work emphasizes the importance of place experience in human existence. Norberg-Schulz considers genius loci on two distinct levels—the temporal formation of place through past time and the inhabitant's experiential encounter with it. The latter is often treated as static and fixed, failing to adequately capture the ongoing, reciprocal interaction between place and inhabitants. This study asks how the theory of genius loci can better account for the ongoing temporal dynamics of place. To address this theoretical gap, the paper introduces mandegari (māndigārī)—a Farsi term roughly translated as overall continuity—as a culturally grounded, semantically rich framework that situates temporality at the core of place as an existential dimension. Mandegari captures both the material endurance and the lived continuity of places, describing locations that persist physically and symbolically through time while encompassing tangible and intangible qualities. Unlike Norberg-Schulz, who treats the inhabitant's encounter with place as relatively static, mandegari frames place as an open, evolving construct, continuously negotiated and co-constructed through time and human engagement. Through an interpretive methodology grounded in conceptual analysis, cross-cultural semantic interpretation, and theoretical synthesis, this paper integrates mandegari into Norberg-Schulz's framework. The result is a reframed, temporally enriched interpretation of place—one that balances continuity and transformation, moving toward an understanding of place as a condition of ongoing emergence, continuously reinterpreted and renegotiated. Ultimately, this research contributes to architectural theory by demonstrating how cross-cultural concepts such as mandegari enrich phenomenological frameworks and respond to the temporal complexities of contemporary built environments. Keywords Phenomenology of Architecture, Place, Genius loci, Mandegari (Māndigārī), Dynamism.

Tales from a Colmado: An Evolution of Architecture and Infrastructure
Amy Trick, University of Texas at Arlington

The built environment is shaped and changed by social, political, and environmental forces, often simultaneously. In Adjuntas, Puerto Rico, a town two hours inland from the coast and nestled in mountainous terrain, the colmado (or “corner store”) in the Alto de Cuba neighborhood has evolved and changed in architecture and functionality in response to such forces. Sometimes the changes were forced upon the building, by way of climate disasters, political ties and bureaucratic issues, economic forces, or the culmination of these numerous factors. However, the building later evolved through initiatives of community organizations, most prominently the Adjuntas-based group Casa Pueblo, that used architecture and infrastructure to anticipate and counteract difficulties and facilitate resiliency. This most recent transformation of the place, facilitated by the installation of a solar panel system and back up batteries, has made this hyper-local neighborhood corner store into a resilience hub. When the power is out in Adjuntas, be it due to hurricane weather or infrastructural breakdown, the colmado stays illuminated. In these moments, the program of the corner store inherently expands due to its reliable electricity, providing a place for locals to gather and charge phones, gain access to safely-stored food, and seek refuge from their homes that are intermittently without lighting or internet. The adaptations to the architecture by way of this small-scale infrastructure also contribute to other factors, including the economic viability of the business, contributing further to social resiliency. The colmado, considered as a case study, demonstrates how resiliency can be promoted by way of infrastructure but also how architecture and the built environment – both spatially and tectonically – can impact the implementation of such resiliency projects. It also demonstrates how infrastructure can serve as a tool to combat problematic forces that have historically had negative ramifications on places and communities.

Creating a Wildfire Vulnerability Index of Los Angeles County by Integrating Socioeconomic, Health and Built Environment Indicators

Peng Du, Thomas Jefferson University
Trisha Kawa Macon-Bibb, County Planning & Zoning Commission

Today wildfire is getting increasingly frequent and severe, so our climates, natures, communities and economies are under profound threats. The wildfire vulnerability indices developed by the previous studies are largely based on demographic and health indicators alongside physical exposure to fire hazard zones, but no study has quantified and mapped the impact of the physical built environments on wildfire vulnerability, such as building age, structure material, and access to fire stations and hospitals. This study aims to fill this research gap using Los Angeles (LA) County as a case study. A wildfire vulnerability index was developed using Geographic Information System (GIS) by integrating built environment indicators, in addition to socioeconomic and health indicators that previous studies have focused on. Particularly, total 12 vulnerability indicators across different aspects were identified, analysed, and mapped via GIS at the census tract track level, including 4 socioeconomic indicators (Annual Median Household Income, Population Below Poverty Level, Older Adults Living Alone, and Households Without Vehicle Access), 4 health indicators (Population with a Disability Emergency, Visits for Asthma, Emergency Visits for Heart Attacks, and Population with no Health Insurance), and 4 built environment indicators (Proximity to Fire Stations, Proximity to Emergency Hospitals, Median Year of the Built Structure, Proximity to Forests and Green Space). The results were normalized into a vulnerability score system that was implemented into each vulnerability map. The overall vulnerability index was created by overlapping all the individual vulnerability maps and adding up the associated vulnerability scores. This pilot study offers a unique understanding and acknowledgement of how the physical environment contributes to wildfire vulnerability, and identifies the most vulnerable areas in LA County that need urgent attention and support. The findings highlight the importance of addressing social and infrastructural resilience alongside traditional fire management strategies.

Shenandoah Valley Accessories; Survey as Practice
Dylan Krueger, James Madison University

Within architectural practice, survey is generally understood as a prerequisite for design, quantifying a physical site as preparatory work. This paper challenges that assumption by positioning survey as a legitimate practice of architecture. Drawing from Clifford Geertz's concept of thick description, the project argues that survey is never neutral but interpretive, and that architectural value emerges through accumulated observation rather than singular definition. Shenandoah Valley Accessories surveys Virginia's Shenandoah Valley, a historically consequential region defined architecturally by Route 11. Along this corridor exists an underappreciated lineage of motels, mills, gas stations, juke joints, and churches shaped by migration, agriculture, and commerce. Though rarely considered a site of disciplinary reputation, these structures represent physical artifacts of layered histories and cultural adaptation. Photography initiates the survey. Over multiple trips, 346 building portraits were recorded to construct an architectural archive. The survey begins as an exhaustive collection effort, without fixed hierarchy or predetermined outcome. Understanding emerges only through repeated surveys and later processes of sorting, editing, and re-sequencing. Buildings are selected through observed similarities such as typology, material presence, programmatic use, and patterns of adaptation. This process acknowledges the subjectivity of the architect as observer and accepts that a different archive would result from a different lens or moment in time. Curation and editing operate as active forms of knowledge production. Photographs lead to drawings, translating images into representations that distill architectural logics and codify typologies. Through this process, structures such as the Bluestone Inn, the Factory Antique Mall in Verona, and the Edinburg Mill emerge as exemplary findings, revealing persistence, adaptation, and cultural resonance. The project argues that survey itself becomes the content of architectural practice. Through publication and exhibition, the archive circulates beyond the Valley, positioning overlooked architecture within broader disciplinary discourse. Survey, as travel, photography, drawing, publication, and exhibition, is presented not as preparatory work but as a primary mode of architectural practice.

Pedagogies Scaled Beyond Architecture

Friday, March 27, 2026
9:00am-10:30am

What Do You Mean "they Do The Design"? Lessons From An Interdisciplinary Urban Design + Civil Engineering Capstone

Bára Šafářová, Nara Almeida & Sarah Nelligan, University of Washington, Tacoma

Urban design is inherently interdisciplinary and the ability to collaborative across disciplines is sought after in the professional realm as it's vital to delivering resilient and sustainable approaches to address contemporary urban issues. But, interdisciplinary urban design courses are often offered within related disciplines, such as landscape architecture, or architecture at the graduate level, and less so in collaboration with engineering disciplines such as civil engineering at the undergraduate level. We designed a capstone course specifically for interdisciplinary collaboration among urban design and civil engineering disciplines and collected quantitative and qualitative data via surveys and reflective journals to understand the benefits and challenges as perceived by students and the teaching faculty. Findings show that initial vague estimates of benefits of interdisciplinary collaboration, were –over time– substantiated and animated with reports of specific and nuanced examples of new perspectives, inter disciplinary transfer of technical skills, convergences among disciplinary knowledge bases. To illustrate the impact of interdisciplinary collaboration on urban design outputs we show evidence of increased technical sophistication in comparison with a prior, mono-disciplinary urban design capstone. To streamline interdisciplinary collaboration among urban design and civil engineering design courses, we present lessons for upgrading university physical and soft infrastructure, program level changes for each discipline, and offer ideas for faculty development opportunities.

De Facto Providence: Experiments in Assemblages
Stephanie Rae Lloyd, Rhode Island School of Design

In De Facto Providence, a design-research advanced studio at the Rhode Island School of Design, students investigated contested urban conditions by foregrounding existing spatial practices and designing speculative assemblages for local publics. Drawing on Science and Technology Studies (STS) and public theory, the studio employs a de facto methodology, which is grounded in historical research and assemblage thinking. A new pedagogical model that reframes architectural education as a practice of civic research and engagement allows students to develop a set of architectural propositions that critically attend to the spatial, political, and civic dimensions of cities.

Visualizing Values: Charts as Tools for Architectural Pedagogy
Leonie Bunte &Andrea Alberto Dutto, University of Idaho

This paper explores the use of charts as visual display tools for negotiating value systems in architectural education, highlighting their role in encouraging collective reflection, design exploration, and critical thinking. Drawing on two didactic experiments—a graduate seminar and an undergraduate design studio—the paper examines how charts function as both cognitive and communicative instruments in architectural pedagogy. The inquiry is framed through Malcolm Wells' Wilderness-Based Chart, a tool designed to quantify environmental values through a scoring system. This chart exemplifies three defining characteristics of visual display methods: instructional guidance, conceptual translation, and complexity reduction. In the graduate seminar, students critically analyzed Wells' chart, questioning its prioritization of "wilderness" and proposing more inclusive and actionable values. Their critique resonates with the Regeneration-Based Chart by the Society of Building Science Educators, which reframes the discourse around regeneration rather than wilderness. In the design studio, students used Wells' chart to navigate conflicting values and collaboratively shape architectural proposals, revealing both its strengths and limitations. The chart proved effective not only for analysis but also for encouraging experimentation with alternative design approaches. Overall, the findings underscore the potential of charts as negotiation devices that mediate between individual perspectives and disciplinary frameworks, demonstrating their pedagogical value in cultivating value-conscious architectural practices.

Pedagogies on Research and Practice

Friday, March 27, 2026
11:00am-12:30pm

Applied Research in Practice: Industry-Academy Consortium for Post-Professional Education

Malini Srivastava & Molly Dalsin, University of Minnesota

Research in the AEC industry is driven by several factors including the growing size and complexity of AEC projects, advances in building and construction technology, advances in computational processes and technology, and a demand to systematically understand community, occupant, and client needs.1,2 This paper presents the Master of Science in Applied Research in Practice (MS-ARP) at the College of Design, University of Minnesota, as a model for bridging post-professional and professional program students to practice through applied research in architectural graduate education. Grounded in principles of work-integrated learning and interdisciplinary collaboration, the program supports the development of research-capable professionals while enabling faculty and practitioners to engage in and fulfill the needs of applied, practice-relevant research. We trace the program's evolution since its inception in 2012 and identify its core structures which include a fee-based industry-academy consortium with an affiliated post-professional degree program. We discuss the core degree components and the foundational applied research coursework with customizable components. We further discuss the applied research components of the program that include firm-based applied research internships and capstone research which are structured as nested mentorship structures that foster continuous and reciprocal knowledge exchange between the academy and AEC firms. The discussion considers the model's structures for culturally-competent leadership development in interdisciplinary partnerships across allied disciplines in the Architecture, Engineering, and Construction (AEC) fields.The MS-ARP offers a replicable framework for graduate education that builds long-term, practice-driven research capacity within the architectural profession, while preparing students for applied research in practice.

Informal Learning Accelerator: Designing a Mid-Degree Immersion to Rebuild Architecture's Tacit Learning Ecology

Margarita McGrath, Virginia Tech

Architecture uniquely constructs learning environments that deliberately mix formal and informal modes. The design studio, the core of professional degree programs, is a formally structured setting that relies on informal learning behaviors—such as critique, observation, iteration, and reflection—to function effectively. It provides extended time for conceptual development within an edited context: no clients, budgets, or risk, yet space for thought and synthesis. In professional practice, this balance reverses. The Architectural Experience Program (AXP) structures informal learning in a high-paced, full-context mode where real constraints leave little time for reflection but deepen judgment. The formation of an architect has traditionally relied on studio and office environments—each now in flux. With hybrid schedules now common in professional offices—architects frequently working remotely several days a week—the informal learning networks that once grew out of everyday observation and participation have begun to thin, leaving the cultural and personal knowledge that sustained the discipline's shared intelligence increasingly fragile and unevenly distributed. What was once ambient must now be intentionally designed. This paper presents a ten-day, mentored practice immersion midway through the professional degree as a model for renewing this ecology of learning. The immersion operates as an "informal learning accelerator," compressing time while expanding context. Drawing upon scholarship on informal learning, student and firm reflections, and surveys, we examine how such a condensed, compensated experience accelerates professional readiness and addresses equity in access to experience. Using Eraut's iceberg model of professional knowledge and extending it through the metaphor of the wave zone, we argue that learning is most dynamic where codified and tacit knowledge meet. The mid-degree immersion demonstrates that this turbulence can be designed—that short, intentional experiences can renew architecture's tacit culture of learning and serve as a replicable model for accelerating situated knowledge in a hybrid professional world.

Vernacular Typologies as Climate-Responsive Strategies: Comparative Lessons for Architectural Pedagogy

Asma Mehan & Sina Mostafavi, Texas Tech University

Vernacular architecture embodies resilient, climate-responsive strategies shaped over centuries of adaptation to local conditions. This paper examines six vernacular typologies—courtyard houses, mashrabiyas (lattice screens), cisterns with windcatchers, qanats, monumental wind towers (malqafs/badgirs), and ancient ice houses (yakhchāls)—across diverse climatic zones to extract design principles relevant to contemporary sustainability. The analysis explores how thermal mass, shading, airflow, subterranean cool storage, and water management combine to produce comfort without reliance on mechanical systems. Findings show that while each typology excels under specific environmental constraints, performance depends heavily on design decisions: proportions of openings; orientation relative to prevailing winds; height and placement of vertical shafts or screens; and integration with vegetation, water, and earth. For architectural pedagogy, this suggests incorporating typology-climate mapping, performance data, and hybrid adaptation assignments into studio curricula. By treating vernacular typologies as living laboratories rather than static precedents, educators can cultivate in students the climate literacy, contextual sensitivity, and adaptive design-strategies needed for resilient architecture.

Making Cultural Places: Participatory Processes

Friday, March 27, 2026
11:00am-12:30pm

Connector or Disconnector: Sweet Auburn Green and Equitable (SAGE) District

Elizabeth Martin-Malikian, Miami University
Giovanni Loreto, Kennesaw State University

This paper explores the potentials and contradictions of equitable green redevelopment in historically Black neighborhoods that have been fractured by infrastructural systems of segregation. Focusing on a design-research initiative called the Sweet Auburn Green and Equitable (SAGE) District, the project investigates how ecological and community-based frameworks can operate as agents of reconnection rather than displacement. The work was developed through a collaboration between an upper-level undergraduate architecture studio, a regional professional design organization, and a local community development corporation engaged in equitable revitalization efforts. Through site-based research, participatory engagement, and speculative design proposals, students examined how design can function simultaneously as an environmental, social, and cultural connector. The collaborative project situates the SAGE District as a model of collaborative pedagogy that integrates academic inquiry, professional practice, and community knowledge to advance equity centered design education (Hester, 2006; Bennett, 2019).

Other Spaces and the Spaces for Places Toolkit
Karla Sierralta & Brian Strawn, University of Hawai'i at Mānoa

The 2018 eruption of Kīlauea in Hawai‘i’s Lower East Rift Zone reshaped more than 8,400 acres of land, transforming coastlines, infrastructure, and culturally significant landscapes across the Puna district. In the aftermath, affected locations such as Pohoiki—a public park and newly formed beach—and Kumukahi—the easternmost point of the archipelago and a sacred site for Native Hawaiians—became contested environments where residents, visitors, and governing agencies navigated overlapping, and at times conflicting, understandings of access, safety, memory, and stewardship. Within this context, conventional approaches to planning, signage, and interpretation proved insufficient to address the layered social, cultural, and environmental conditions that follow disaster. The challenge was not only how to rebuild, but how to establish spatial and communicative frameworks capable of supporting dialogue, reflection, and collective decision-making before permanent interventions are imposed. Spaces for Places is a design toolkit developed to respond to this challenge through the creation of Other Spaces—temporary, flexible architectural interventions that mediate between people, place, and information before, during, and after events. Developed in close collaboration with representatives of Hawai‘i County and supported by a National Endowment for the Arts grant, the toolkit supports early-phase engagement and decision-making related to interpretive signage, land use, and future installations. Rather than prescribing fixed outcomes, it provides a shared spatial language through which communities can negotiate meaning, clarify protocols, and establish priorities over time. At the core of the toolkit are two complementary frameworks. The Making Space Framework examines how spatial configurations—understood through the architectural device of the “line”—shape experience, movement, and interpretation. Lines are explored through three layout types (straight, curved, and double) and four marker orientations (vertical, horizontal, sitting, and mixed), resulting in thirty-nine possible configurations. The Understanding Place Framework guides the development of content associated with these configurations, organizing information into eight categories: access, boundaries, place, events, people, stories, memories, and plans. Together, these frameworks link spatial form with layered narrative content, allowing meaning to emerge through sequencing, orientation, and use.The toolkit includes at-the-table tools for off-site dialogue and in-the-field tools—lightweight, full-scale wireframe structures—that function as “spatial sketches” for testing configurations and content on site. Public deployments at the Revitalize Puna Activation and at Pohoiki demonstrated the toolkit’s flexibility, clarity, and capacity to support shared understanding in complex post-disaster contexts. Currently under revision for distribution through Hawai‘i County’s Resiliency Hub Resource Library, Spaces for Places offers a replicable, place-based approach to design as mediation—supporting remembrance, preparedness, and stewardship through temporary architecture and collective interpretation.

Reclaim, Reformat, and Resist: Social Practice Art and Urban Regeneration in Chicago

Daniel Martinez, Indiana University

This essay examines how social practice art has informed alternative approaches to urban regeneration in Chicago, particularly within historically disinvested African American and Latinx neighborhoods on the South and West Sides. Drawing a distinction between mid-20th-century urban renewal and contemporary regeneration, which emphasizes sustainability, inclusion, and adaptive reuse, the essay argues that artist-driven practices offer models of equitable and culturally grounded transformation. Focusing on three interrelated strategies to reclaim, reformat, and resist, the essay highlights case studies where the principles of social practice art have been applied with transformative effects to the urban landscape of Chicago. Borderless Studio and Chicago Mobile Makers demonstrate how communities can reclaim neglected spaces through education, participatory design, and collective stewardship. Examples from the artist collective Floating Museum illustrate how public infrastructure can be reformatted into cultural corridors and mobile art venues through the activation of urban transit systems and natural resources. Furthermore, work from the artists Edra Soto and Amanda Williams show how an ethos of resistance can challenge dominant narratives of race, value, and space through site-responsive installations and public interventions. Together, these practices expose the limitations of top-down regeneration strategies while underscoring the power of collaborative and community-rooted approaches. Rather than reproducing cycles of displacement or market-driven development, they foreground care, memory, and equity as essential to shaping the city's future. The essay ultimately contends that Chicago serves as an experimental laboratory for understanding how social practice art can catalyze belonging, resist systemic inequalities, and open new possibilities for urban regeneration grounded in collective agency.

AI Methods and Design Intelligence

Friday, March 27, 2026
11:00am-12:30pm

From AI Representation to Performative AI: A Method Framework for Leveraging Diffusion Models to Learn Ecological Design Strategies

Shermeen Yousif, University of Texas at Arlington

This research probes the extent to which diffusion models can be leveraged to transcend their representational capabilities to engage with the deeper logic of passive environmental design. We investigate here how artificial intelligence can be operationalized to internalize, encode, and articulate resilient and passive architecture design principles. To enable this, a novel design workflow was developed, integrating structured semantic prompting for controlled image generation, LoRA (Low-Rank Adaptation), based fine-tuning for model specialization, and translation pipelines from image output to 3D geometric representation. The framework unfolds across iterative phases of AI-driven design generation, employing trained multiple LoRA models, each tailored for a specifically investigated passive strategy to control the generative process. Integrated into the workflow was environmental simulation, particularly daylight analysis, for evaluating the expected higher performance of the generated design outcomes. Testing our prototyped framework was done by applying it to a design problem in the subtropical climate of Southeast Florida, as discussed in the paper. A central contribution of this work lies in its redefinition of the architect's agency within a human-machine collaboration continuum, situating the designer as an active mediator and curator of ecologically attuned design. In doing so, the paper reframes diffusion models not as instruments of mere formal novelty but as collaborative agents in designing environmentally responsive architecture.

Automating Multi-Modal Dataset Workflows in Architecture
Sabri Gökmen & Andrei Vince, University of North Carolina at Charlotte

Generative AI has the potential to reshape architectural design, yet its application is constrained by the absence of large, structured, and domain-specific datasets. Unlike image-based disciplines, architecture requires data that integrates geometry, image fidelity, and textual description, posing unique challenges for scalability and alignment. This paper presents ongoing research toward automating the preparation of large architectural datasets across multiple modalities. Our workflow leverages procedural generation, conditioned diffusion, and large language models to produce over 10k labeled examples of voxel-based massing paired with photorealistic renderings and descriptive prompts. Together, these approaches illustrate a multi-engine strategy for architectural dataset preparation that shows scalability. We conclude by identifying key challenges in validity, alignment and bias by positioning dataset preparation itself as a critical site of architectural design research.

GANs for Communication and Engagement in the Urban Design Process: A Case Study in Philadelphia

Erick Romero & Peng Du, Thomas Jefferson University

Experts in the field of urban design commonly make design decisions with limited input from stakeholders, more specifically, communities who are directly impacted by design decisions (Quan et al. 2019) (Gagan Deep 2023). This insufficiency can cause a lack of understanding and distrust of urban design practices (Robinson 2019), lead to public interest disputes (Allen 2011), and social and physical sustainable setbacks (Konsti-Laakso and Rantala 2018). Nonetheless, when stakeholders are engaged in the design process, it is conventionally facilitated through surveys, interviews, workshops, charettes, etc. for informing and consulting (Rupp et al. 2022). However, these engagement strategies are purely for data collection and can be restrictive to at most, design conceptualization. Communities must be given the opportunity to design and most importantly understand the impact of their design decisions (Quan 2022). Artificial intelligence (AI) has demonstrated potential as an interactive engagement strategy to involve stakeholders in the urban design process (Batty 2018). Generative adversarial networks (GANs) – a form of AI, are image-to-image translation models – in which users can simply draw images such as an 2D urban layouts to predict a selected metric such as radiation hours within seconds. GANs can enhance collaboration in the urban design process by providing stakeholders the ability to visualize the impact of their designs, improving deliberation and transparency with experts (Chen et al. 2024). This paper proposes a framework for communication and engagement for design teams, communities, and other stakeholders, ‘Parametric 2Pix2Pix 2Web 4Community (PPWC)’ through a case in Philadelphia. It is important to note that GANs have various limitations, including data dependency, sole metric prediction, quality and flexible dataset creation, model training time, and accessibility. The proposed PPWC framework will address these challenges to enhance the use of GANs in the urban design process, making them more efficient and responsive. Nonetheless, PPWC delivered promising results in establishing a reproducible workflow for generating new data to train GAN models and their integration into a user-friendly website.

Cool Memories: On Re-Animated Personification, Pixelization, and Generative-AI
Jesus Melendez Vazquez, Maireliz Luciano & Oscar Santiago, Pontifical Catholic University of Puerto Rico

This project makes the argument that the "environmental uncanny" in Puerto Rico serves as a critical tool for environmental communication, examining the link between colonial legacies and climatic vulnerability to re-animate regional traditions of personification through generative AI. By treating the stereotypical outputs of biased algorithms found on generative AI imagery, not as flaws but as primary design sources, the project establishes a "site of conflict" to question how digital tools can communicate shared precarity. The methodology employs a workflow where high-resolution AI certainty is obstructed via pixelization, forcing the output into a state of instability that exposes stereotypical biases through abstraction. This process successfully translates biased 2D digital imagery into a Latent 3D Object, demonstrating that algorithmic bias can be strategically re-signified into productive architectural forms. Ultimately, this framework offers a model for designers to use computational workflows as a powerful vehicle for climate communication and post-colonial critique, contributing to emerging models of climate-responsive design that prioritize critical inquiry over representational certainty.

Digital Tools & Pedagogy

Friday, March 27, 2026
11:00am-12:30pm

Material-Semantic Consolidation for Web-Ready Planning: A Workflow from Rhino to ArcGIS with Grasshopper

Shangde Gao, Karla Saldana Ochoa, Changjie Chen & Muyun Xiao, Columbia University

3D city models provide a foundation for planning support systems to conduct holistic, context-aware evaluations of how design proposals integrate within existing built environments. However, individual building-level architectural models are often burdened with high geometric complexity, fragmented object hierarchies, and limited semantic legibility, which hinder their interoperability with geographic information system (GIS) and consequently impede effective collaboration between architects and urban planners. To address this issue, we present a workflow for data standardization that converts large, high-fidelity architectural models (e.g., those created in Rhino) into lightweight 3D objects suitable for visualization on WebGIS platforms (e.g., ArcGIS Online). The proposed workflow consolidates thousands of discrete architectural components into a limited set of per-material meshes, thereby reducing geometric complexity while retaining essential material semantics. We demonstrate the workflow by converting Rhino models of four test buildings to ArcGIS 3D scene layers to be visualized in ArcGIS Scene Viewer. This workflow aims to enhance urban design processes by making architectural-level proposals more accessible, interpretable, and contextually integrated, thereby supporting open, transparent, and collaborative pathways toward diverse urban futures.

Decoding/Encoding: Towards Semantic Space of Architectural Meanings
ChangHe & Yanfeng Chen, University of Florida

This paper explores decoding and encoding as a hermeneutic framework for restoring architectural meanings in an age of placelessness. Decoding reveals cultural and historical symbols through interpretive acts, drawing from Jacques Derrida's deconstructionist term of différance and Paul Ricoeur's phenomenological meaning of narrativization, while encoding based on AI-generated Self-organizing Maps to re-articulate these insights into new design languages. Using the teahouse as an architectural case, the study demonstrates how AI-assisted mapping externalizes subtle affinities across sensory narratives, translating experience into different spatial categories. Through this human–machine dialogue, architecture is reframed not as a formal spectacle but as an ethical, spatial, and poetic practices that repair the semantic depth of architectural meanings.

Pedagogical Reverberations II: Artificial Intelligence and the Meta-Layer of Design Studio Learning

Ting Chin & Claudia Hernandez Feiks, New York City College of Technology

Building on a paper presented at the ACSA 111th Annual Meeting, this next iteration of Pedagogical Reverberations extends our investigation into architectural education by examining how emerging artificial intelligence (AI) technologies are reshaping the epistemological and pedagogical foundations of the design studio. Building on the taxonomy established in our previous research—which categorized studio pedagogies through the lenses of Architecture as Autonomous Form, Architecture as Instrument of Culture, and Architecture as Cultural-Formal Instrument (Hays, 1984)—this study introduces the concept of AI as a meta-layer operating across, between, and beyond these categories. Rather than viewing AI as a singular methodological tool, we posit that it functions as an interstitial and transfor-mative agent—one that redefines authorship, cognition, and evaluation within architectural learning. The next phase of this research will focus on project briefs and case studies from international institutions that integrate AI into design education. We will examine how the studio is evolving in response to shifts provoked by intelligent systems and argue that AI introduces new representational and gen-erative capacities while reconfiguring fundamental pedagogical questions: What constitutes the process of design? How do students synthesize, critique, and iterate when algorithms par-ticipate in form generation? And how do educators recalibrate assessment and authorship within this new ecology of human– machine collaboration? Our study situates these developments within the historical continuum of architectural pedagogy, which has long oscil-lated between formal autonomy and cultural instrumentality. From the Beaux-Arts emphasis on composition to the modern-ist focus on function, from postwar contextual analysis to late twentieth-century computational design, architecture educa-tion has reflected its intellectual and technological paradigms. AI emerges as both a culmination and a disruption—extending computational logics yet distinguished by its capacities for au-tonomous learning, inference, and adaptation. Its inclusion in design education signals a paradigmatic shift from deterministic rule-based systems to probabilistic, emergent modes of mak-ing and thinking.

Designers as Mediators of Rurbanity: Designing Governance Interfaces for Platformized Villages in China

Sufeng Xiao, Harvard University

Digital platforms are reshaping rural territories worldwide, yet the resulting transformations rarely follow a linear shift from rural to urban. This paper frames platformized rural change as a rurban condition, produced by the co-presence of rural, platform, and state governance logics. Focusing on a single village in China's Yangtze River Delta, the paper examines how design-trained professionals operate as mediators within such rurban systems. Drawing on ethnographic fieldwork that combines participant observation, interviews, and analysis of publicly available platform documentation, the study traces moments of friction and adjustment rather than reconstructing a comprehensive village history. The paper advances an analytic framework that specifies the operational logic of mediation through three intertwined interfaces: institutional, regulatory, and operational. Institutional mediation translates dispersed village authority into collective entities capable of interfacing with platform requirements and state-conditioned resource gates. Regulatory mediation stabilizes legitimacy through narrative and disclosure protocols that make decisions, constraints, and responsibilities publicly traceable across audiences. Operational mediation designs programming rhythms and platform buffers that reduce entry costs and manage reputational risks created by fragmented multi-platform infrastructures. Across these interfaces, the central tension is dependency: how to enable platform engagement and rurban coordination without rendering villagers reliant on exceptional mediators. An exit test, prompted by the withdrawal of key practitioners, establishes durability as the evaluative criterion. The case suggests that mediation persists only when authority is institutionalized beyond individuals, accountability is routinized beyond personal credibility, and operational competencies are transferred without imposing excessive platform risk on households. The paper contributes a framework for design scholarship to analyze mediation as infrastructuring, shifting attention from discrete projects to the design of governance interfaces under platformized conditions.

The Cultural Twin: Reclaiming Urban Ontology as Civic Knowledge Infrastructure
Seung Ra, Oklahoma State University

Cities are the primary arena where climate risk, inequality, insecurity, and environmental degradation converge. Global frameworks such as the United Nations Sustainable Development Goals and UN-Habitat's Global Urban Monitoring Framework support comparison and coordination across contexts. Yet these systems often compress lived realities into standardized indicators that travel easily but listen poorly. A metric like "liters of clean water per person" can signal progress while missing what communities experience as control, memory, sacredness, or trauma. When measurement becomes the dominant language of governance, the city's cultural and political meanings risk being treated as noise, and erased. This paper introduces the Cultural Twin as an architectural framework for ethical urbanism and participatory knowledge in the age of AI. It extends the Digital Twin's ability to model physical systems and performance, but shifts representation from infrastructure alone to the relationships, interpretations, and conflicts through which urban life is produced. Where the Digital Twin optimizes, the Cultural Twin pluralizes. It treats data and artificial intelligence not as neutral tools, but as design materials that shape what becomes legible, actionable, and governable. The framework addresses formalization harm, the distortion that occurs when complex human realities are forced into predefined categories. Rather than pursuing premature consensus, the Cultural Twin preserves ambiguity, contradiction, and difference as civic assets. To make these commitments operational, the framework proposes two participatory instruments integrated into everyday planning workflows. Story Pins allow residents to share short voice notes, text, images, or digitized postcards tied to specific locations, surfacing social, emotional, and historical layers often absent from conventional datasets. Value Sliders enable participants to express priorities—such as affordability, cultural continuity, safety, mobility, access to nature, and care—as explicit design inputs rather than after-the-fact evaluation criteria. Used together, these tools reveal conflict without collapsing it, helping designers and policymakers trace how narratives and values shape spatial decisions. The Cultural Twin advances a dual-layer ontology that distinguishes relatively stable urban elements from time-sensitive practices and events, supporting a Reflexive Standard that maintains comparability without overwriting local specificity. It also argues for Hybrid AI as the basis of humane urban intelligence: statistical learning for pattern detection and scenario testing, paired with symbolic reasoning to encode constraints, ethical commitments, and context-sensitive rules. This pairing supports decisions that are efficient and accountable to meaning and responsibility. Evaluation shifts from optimization toward "measuring what matters," using indicators such as a Plurality Preservation Score, Equity Deltas, Community Authorship metrics, and Policy Shift Traceability linking decisions to public input. Finally, the paper outlines governance mechanisms—conflict ontologies, assumption ledgers, and enforceable exit ramps—that translate the Right to the City into a complementary Right to Representation. The Cultural Twin reframes architecture as both spatial and cognitive practice: designing not only buildings, but also the knowledge infrastructures through which cities decide, remember, and care.

Designing With Living Infrastructures

Friday, March 27, 2026
11:00am-12:30pm

Natural Infrastructure for Environmental and Community Resilience: A data-driven decision-making framework for urban development

Mohamed Dardir, South Dakota State University
Jeffrey Wilson, University of Waterloo
Umberto Berardi, Toronto Metropolitan University

Urban microclimates are facing escalating environmental risks associated with climate change, e.g., extreme heat, flooding, and storm events. These risks result in increased healthcare demands and reduced quality of life, especially among vulnerable populations. Previous conduct of natural urban developments had limited perception of their multifaceted benefits, impacting their adoption in municipal planning. This paper introduces a comprehensive, evidence-based and data-driven decision-making framework to demonstrate how natural and green retrofitting features, including urban greenery and cool urban surfaces, can effectively mitigate extreme environmental risks while promoting significant co-benefits for public health and local economy. The presented method integrates evidence-based statistical models for community data and localized weather measurements, using log-linear Poisson regression and microclimate simulations, applying community-level urban modeling. This modeling approach investigates the impact of applying natural retrofitting features on environmental and community resilience. This integrated method aims to simulate environmental variables (pollutant dispersion, heat exposure intensity, urban flooding, and wind storms), anticipate community health outcomes (emergency department visits, hospitalizations, etc.) and quantify reductions in energy consumption. The proposed applications revealed that even modest increases in urban natural features substantially reduce microclimate ambient temperatures, manage wind speeds, control runoff potential, and decrease heat-related health impacts. Remarkably, this framework provides municipalities with evidence-based, actionable insights to prioritize investments in nature-based climate adaptation and resilient urban design. Key findings show that expanding natural infrastructure controlled ambient temperatures and reduced daily humidex during anticipated heatwaves by more than 11%. The proposed application also controlled flooding and storm peak conditions. Anticipated reductions in health risks were also reported as a result of enhanced urban environments. While limitations exist in terms of the availability of health data, this research offers an adaptable model for future studies on community resilience through natural infrastructure. This decision-making framework gives evidence-based insights into the strategic investment in nature-based solutions for healthier, more sustainable, and resilient cities in the face of increasing climate hazards.

The Puddle Pavilion

Neal Hitch, Texas Tech University
Kristina Fisher, Carnegie Mellon University
Martin Hitch, Arizona State University

The Puddle Pavilion represents the culmination of two years of research exploring the formal and structural limits of bio-based resins. The installation investigates the intersection of ecology on two fronts: first, as a design question—exploring novel ways the environment (wind, gravity, and fluid dynamics) can engage directly with architecture, inviting natural forces in as active participants in design; and second, as a material question, probing the structural limits of bio-based resin as a tensile roof/canopy element within an integrated tectonic assembly. The project materializes as a free-form “puddle” cast directly onto the ground, its contours determined not by formwork but by gravity, surface tension, and the molecular cohesion of the liquid resin. During construction, algae-based resin was poured, splattered, and flung onto a flat worksurface and left to cure undisturbed. Then, once fully hardened, the structure was suspended atop slender stainless-steel columns to hover above Mud Creek in Bondurant Iowa, as a tensile hanging resin canopy. The structure appears on the landscape as a solidified resin river—or puddle—frozen in time, thus creatively dialoguing with its environment at both a formal level (as a geometry shaped by the same physical laws that govern the formation of natural bodies of water) and a material level (as an exemplary use case of bio-resin employed in a structural capacity as a spanning element within a permanent architectural work)

Biodiverse Walls: An Architecture for Non-Humans

Delphine Lewandowski, Pennsylvania State University
Robert Le Roy, Paris-Malaquais National School of Architecture — PSL
Philippe Clergeau, Museum National d'Histoire Naturelle
Sophie Deramond, ChartierDalix architects

Urbanization is a major driver of global biodiversity loss, fragmenting habitats and reducing ecological continuity within cities. In dense and highly mineralized urban environments, where access to open ground is limited, building envelopes represent an underexplored opportunity for architectural intervention at the scale of urban ecosystems. While contemporary green walls often rely on ornamental planting, intensive irrigation, and technologically complex systems, their ecological performance often remains limited, unknown or resource-intensive. This project proposes Biodiverse Walls as an alternative design approach that integrates habitat creation directly into architectural construction systems, prioritizing autonomy, durability, and ecological connectivity. The Biodiverse Wall concept is structured around two complementary design principles. First, a continuous vertical substrate layer is embedded within the depth of the wall, establishing ecological continuity between ground soil and roof vegetation. This configuration enables water retention, nutrient circulation, and species movement across the full height of a building, allowing the wall itself to function as a biodiversity patch within dense urban contexts. Second, construction materials are conceived as bioreceptive supports rather than inert envelopes. Masonry systems such as solid brick, hollow brick, and dry stone are reinterpreted to host substrates, moisture, and spontaneous colonization, embedding ecological performance into the permanence of architectural matter rather than relying on add-on technological layers. Six full-scale prototypes were designed, constructed, and monitored since 2021 at the Muséum National d'Histoire Naturelle in Paris to evaluate the ecological potential of these systems. The prototypes varied in material density, cavity morphology, and orientation in order to test their influence on plant establishment, moisture retention, and ecological colonization. Quantitative monitoring combined plant and insect surveys with substrate humidity measurements and statistical analysis. Results indicate that brick and dry stone systems provide the most favorable microclimatic conditions, particularly through higher moisture retention and material porosity. Orientation also proved decisive, with north-facing walls supporting richer and more stable plant communities than south-facing exposures. These findings confirm the role of architectural parameters such as materiality, morphology, and microclimate in shaping ecological performance. The experimental principles were applied in the Biodiverse Pavilion exhibited at the Biennale d'Architecture et de Paysage in Versailles in 2022. Constructed using reclaimed dry stone and planted with mostly native species, the pavilion demonstrates the compatibility of biodiverse construction with heritage contexts while showcasing low maintenance requirements and spontaneous ecological development. At a larger scale, the ecological continuity hypothesis has since been implemented and patented in a multi-story building in Paris, providing longer-term performance data. Positioned within the ACSA Design track, this contribution frames biodiverse walls as applied architectural research that transforms common construction systems into ecological infrastructures. By embracing irregularity, seasonal dynamics, and the design of space for non-humans, the project challenges anthropocentric design paradigms while offering transferable strategies for regenerative and biophilic architecture across diverse urban contexts.

Design

Friday, March 27, 2026
2:30pm-4:00pm

Relative Radius: a New Metric for the Formal Analysis of Fillets
Motomi Matsubara, Sharif, Lynch: Architecture

This paper proposes a research method to investigate fillet as a shared formal language across architecture, industrial design, and graphic design, using a formal analysis based on a new metric, Relative Radius, which is defined as the ratio of the fillet radius and the edge length including the fillet. As an initial trial of formal analysis using RR, fifty examples from architecture and product design were selected, measured, and compared. Calculated RR1 and RR2 values were plotted on the coordinates for analyzing tendencies. Three projects, including Banco Borges & Irmão II in Vila do Conde, designed by Álvaro Siza, were considered outliers because the shorter edge is almost equivalent to the fillet radius, resulting in a significantly high RR value.Certain dense zones were observed, and projects span across different categories and decades, suggesting that RR values may not directly depend on these indexes. Five pairs of examples with notably similar RR values were observed and most combinations crossed different categories and historical decades, which inferred RR values is independent of both category and period suggests the potential for new perspectives on the design of the fillet. Through the introduction of the RR value, the results exhibited a relatively clear tendency, and the graph, in particular, showed distinct layered clusters despite the small sample size. RR enables new kinds of comparisons that cannot be identified within a single disciplinary framework, expanding the potential for cross-disciplinary formal analysis.Future research will involve a more comprehensive survey of Relative Radius across architecture, products, and GUI design, with the aim of identifying clusters of RR values and categorizing them into several types in order to define a cross-disciplinary typology of fillets. Furthermore, by relating RR to historical periods, stylistic trends, and modes of construction and production, this study seeks to provide a new perspective for design history that incorporates quantitative evaluation.

(P)recast: Sustainable Masonry Unit Prototyping
Dillon Pranger, Illinois Institute of Technology

With over 70% of the built environment relying on masonry construction, the concrete masonry unit is considered to be one of the most widely used building materials in modern construction. This coursework introduces students to general practices surrounding the design, production, fabrication and testing of concrete masonry units. Through the dual act of making and testing, students are asked to explore sustainable alternatives to a standard 8”x8”x8 CMU half block while validating their results using both digital simulation tools and physical testing procedures in accordance with ASTM standards.

Sutureline: An Epistemology Of The Cut In Architectural Alphabetization
Camila Mancilla Vera, University of Nebraska-Lincoln

The saw enters the door at eye level. Sixty-two inches above the floor, precisely at the horizon of embodied perception, a blade initiates its passage through wood that carries memory. Thirty-three discarded doors stand assembled in a gallery, each bearing the archaeology of passage: paint strata deposited by successive inhabitants, brass ghosts where hardware once hung, kick-scars testifying to impatient feet. As teeth bite through veneer, through hollow core and solid stile, the incision reveals laminations of repair, the stratigraphy of habitation, the sediment of lives that once opened and closed these thresholds. The void, once created, speaks. This scene unfolds from the Sutureline installation at the University of Nebraska–Lincoln, enacting a foundational proposition: that the cut constitutes the inaugural letter of architectural alphabetization. Drawing on Sebastiano Serlio's sectional imagination, his Janusian portal collages, Marco Frascari's pen-as-knife mythology, Gordon Matta-Clark's anarchitectural incisions, and anthropological accounts of ritual threshold-cutting, this paper argues that the saw operates as epistemological instrument within M.Arch studio pedagogy. Tools of representation generate ideas through their operation. The protocol RESCUE →INVENTORY → PREPARATION → DATUM → INCISION → SUTURE → INSTALLATION offers a replicable method for teaching representational literacy through material scission. The saw enters the door at eye level. Sixty-two inches above the floor, precisely at the horizon of embodied perception, a blade initiates its passage through wood that carries memory. Thirty-three discarded doors stand assembled in the new HDR annex at the college of architecture at University of Nebraska–Lincoln. Each leaf bears what might be called the archaeology of passage: paint strata deposited by successive inhabitants, brass ghosts where hardware once hung, kick-scars at the bottom rail where impatient feet have testified. As the teeth bite through veneer, through hollow core and solid stile, the incision reveals laminations of repair, the stratigraphy of habitation, the sediment of lives that once opened and closed these thresholds. The void, once created, begins to speak. Sutureline installation enacts a foundational proposition: that the cut constitutes the inaugural letter of architectural alphabetization. Tools of representation, as Pérez-Gómez and Pelletier have demonstrated, generate ideas through their very operation. The saw, understood within this framework, emerges as an epistemological instrument. What forms of knowledge does its operation produce?

But Is It “entirely New”?

Shannon Chance, Technological University Dublin
Ines Direito, University of Aveiro
Mike Miminiris, University of Liverpool

How does a designer determine if, and when, something is genuinely their own creation—a wholly new design rather than a combination of existing elements? In the complex environment of the architectural design studio, the threshold between the known and the genuinely novel remains a fundamental challenge for both students and educators. This presentation explores the multifaceted phenomenon of design innovation, examining how students in architecture and civil/structural engineering experience and define the act of “design creation.” At the heart of this research is a desire to understand epistemic cognition—specifically, how students conceptualize the origins and creation of knowledge. Because creativity lacks a universally accepted definition, students often conceptualize the creative process differently than instructors and design professionals, which can impede effective communication and assessment within the studio. To address this gap, we conducted an empirical study involving 26 architecture and civil engineering students from four universities across three countries: Ireland, the United Kingdom, and the United States. Participants from both second and fourth years of study shared personal accounts of times they believed they had “created something entirely new.” Using phenomenography, a qualitative research methodology, we identify and describe the qualitatively different ways these students perceive and understand design creation. This approach focuses on mapping a “spectrum of conceptualizations,” presenting findings as “categories of description” that expose the diverse logic students use to navigate innovation. Such an approach is particularly relevant to the theme of Convergence/Divergence, as it identifies where student conceptualizations align and where they branch into distinct categories of understanding. Our preliminary findings reveal a fascinating spectrum of thought regarding novelty. While some participants struggle to define the “entirely new,” others suggest that contemporary design is primarily a unique amalgamation or redevelopment of existing elements, resulting in a product that is perceived as “a new thing” in its own right. Interestingly, many students initially requested a definition of the term from the researchers or admitted they had not yet designed anything they considered truly novel.

Watermarks: Public Murals, Abstraction, And The Built Environment
Tiffany Lin, Tulane University

This paper examines WATERMARKS, a site-specific mural installed in a newly renovated School of Architecture building, and its relationship to the history of public murals, abstract painting, and the discourse between art and architecture. Departing from the tradition of public murals in the U.S. that celebrate figural narrative, the project explores both its conceptual and physical context through abstract painting. Through an architectural lens, the mural functions as a didactic element in the school, integral to its recent expansion and rebranding as the School of Architecture “and Built Environment.” As a discursive work, the piece questions the purpose of public art and its mission of engaging viewers in a process of reflection and environmental critique.

New Housing Frameworks

Friday, March 27, 2026
2:30pm-4:00pm

This session is all 2026 Award Winners.

Designing For Ecological Futures

Friday, March 27, 2026
2:30pm-4:00pm

To Retrofit, Or Not To Retrofit, That Is The Question

Naomi Keena, Avi Friedman, Chinmay Satbhai, Daniel Rondinel-Oviedo, Connor Adsett, Lucas Daitchman, Suehayla Eljaji & Martha Pomasonco-Alvis, McGill University
Mojtaba Parsaee & Tarlan Abazari, Mississippi State University

Similar to Hamlet's contemplation of life versus death, when it comes to housing, this research questions if we should extend the life of existing structures, or if it is better to demolish and build anew. The focus of this study is Canada's aging housing stock. One argument for resilient retrofitting is that by extending the life of buildings, low-carbon, energy saving and affordable housing that meets occupant comfort can be achieved, providing quality housing, fast. However, there is much uncertainty regarding current Canadian housing stock in terms of its composition and vintage making resilient retrofit decision-making difficult. Building on prior work that has mapped Canadian residential typologies, this paper demonstrates how integrated housing-stock data can empower evidence-based retrofit decision-making. Standardized data profiles for residential typologies in Montreal are presented to characterize the city's housing landscape across architectural, environmental, and socio-economic dimensions. Two focused examples illustrate how these profiles address critical retrofit questions related to context, affordability, energy performance, and carbon mitigation potential. These are complemented by a set of international retrofit case studies, aligned with the same typological framework, which demonstrate how comparable housing types have been successfully upgraded in other jurisdictions. Analyzing both Canadian and international cases through a unified decision-making framework, this research contributes actionable insights for policymakers, practitioners, and planners. The findings support the development of targeted recommendations and policy instruments capable of advancing resilient, circular, and ecologically informed housing retrofits at both city and national scales.

Rethinking Urban Design

Friday, March 27, 2026
2:30pm-4:00pm

Detroit's Agroecological Apparatus: Actor-Network Theory As A Framework For Urban Design Research

Tithi Sanyal, University of Virginia

The increasing asynchronous transformations within post-industrial shrinking cities in relation to social, ecological, and spatial planning, highlights the need for a heuristic interdisciplinary approach. This requires studying the contextual narratives driving these transformations before engaging in urban design and policy solutions. Actor-Network Theory (ANT), while situated in Sociology, provides a unique interdisciplinary approach for studying relational entities, systems, and structures within cities. It prompts Urban Design to shift from a practice of synthesis to one of interrogation. This paper explores the ANT in relation to urban design by developing a methodology to contextualize and analyze the actor-networks that are reshaping the City of Detroit's identity from a post-industrial city to an Agrarian City. Detroit serves as an ideal case due to the widespread adoption of Agroecology, the science, practice, and movement of conservative agriculture in the city, witnessed through 2280+ networked urban cultivation projects. These land-based projects are enabled by initiatives and policies like the Urban Agriculture Ordinance (2013), and the Detroit Black Farmer Land Fund (2019), that support food security, land rights, and self-determination, particularly within African American communities. These efforts combine top-down and bottom-up responses to Detroit's history of deindustrialization, depopulation, racial segregation, and economic decline, while addressing issues of food insecurity and environmental injustice. This paper investigates how actants interact and what outcomes emerge from these relationships. To do this, it applies the principles of ANT to examine Detroit's agroecological apparatus, focusing on actor-networks, intermediaries, mediators, and their respective agendas within the history of urban agriculture as it intersects with urban planning and governance since the economic depression of 1893–97. It examines the dynamics between grassroots food planning initiatives and public institutional efforts. Through this lens, it reviews how these parallel forces shape the design and planning of a post-industrial shrinking city and identifies latent potentials for future urban design and policy.

Bayou Chronicles: Evolving Urban Watersheds
Dalia Munenzon, University of Houston

As climate risks intensify, Houston's bayous reveal the contradictions of urban development: drainage networks coexist with petrochemical corridors, residential expansion intensifies flood vulnerability, and ecological systems are constrained by fragmented governance. These conditions require new frameworks that integrate design with systems, infrastructure, and community resilience, using methods such as cumulative cartography, scenario-based design probes, and community-grounded GIS analysis. The Gulf Futures Design Studio, supported by the National Academies' Gulf Research Program, situates design research within the contested terrain of the Lower Galveston Bay watershed. Over the past two years, the studio has examined territorial resilience and industrial remediation, traced the flows of water, energy, and health across neighborhoods and industrial corridors, and is now advancing typologies of adaptation that integrate design, policy, and governance. Methods combine cartography, environmental analysis, and speculative design with narrative construction. Student work serves as design probes: watershed transects, public-facing GIS layers, and phased master plans that translate contamination, flood risk, and governance fragmentation into spatial propositions for wetland repair, public health infrastructure, brownfield remediation, and adaptive mobility. By organizing research across multiple cohorts, the program builds cumulative knowledge that connects architecture, engineering, and public health with advocacy partners. It argues that design's role in climate adaptation is to coordinate relationships between land and water, infrastructure and governance, and communities and ecosystems, turning uncertainty into shared visions of resilience and justice.

Tempe Today: Distributed Nodes of Density

Madeline Shade, Iñaki Alday & Sean Fowler, Tulane University

Tempe, Arizona is a rapidly growing city within the greater Phoenix metropolitan area with a unique challenge: there is no available land to expand because Tempe is completely surrounded by other cities and communities. Due to Phoenix's development and location in the extreme environment of the Sonoran Desert, Tempe residents face issues of urban heat, monsoon flooding, and water insecurity. These issues are exacerbated by a changing climate, making resiliency and sustainable development a priority. As a response to these challenges, Tempe has voted to uphold these priorities in the General Plan 2050 "Tempe Tomorrow". The General Plan is a guideline, but does not contain actionable design solutions to achieve the mixed use, affordable, shade equitable, and accessible city it strives for. To achieve goals established in the General Plan, Tempe designated sections of the city as Innovation Hubs, adding benefits and controls on new development. Tempe has proposed that these centralized and large-scale developments, which act as regional attractors, will drive urban growth. While this strategy works towards some of Tempe's goals, it does not prioritize necessary densification, which would be better achieved through a system of smaller scale, distributed, and connected sites. Distributed, small-scale sites more easily encourage development, are more accessible, and provide a framework to address other challenges Tempe faces in an equitable way. This research proposes an isotropic approach to redevelopment within the city. Small nodes of density can be concentrated around the existing intersections in the urban fabric (based off the historic Jeffersonian Grid), so new affordable housing, public amenities, and other services can be equitably distributed and accessible to all. These intersections are frequently already occupied by abandoned or failing light commercial uses. When these aging strip malls inevitably redevelop, it offers an opportunity to incrementally change those sites into ones that better fit the 2050 General Plan goals. This research involved a combination of research analysis and design. During research analysis, urban conditions and existing services were mapped to analyze location, accessibility, and distribution of programs such as schools, greenspaces, grocery stores, and healthcare. Photo documentation of street conditions was also done. This analysis supported the research design where a system of nodes was proposed as a method to provide housing and achieve Tempe's 2050 goals. Research Questions: Are Tempe's current urban development plans sufficient to help the city meet its 2050 goals? What is the best way to introduce the 15-minute city concept to a city that strongly prioritizes car transit? How can urban development goals be met in Tempe without disrupting or demolishing existing communities? Hypothesis: This paper proposes that Tempe, Arizona would benefit from introducing a plan to redevelop underutilized urban intersections distributed across the city as a way to equitably and sustainably achieve urban environments aligning with their 2050 goals.

Rethinking Urbanism through a City-Nature Dialectic: A Post-Disaster Epistemology

Nadia Anderson, University of North Carolina at Charlotte

Modern urban development is rooted in a worldview that treats nature as a passive resource to be controlled for human benefit. This mindset, grounded in scientific and mathematical rationalism, positions cities as symbols of human dominance over nature. The consequences of this perspective are evident in the climate crisis. Increasingly frequent and severe weather disasters reflect the unsustainable impacts of human-centered development. To move forward, we must adopt a new epistemology—one that situates humans within larger ecological and temporal systems. This paper uses a project responding to 2008 flooding in eastern Iowa to reveal conflicts between natural and human-imposed systems. Examples of the latter include Jefferson's Pubic Land Survey System, property ownership patterns, and industrial development histories. Nature-human tensions rooted in Enlightenment-era ideals of land measurement and resource exploitation, helped turn the flood into a human disaster. Rather than trying to resolve the tensions between nature and culture, the project embraced them—working with ecological realities, economic conditions, and local histories to develop place-specific strategies. While grounded in a specific place, this approach offers a replicable framework for post-disaster urban resilience that prioritizes context, equity, and ecological thinking. It demonstrates how a city can work with rather than attempt unsuccessfully to control the natural conditions around which it was established.

Inclusive Interdisciplinary Pedagogies

Saturday, March 28, 2026
9:00am-10:30am

Fieldwork as Pedagogy: Cultivating Socio-Spatial Literacy in Architectural Education

Samar Halloum, American University of Sharjah

In his essay “A Space for Place in Sociology,” Thomas Gieryn critiques sociologists for overlooking the analytic tools of spatial analysis, arguing that space is too often taken for granted rather than studied directly.1 This paper extends that provocation in reverse: while sociologists need spatial tools, architectural education risks neglecting the tools of sociological inquiry. It presents socio-spatial fieldwork as a seminar pedagogy in architecture and explains how it reframes the formulation of design questions through field-based evidence. By “socio-spatial fieldwork,” the paper refers to a situated, systematic inquiry into how social practices and spatial settings co-constitute one another, using systematic observation, mapping, time-based recording, photography, fieldnotes, and interviews. The evidence base for the argument consists of student work produced across the seminar sequence, taught within a five-year Bachelor of Architecture program in the United Arab Emirates, culminating in a student-authored publication that synthesizes findings across media. Its premise is fourfold. First, students learn the discipline of unlearning: surfacing assumptions, testing them against field evidence, and replacing presumption with observation. Second, they practice reading the reciprocal relation between spatial arrangements and social processes—how shade, thresholds, and access shape patterns of use, and how routines of labor, gender, mobility, and care press back on those arrangements. This reciprocal reading links experiential observation to architectural form, allowing students to identify how specific spatial devices facilitate, constrain, or redirect everyday behavior. Third, they develop strategies for researching under-documented public places, assembling partial traces, vernacular accounts, and time-based recordings into usable knowledge. Fourth, they acquire habits of inquiry—observational literacy, ethical reflexivity, and claim–evidence reasoning—that carry forward into later design work. The argument advanced here is that embedding socio-spatial fieldwork in architectural education provides a framework for research-driven pedagogy and equips students to engage critically with the complexities of urban life. 1. Thomas F. Gieryn, “A Space for Place in Sociology,” Annual Review of Sociology 26 (2000): 463–82, https://doi.org/10.1146/annurev.soc.26.1.463

Converging on Divergence: Learning from Design the Future and Legitimation Code Theory to Advance Interdisciplinary Architectural Education

Jonathan Bean, University of Arizona
Robin Puttock, Kennesaw State University

Architecture's status as an interdisciplinary professional and educational field has long been seen as a source of strength for the discipline. Concepts such as design thinking and wicked problems place design practitioners at the crux of a confluence of questions, problems, and potential solutions that are resolved though the act of design. Yet the practical question of how to advance the goal of interdisciplinarity in the broader field of design and in architectural education in particular is underexamined. This is not a problem unique to the field: too often, interdisciplinarity results in people talking past one another, using terms that are either incomprehensibly complex or so simple they seem glib. At worst, divergent perspectives can appear to be impossible to reconcile — leading to conflict, confusion, or hopelessness among students and instructors alike. In response, we advance a framework for architectural education to understand how change happens in the broader education of architecture, engineering, construction, operations, and management. Our focus is the influential Design the Future podcast, hosted by Lindsay Baker and Kira Gould. The podcast, which has been recommended in The Architect's Newspaper, has totaled more than 63,000 episode downloads across platforms. As related on the podcast's webpage, the focus is on "the future of the built environment as told from the perspectives of" leaders including "architects, city planners, real estate professionals, landscape architects, engineers, contractors, ecologists, sociologists, and others." The perspectives on the podcast represent a broad swath of leaders across built environment fields. This paper foregrounds an in-depth analysis of all 117 podcasts and presents preliminary findings that illustrate the validity and explanatory power of Legitimation Code Theory, or LCT. LCT is a robust and tested approach grounded in the sociology of knowledge. It builds on Pierre Bourdieu's field theory, which has been used to account for how social mechanisms operate within professional practice and the field of architectural education.

From Studio to Society: Transforming Architecture through Community-Engaged and Co-Produced Learning

Cristina Dreifuss, Universidad Privada del Norte

This paper examines the transformative potential of community-engaged architectural education through a longitudinal study conducted between 2012 and 2025 in Lima, Peru. As over 1.1 billion people worldwide live in informal settlements largely excluded from traditional architectural practice, the discipline faces urgent questions about its social responsibility and relevance. This research analyzes how co-production of spatial knowledge and sustained community partnerships can catalyze systemic changes in architectural pedagogy, professional practice, and institutional roles. Using a mixed qualitative methodology combining retrospective analysis and systematic documentation, the research examines three critical dimensions: student learning and professional transformation, community impact and perceptions, and institutional effects. Findings reveal that community-engaged studios foster reflective capacity, empathy, problem-solving under constraint, and collective agency among students. Participants demonstrated significant shifts toward community-driven practice orientations that persisted throughout their professional careers. The research confirms that authentic engagement with resource-constrained contexts cultivates situated knowledge and ethical competencies essential for contemporary practice. Students transition from individual authorship to collaborative co-creation, learning to design with communities rather than for them. Institutionally, sustained engagement transforms universities into cultural anchors and civic actors, breaking barriers between academia and society. The study demonstrates that low-tech, participatory solutions address housing inequality and climate challenges through bottom-up innovation. By legitimizing diverse knowledge systems and redistributing decision-making power, community-engaged pedagogy establishes architecture as a mediating practice capable of generating social value, resilience, and democratic transformation in response to twenty-first century crises.

The Listening Deck: Ecological Diplomacy and Participatory Planning in Carapé
Ignacio Cardona, Wentworth Institute of Technology

This paper introduces The Listening Deck, a participatory planning tool designed to integrate more-than-human voices into spatial decision-making. Building on the framework of ecosystemic democracy, the study critiques the anthropocentrism that underpins traditional participatory planning and proposes ecological diplomacy as a pathway toward more inclusive territorial governance. Ecosystemic democracy extends debates on deliberative and collaborative planning by insisting that ecosystems, species, and other non-human actors must be represented as political agents in the processes that shape shared territories. The case of the Sierra de Carapé in southeastern Uruguay is presented as a paradigmatic example of the tensions between conservation and development in Latin America. Pressures from urban expansion, extensive cattle ranching, and exotic forestry plantations place biodiversity at risk, demanding new planning approaches that move beyond the binary of preservation versus exploitation. Land Suitability Analysis (LSA), often applied as a technical tool to prioritize land uses, is reframed here as a political process that can amplify non-human interests and translate ecological signals into planning priorities. The Listening Deck operationalizes this shift through a ludic method that employs role-play and card-based interaction. The deck consists of 21 cards divided into Non-Human Ecologies (hydrological systems, endangered species, grassland ecosystems, and others), Productive Ecologies (forestry plantations, croplands, settlements, wind farms, and more), and Cultural Ecologies (archaeological sites, mountain trails, cultural heritage, and tourism services). Participants assume roles—such as a Margay, or a farmer—and negotiate interventions from the perspective of their assigned actor. By placing the cards face up on a table, players group them into rows of compatible interventions and arrange them in columns that establish a hierarchy of priorities from low to high. In doing so, the game becomes a forum where conflicts between development and conservation are made visible, but also where unexpected synergies emerge. Findings from workshops in Carapé show that participants quickly developed empathy toward non-human beings, learning to articulate arguments on behalf of species or ecosystems they might otherwise treat as abstract categories. Playing as the Margay revealed the critical importance of forest corridors, while playing as the Ranita Mono highlighted the fragility of aquatic ecosystems. These exercises made ecological diplomacy tangible by requiring players to act as diplomats for non-human actors, mediating among diverse and sometimes contradictory needs. The results of the game also revealed an organic classification of territorial priorities: participants distinguished between long-term ecological foundations, medium-term infrastructures, and short-term occupations, thereby recognizing multiple temporalities of planning that include both human and non-human dimensions. Moreover, the concept of “living architecture” emerged from these dialogues, pointing to infrastructures designed not only for human use but also for multispecies coexistence. The study concludes that participatory games such as The Listening Deck can serve as instruments of ecological diplomacy, offering policymakers, planners, and communities innovative strategies for implementing ecosystemic democracy. Carapé thus becomes both a local experiment and a global reference point for advancing democratic practices that transcend the human.

Material and Making as Social Co-Design

Saturday, March 28, 2026
9:00am-10:30am

Programmable Knitted Actuators for Social and Interactive Micro-Spaces and Spatial Agency

Ghassan Alserayhi, University of Michigan & Virginia Tech
Vishal Rohira & Chavi Gupta, University of Michigan

The design research project develops pneumatic knits, an air-regulated material system that integrates digitally fabricated knitted textiles, pneumatic actuation, and sensory interfaces. Pneumatic architectural systems are commonly understood as technical or performative installations, often evaluated in terms of efficiency, control, or formal performance, while their potential to shape shared spatial experience and social interaction remains underexplored. This project explores how knit-constrained pneumatic elements can operate not only as material or technical systems, but as spatial devices that shape experiential, participatory micro-environments supporting social interaction, shared agency, and co-creation. It identifies a gap in how responsive material systems are framed: as instruments of motion rather than as spatial environments that support collective engagement, imagination, and agency, particularly at the scale of micro-spaces where multiple users negotiate space through material response rather than direct control. Approaching responsive textiles as an environmental field rather than a singular object, the system combines knitted constraints, silicone pneumatic tubing, proportional air control, and embedded sensory systems to produce expressive material behaviors—bending, curling, twisting, and rhythmic inflation—that unfold over time. Touch-based sensory interfaces enable real-time feedback loops, allowing participants to immediately perceive and respond to material changes as they occur. These behaviors are intentionally slow, legible, and atmospheric, allowing participants to perceive change, anticipate response, and engage through bodily movement and attention rather than direct command. The project was realized as a ceiling-mounted installation composed of suspended knitted elements, forming an immersive environment below. Sensory interaction is framed as a shared environmental experience rather than an individualized or therapeutic mechanism. Interaction is intentionally open-ended and exploratory, encouraging engagement through curiosity, trial, and discovery rather than prescribed actions. The work is informed by design considerations related to neurodiverse users, including children with autism, where material rhythm, texture, sound, and motion contribute to a collectively experienced spatial atmosphere. By distributing control across multiple elements and participants, the system frames empowerment as spatial and relational rather than individualized, supporting more equitable modes of engagement. Through iterative prototyping and full-scale implementation, the pneumatic-knit system demonstrates how responsive textile systems can function as architectural micro-spaces, where material behavior supports imagination, participation, and spatial agency.

Bagasseries: Hyper-local Community-driven Circular Design From Sugarcane Waste

Laia Mogas-Soldevila, Chun Zhou, Yi Yang, Tianqi Han & Yuanyi Cen, University of Pennsylvania

BagasSERIES reimagines local waste transformation into open-air-market-supporting products through material innovation and community collaboration. Centered at Philadelphia's historic FDR's Park vibrant Southeast Asian Market (SEA), the project identifies an opportunity to address bagasse waste that is produced daily by the many sugarcane juicing stands. To better understand this waste stream as well as park user and vendor needs, we engage local agents with interviews and on-site research. The outcome is a catalog of biocomposite-based products made from hyperlocal organic waste collected directly from the market and transformed using non-toxic binders and low energy manufacturing. These products not only contribute to waste reduction but also serve meaningful and practical purposes of signaling, resting, packaging, or paving, for the local SEA community.

Co-creating Neuroinclusive Spaces

Lindsay Harkema, The Barnard and Columbia Architecture Department

How can designers engage neurodivergent perspectives to create built environments that support human neurodiversity? Which collaborative tools and methods work best in neuroinclusive co-design processes? Multidisciplinary research is advancing societal awareness and understanding of human neurodiversity, despite political fearmongering at the federal level spreading harmful misinformation aimed to alienate neurodivergent communities. Certainly, political fearmongering should not eclipse disciplinary pursuits of justice in academic discourse and design practice. Progress towards equitable built futures requires listening to marginalized voices and holding space for various modes of self- and systems advocacy for the universal human right to equally access the physical environment. The concept of neurodiversity frames human cognitive differences as normal variations in the population and focuses on the multiplicity of strengths and perspectives it creates. An estimated 1 in 5 people are neurodivergent and research shows that environmental characteristics significantly impact their lived experiences, yet design frameworks engaging neurodivergent knowledge are underdeveloped. Experts advocate for co-design methods that engage neurodivergent participants in creating neuroinclusive environments. Case studies for these participatory processes and their built outcomes are needed to show how they can be successfully implemented. As community-engagement and collaborative processes become increasingly common in architecture practice and education, ensuring equity and meaningful benefit for everyone involved is important to avoid transactional exchanges and diminishing returns. This essay explores co-design practices that elicit built outcomes shaped by the lived experiences and creative capacity of neurodivergent individuals and designers involved. A review of contemporary research and design frameworks for neuroinclusive environments offers principles that can strengthen co-creative processes and their spatial outcomes. Two case studies of recent, built projects by collaborative design teams in partnership with self-advocate groups and organizations that support neurodivergent populations demonstrate how those frameworks can be successful in practice. These examples test engagement methods and design applications aimed to establish the agency and co-authorship of neurodivergent individuals in the design of neuroinclusive environments.

Urban Scale

Saturday, March 28, 2026
9:00am-10:30am

Grossform and Block Form: Bigness Reconsidered
Edgar Adams, Roger Williams University

During the 20th Century, architecture's relationship with the city underwent a profound transformation that can be most clearly seen in the changing attitudes regarding the role of the urban block as a constituent component of the urban fabric. The introduction of the car and the increasing scale of urban development prompted a reexamination of both the block and its defining streets. This paper examines the remarkable convergence of architects seeking to distance themselves from CIAM modernism under the banner of 'Rationalism' and their ultimately divergent positions regarding rebuilding efforts in Berlin during the run up to the 1984/87 IBA. During this period we witness the decline of "architecture as urbanism" (the megastructure), and the emergence of the theme of "Critical Reconstruction". Explorations of collective form, Grossform, and Block Form are here considered in relation to Koolhaas' conceptualization of Bigness. We follow these debates from Berlin to Cornell University and back again, focusing on the roles of Aldo Rossi, O. M. Ungers, Rob Krier, Rem Koolhaas, Colin Rowe, and J. P. Kleihues.

Learning from Hong Kong: the Wilderness of Jars and New Forms of Appearance
Jeremy Leonard, North Carolina State University

In his poem “Anecdote of the Jar,” Wallace Stevens champions the power of human creations, represented by the jar, to tame the wilderness. In Hong Kong, the wilderness has been replaced by a crust of jars, in the form of glass mixed-use skyscrapers and stucco-clad housing towers. These jars have emerged as the new wild. This new iteration of wilderness calls into question Kenneth Frampton’s Critical Regionalism a framework for rescuing local identity. Due to the unending construction of a built environment which has no innate cultural memory, Critical Regionalism’s references to local topography, climate, and tectonic forms falls short as a mode of stabilizing authentic regional identities. Hong Kong’s citizens have inverted traditional techniques of space-claiming: rather than referencing indigenous cultural memories, which are inauthentic, the people of Hong Kong localize global civilization within unstable and temporary forms. This paper seeks to foreground a confrontation that occurred in the author’s theoretical framework in their leap from hills of Raleigh, North Carolina to the stucco and glass wonderland of Hong Kong during a trip in 2016. North Carolina State University, the author’s alma-mater, used Frampton’s Critical Regionalism as a framework for instructing students to create site-specific architecture that appropriated local cultures of craft, tectonics, and typology. The validity of “place-specific architecture” is called into question in Hong Kong, an environment that enmeshes global cultures within a web of generic malls, glass office towers, and stucco housing blocks. Within the sort of standardized architecture that Frampton was critiquing, place-making emerged in more temporal forms: through the cardboard instant cities of the migrant houseworkers, and the mobile food carts that formed a locus of local food culture within the mall. The place-making of Frampton was inverted. To reinforce the confrontation that the author experienced, from a southern American vernacular versus a pulsing global megacity, the author adopted a post-modern, post-structuralist reading of culture as a rhizome of text and meaning without a clear beginning or end, with a de-emphasis on authorship and history. Steven’s jar is used as an intermediary, as a representation of Frampton’s standardized architecture that demands more temporal forms of place-making when the jar is aggregated to absurdity.

Blight, Demolition, Rehabilitation: 300 W. 105th St. and Chicago's Urban Homestead Program

Julia Hedges, Auburn University

Conditions of vacancy are familiar in neighborhoods like Roseland, located on the South Side of Chicago, where the responsibility of both housing creation and urban maintenance was passed down from the municipal government to private developers, and then finally to the urban resident themself. In the postindustrial city, redlining led to section 235 and widespread demolitions, policy that finally gave way to the Urban Homesteading Program, a short-lived effort to employ the frontier value of self-sufficiency to combat the city housing stock from failing. Narrating the lifecycle of 300 W. 105th St., one urban homestead in Roseland, this paper understands the physical and social realities of disinvestment as being co-produced by shifting conceptions of the city alongside policy. The fate of this home was tied to changing notions of participation and a set of narratives and political mechanisms that upheld discriminatory practices while turning rows of neat little homes into homesteads in the wilderness. Through a study of a single urban homestead in connection to an exploration of rhetoric and policy, a connection between urban pathologization and Chicago's current spatial condition emerges.

The Wait(er) on the Wall: Situating the "Neo-" of the 1960s Kosova
Edmond Drenogllava, University of Cincinnati

In the late 1950s and early 1960s, under the influence of Non-Aligned diplomacy and of a broader push for a "synthesis of the arts," architecture in (what is now the phantasmal federation of) Yugoslavia began to engage painting as an alternative to modernism's programmatic functionality. Painting, in parallel, encountered the limits of its autonomy at the edge of architecture. What followed was a mutual reorientation. Murals, engaging the wall as a spatial and material entity, assumed the physical scale and weight of architectural surfaces. Modern architecture, conversely, gravitated to the discipline of the two-dimensional image, privileging abstraction and conceptual purity. This collaborative nature of the two disciplines will be examined through the neo-constructivist mural, locally known as The Waiter (1961) in Ferizaj, Kosova. The argument here has two historiographic claims. First, The Waiter challenges dominant accounts of postwar 'synthesis' discourse by operating the wall as a de facto exhibition medium for reviving constructivist forms and utopian aspirations as a substitute for an infrastructural absence. Second, it exposes how peripheral experimentation had less to do with a lack of production than with historiographical biases that orbit around metropolitan centers and high modernist narratives. The paper, therefore, poses a pair of questions: How did The Waiter negotiate between the ideological charge of constructivist forms circulating transnationally and the cultural-political realities of 1960s Kosova? And, how does the translation of constructivist abstraction onto an architectural facade affect its utopian ambitions? This thereby repositions The Waiter mural in the discussion, highlighting how peripheral artistic-architectural experiments unsettle the canonical map of Yugoslav modernism.

Design Processes & Pedagogy

Saturday, March 28, 2026
9:00am-10:30am

Grounds For Play: Toward a Pedagogy of Play in Architectural Education
Petra Kempf, Washington University in St. Louis

This paper presents a pedagogy centered on the application of play and game-based methods as tools for architectural education and design. With an emphasis on critical thinking, experimentation, and co-creation, this pedagogy positions play as a serious mode of engagement that fosters imagination, risk-taking, and collaborative learning. Drawing on historical and contemporary precedents—including Froebel, Huizinga, and design-focused “serious games”—the approach situates architectural projects as performative processes guided by rules, boundaries, and iterative exploration. The methodology is exemplified through a foundational undergraduate design studio, Playtime: Re-inventing Kindergarten, in which students develop an architectural language and kindergarten classroom design by creating and testing games with children, highlighting the potential of play to inform design thinking, spatial experimentation, and socially responsive engagement.

Designing Learning: Architectural Pedagogy as a Catalyst for Interdisciplinary Education Design as Method and Framework of Inquiry

Pantea Eslami, Toronto Metropolitan University

This paper positions design as a pedagogical method and mode of inquiry rooted in architectural thinking and adaptable across diverse educational contexts. Reframed as more than a disci- plinary skill, design is examined as a transferable framework for interdisciplinary education operating through abstraction, experimentation, and collaboration. The argument draws on a series of design-based pilot programs developed as part of an ongoing research inquiry into architectural pedagogy and implemented across higher education institutions, primary and secondary schools (K–12), and community-based organizations. These pilots examine how architectural thinking mediates interdisciplinary learning across the arts, sciences, and social sciences through hands-on and collaborative processes. Within this framework, three overlapping dimensions “Play, Making, and Interconnection” articulate how architectural pedagogy supports embodied, participatory, and collective modes of learning beyond conventional class- room instruction.

The Marriage of Autonomy and Heteronomy: Translation as a Pedagogical Tool
Leonie Bunte, University of Idaho

This paper examines the reconciliation of two architectural pedagogical traditions: formal autonomy, in which design emerges from internal compositional systems, and formal heteronomy, in which form is shaped by external forces such as spacial and institutional constraints. We argue that this reconciliation can be understood as an autonomy of means and a heteronomy of goals: formal procedures are pursued rigorously, while design outcomes remain contingent on context. The argument is illustrated through Translations, an eight-week first-year design studio in which students translate abstract paintings into floor plans, models, and drawings while analyzing the existing studio context. Structured through the concepts of translation, close reading, and estrangement, the studio trains students to negotiate between internal formal logic and external situational constraints.

On Display: Designing Exhibition as Spatialized Representation
Xinyu Chen, University College London

This paper seeks to redefine architectural representation beyond conventional drawings and models. It advocates for exhibition design as a viable means of representation whose three-dimensionality embodies a potential for revolutionizing how architecture students conceive and apply representational techniques. Representation is hence defined as a curated display of ideas and a designed means of communication that uses spatial experience to convey meanings. In this framework, this paper examines an innovative pedagogical approach in teaching architectural representation. Instead of focusing on an architect's traditional repertoire of planimetric drawings and model-making, a sequence of structured assignments was designed to direct students' attention to two overlooked realms of architectural representation: the everyday flow of life that defines the character of space, and the curation of human-artifact interactions in an exhibition set-up. Following this pedagogical experiment, one version of a seminar was developed. Students participating in the class have shown increased awareness of the spatial influences in curating and communicating design ideas, and many have applied techniques learned to their studio and thesis projects.

Come to the Fire: Converging Dialogue on Tribal Sovereignty and Indigenous Futurisms

Bailey Brown, Oklahoma State University

The paper outlines three topics related to tribal sovereignty and indigenous futurisms for design educators. The three topics are: (1) Advocating - a call for tribal sovereignty as a topic in design education, (2) Indexing - rationalizing an index of contemporary sovereignty-oriented buildings, and (3) Designing - experiments in designing for sovereign indigenous futures. By calling for a converging dialogue about these topics, the paper serves as a call to action and as a brief outline for future sessions, papers, and research groups related to these topics. The paper is not exhaustive in its scope, but instead operates as a brief introducing possible topics for engagement by design educators.

Making Futures

Saturday, March 28, 2026
9:00am-10:30am

The Work of Architecture in the Age of Computational Labor: A Robot Primitive
Matthew Gillis, Woodbury University

This project presents a pedagogical framework developed through a fourth-year architectural design studio that investigated the integration of artificial intelligence and robotic fabrication within a design-build methodology. The studio interrogated how conventional craftsmanship—historically situated within discourses of preservation and collective memory—might be reconceptualized through computational technologies. Central to this inquiry was a thesis: that embedding AI-generated imagery and robotic labor into architectural production can simultaneously redefine the meaning of craft and expand the conceptual frameworks through which architecture generates cultural significance. The studio methodology progressed through four structured phases—Researching, Dreaming, Crafting, and Building—guiding students from disciplinary inquiry to full-scale pavilion construction. The Researching phase engaged canonical architectural theory on the primitive hut, tracing its evolution from Marc-Antoine Laugier's mythic origins through Gottfried Semper's material taxonomies to Joseph Rykwert's symbolic interpretations. Concurrently, students examined vernacular timber traditions—Chinese Dougong bracket systems, Japanese Kigoroshi and Kanawatsugi joinery, and French guitarde frameworks—extracting principles of modularity, tectonic clarity, and structural logic as operative design attributes. The Dreaming phase deployed AI image-generation tools, including Stable Diffusion and Midjourney, as instruments of speculative translation. Students synthesized textual research with visual fragments to generate imagery that extended historical precedents beyond their original cultural and material contexts. This phase foregrounded curatorial judgment: students evaluated AI outputs for architecturally meaningful attributes—tectonic legibility, aggregative potential, ornamental complexity—developing critical frameworks for distinguishing productive speculation from aesthetic noise. The Crafting phase transitioned from digital speculation to material production through robotic prototyping of dry-fit timber joints. Following Antoine Picon's argument in Digital Culture in Architecture that computational methods represent not a rupture from but an extension of rationalist traditions, the studio positioned robotic fabrication as a contemporary iteration of Viollet-le-Duc's structural rationalism—where tectonic form emerges from the honest expression of material properties and fabrication logic. Constraining fabrication to two operations—plunging and channeling—students established a legible relationship between algorithmic tool paths, joint geometries, and structural performance, yielding joints that functioned as both technical assemblies and conceptual artifacts. The Building phase culminated in collaborative assembly of a full-scale timber pavilion in which repetition generated enclosure, variation articulated circulation, and structural rhythm organized inhabitation. Conceived as a contemporary primitive hut, the pavilion served as both architectural demonstration and site of collective occupation, evidencing how design operates across scales from detail to inhabitable volume. Extending Walter Benjamin's analysis of mechanical reproduction, this paper argues for understanding contemporary architectural production through the framework of computational labor. The studio demonstrates that AI and robotics need not diminish authenticity or erode craft traditions but can instead expand territories for tectonic innovation and cultural meaning-making. The pedagogical model presented offers a replicable approach for integrating emerging technologies within design education while sustaining critical engagement with disciplinary history.

Post-Nuclear Blooms: Design Fictions for the Future of the Oak Ridge Reservation

Mark Stanley, University of Tennessee-Knoxville

Post-Nuclear Blooms is a speculative design-research project situated in the Oak Ridge Reservation (ORR) in East Tennessee, a landscape shaped by the Manhattan Project and its ongoing afterlives. Neither a closed chapter of Cold War history nor a neutral scientific campus, Oak Ridge remains an active zone where nuclear legacies, ecological systems, and advanced scientific research coexist and collide. The project does not seek to resolve these contradictions. Instead, it exaggerates and reassembles them through speculative architectural proposals that operate as tools for thinking. Architecture is positioned not simply as an object to be designed, but as a mode of inquiry capable of staging relations among technology, ecology, and culture. Through narrative, drawing, modeling, and image-making, the work explores how architectural speculation can engage sites whose complexities exceed conventional analytical frames. Post-Nuclear Blooms unfolds through four interrelated speculative facilities extrapolated from existing infrastructures at Oak Ridge: a Synthetic Biology Field Station, an Atmospheric Condensation Plant for climate research, an Experimental Quantum Computing Facility, and a Repository of Inhuman Geology. Together, these projects imagine architectures that participate in processes of experimentation, storage, stewardship, and uncertainty. By foregrounding worlding, storytelling, and speculative design, the project argues that such methods are essential for engaging the complexities of a post-nuclear condition. Rather than illustrating futures, Post-Nuclear Blooms constructs them as provisional worlds through which architecture can grapple with the entangled scientific, political, and ecological realities of the present.

It All Started with Water: Revitalizing the Cambridge Farmers' Market

Audrey Chen & Michael Salib, University of Waterloo

it all started with water honours and celebrates an element, though often taken for granted, indispensable for both the market's and the visitors' existence and mutual flourishing-water. Upon visiting the site, water stood out as the supernatural force stitching the context together. From the river to the surrounding buildings, the market, church, and city archives all possess a deep relationship to water. Moreover, the 1974 Cambridge flood is a testament to water's past and prominence on the site. The project is primarily organized around a long rain garden, located at the lowest grade of the site, and separating the old market from the new addition. An outdoor space runs parallel, evoking the market's historical presence along the east banks of the Grand River. The project takes on a holistic approach to highlighting water education and access. Water is used in multiple ways, from providing sanitation, leisure and play activities in the public realm to more pragmatic building and site functions. As a comprehensive studio project, sustainability and detailing were at the forefront of the design, using innovative materials that not only enhance the concept, but also the overall experience of the building and surrounding landscape.

Suffused Blossom #8: A Full-Scale Installation Bridging Design and Neuroscience

Na Wei, Temple University

Suffused Blossom #8 is a full-scale architectural installation developed within a multi-stage experimental framework that integrates architectural design logic with empirical inquiry across representational scales. The emotional impact of architecture is widely acknowledged yet rarely discussed within architectural research. While architecture has always shaped how people feel and behave, the discipline has lacked empirical evidence and reliable tools to study these effects. As a result, emotional experience—despite being fundamental to architectural meaning—has remained elusive, described largely through intuition rather than verified observation. Advances in neuroscience have extended the study of perception and emotion to the built environment, contributing to the emergence of neuro-architectural research on the emotional and behavioral effects of architectural form. Yet much of this research has developed outside architectural practice and remains loosely connected to design thinking. Suffused Blossom #8 is situated within this architectural concern, addressing persistent gaps between neuroscientific methods and the multidimensional nature of architectural experience by revisiting established neuroaesthetics research on architectural curvature as a case study.

Public Void: A Model for Point-Access Housing
Zhan Chen, Kansas State University

In the United States, code requirements for two means of egress have contributed to the widespread implementation of double-loaded corridors in multi-family housing. This configuration results in constrained unit layouts, limited natural light and ventilation, and circulation spaces that function purely as utilitarian passageways. In contrast, single-stair housing, commonly known as point-access blocks, offers greater spatial adaptability and improved living environments. As a result, recent policy shifts to allow single-stair housing in some U.S. cities have gained attention and support. The project presented in this paper speculates how these emerging regulatory changes could impact housing in the U.S. Public Void is a prototype that explores how the stair can break out of its mono-functional role and facilitate various forms of human contact. By integrating shared programs, outdoor spaces, and varied circulation patterns, the Public Void challenges conventional housing models and creates new connections between private and communal domains.

Greenhouses and Collective Living

Saturday, March 28, 2026
9:00am-10:30am

Horticulture, Housing, Hybrids: Greenhouses as Mediators of Climate and Community

Stamatina Kousidi, Politecnico di Milano

The intersection between greenhouse structures and architectural design has taken on renewed significance in contemporary practice, manifesting in diverse forms and across multiple scales. This convergence responds to pressing challenges such as climate change, ecological degradation, and the loss of urban biodiversity. Owning to its transparency, lightweight construction, and capacity to mediate environmental conditions, greenhouse typologies have increasingly informed architectural design strategies. Rather than treating the greenhouse as a purely technical, auxiliary, or symbolic apparatus, this paper investigates its appropriation – partially or entirely – as an inhabitable architectural shell. In doing so, the greenhouse is considered both as an "as found" element and a powerful trope for sustainability, operating simultaneously as a symbol of ecological responsibility and as a medium for multispecies symbiosis. The paper addresses two interrelated dimensions of this appropriation. First, it examines the role of greenhouse hybrids in shaping new models of collective housing. It retraces the genealogy of greenhouse-inspired housing over the course of the twentieth century, placing particular attention on projects from its latter half and situating their origins in design experimentations of the previous century. These precedents reveal early attempts to redefine collective dwelling through shared interior climates, intermediate private spaces, and glazed vegetated communal environments. Building on this historical framework, the paper then examines contemporary design explorations that reappropriate greenhouse elements to advance well-established multi-unit housing typologies. These projects enable new typological interpretations of domestic space while foregrounding environmental efficiency, renewed definitions of comfort, and reinterpret the boundaries between private and communal space. Through prevalent typological trajectories, the paper analyzes how the integration of greenhouse structures reorganizes living space, domestic thresholds, and social interaction at the scale of the multi-unit dwelling. It thus explores how contemporary projects generate new typological interpretations of domestic space, demonstrating the greenhouse's capacity to catalyze sustainable and socially responsive housing models. Second, it explores the capacity of greenhouse hybrids to cultivate shared environments that extend beyond human-centered inhabitation. Drawing on the notion of hybridity, the paper frames greenhouse-based housing models as vehicles for rethinking architecture as a mediator of both climate and community – an active agent capable of fostering symbiotic relationships between humans and other species while reconfiguring ecological frameworks within the contemporary city. It situates the architectural appropriation of greenhouse structures within the broader and growing intersections between architecture and agriculture over recent decades. This context highlights how productive landscapes, controlled climates, and cultivation practices have increasingly been integrated into the built environment as responses to environmental and social concerns. In response to the urgent need for a new sustainable design agenda and the emergence of novel urban habitats, contemporary collective housing increasingly turns to the greenhouse as a productive and adaptable model, as genealogy and projection, as an aesthetic and sustainability trope. The paper concludes by framing the greenhouse as an architectural model that simultaneously references disciplinary genealogies, shapes new models of collective housing, foregrounds shared ecologies, and supports evolving forms of collective living.

The Second Life: From Waste to Oasis I Sankofa Bamboo Green house
Vicky Achnani, Carnegie Mellon University

In an era defined by climatic urgency and socioeconomic fracture, the role of the architect must evolve from solitary creator to community steward. The entrenched paradigms of architectural practice, characterized by the hegemony of carbon-intensive materials responsible for 40% of global emissions and hermetic design processes devoid of user agency, are no longer tenable. To address these systemic failures, architectural education must pivot toward pedagogies that prioritize carbon-conscious construction, circularity, and radical inclusivity. The Second Life: From Waste to Oasis answers this call through a design-build practice that reimagines dormant matter as a vital resource. Central to this initiative is the rigorous upcycling of bamboo components salvaged from the previous NOMAS Spring Carnival Pavilion. Rather than viewing these materials as mere debris, this project treats them as a repository of potential and challenges the "take-make-dispose" linearity of the construction industry. By designing for disassembly and adaptive reuse, the project demonstrates a cogent case for an Architecture of Care grounded in low-carbon, regenerative material practices. Beyond material innovation and heterogeneous construction, the project serves as a vehicle for social justice through a localized intervention rooted in community practice. Following a rigorous selection process and consultation with the School of Architecture, the studio has partnered with the Sankofa Community Village Farm, an organization dedicated to serving a historically underserved neighborhood. This partnership moves beyond traditional client-architect hierarchies by employing a participatory design framework where students and community members co-design and co-create a full-scale greenhouse. This bamboo greenhouse will not only bolster local food sovereignty and the micro-economy but also serve as a communal hub for health and education. For the students, this endeavor represents a departure from the speculative, screen-based process of Paper Architecture. It immerses them in the "tacit knowledge" of design-build as they grapple with the nuances of site logistics, the reconfiguration of materials into hybrid assemblies, the intrinsic irregularities of organic materials, and the critical feedback loops of a live project. By navigating the transition from the Spring 2023 pavilion to a community asset, students engage directly with the complexities of the restorative economy and the shaping capabilities of bamboo-based hybrid systems, a protean 21st-century material. Ultimately, this project is a catalyst, an urban classroom, and a productive site that actively confronts food apartheid in the neighborhood. It rejects the creation of inert objects in favor of dynamic systems that foster community resilience. By intertwining the technical rigor of bio-based construction with the ethical imperative of social service, "The Second Life" establishes a new pedagogical benchmark where architecture is responsive, responsible, and deeply human.

Pedagogical Languages

Saturday, March 28, 2026
11:00am-12:30pm

The Role of Design Competitions in Architectural Education

Marcel Erminy, Texas A & M
W. Lee Shoemaker, Metal Building Manufacturers Association
Stephen Schreiber, University of Massachusetts Amherst
Jon-Paul Cardin, Metal Building Manufacturers Association

Design competitions can play a significant role in architectural education. Specifically, the integration of a competition to help meet the objectives of a design studio can introduce professional realities into the academic experience. Competitions can instill excitement and interest as communicated by Kristina Yu, University of New Mexico faculty advisor, “We are excited about this competition, because of its relevancy to the building landscape as a form of construction and process. The students immediately responded to the program and building construction method.” This paper makes a significant and original contribution to design competition implementation with its practical specificity including detailed strategies, timelines, critique structures, and reflections on deliverables. It explores how student design competitions, when thoughtfully integrated into the architecture studio, can enhance student engagement, simulate real-world constraints, and support critical design skills – making them a valuable pedagogical tool for educators. An additional bonus that will be discussed is how student design competitions can help satisfy key National Architectural Accrediting Board (NAAB) accreditation criteria.

Within and Beyond the Profession

Saturday, March 28, 2026
11:00am-12:30pm

Research of the Now: Exploratory Pedagogies for Design-Research in Architecture

Mark Stanley, University of Tennessee-Knoxville

This paper describes a set of pedagogical experiments in architectural design studios that cultivate what I call a Research of the Now—methods for grappling with the cultural, technological, and ecological conditions that increasingly shape contemporary urban life. Against a backdrop of pandemic disruption, accelerating computation, and emergent economies of attention and logistics, I have developed studio frameworks that ask students not only to design architectural projects, but also to assemble research documents—field guides to the present that make observations, claims, and arguments about the systems in which architecture is entangled. The process begins with random assignments of characters or subjectivities—gig worker, YouTube unboxer, meme-stock trader, Airbnb mogul—that inflect student investigations and dislodge them from familiar habits of analysis. Students then build layered research documents, sometimes collectively and sometimes individually, to observe, narrate, and theorize the complexities of contemporary digital culture and urban economies. These methods are further channeled into the development of "urban episodes," speculative scenarios loosely situated in metropolitan contexts, which become the testing ground for design proposals. Through this approach, students' design projects attendant to contemporary culture in more sophisticated ways. While these are sometimes provocative architectural designs, they also produce conceptual products—frames of thought, critical positions, and imaginative logics through which students learn to read and re-write the conditions of the present. By reporting on recent iterations of these studios, including Post-Quarantine Machines and Other Urban Episodes and Citizens of Algorithm City, the paper argues for the value of exploratory design-research pedagogies that foreground observation, speculation, and critical assembly as essential forms of architectural education.

Material, Media, and Meaning

Saturday, March 28, 2026
11:00am-12:30pm

Revisiting Decorated Sheds and Ducks for Sustainable Building
Jonathan Ochshorn, Cornell University

Decorated sheds, along with ducks, were first theorized by Robert Venturi, Denise Scott Brown, and Steven Izenour in their 1972 book, Learning from Las Vegas. While their argument focused on semiotics and signs, designing buildings as decorated sheds can also be understood as an important strategy for achieving sustainable design goals. For that reason, it is useful to revisit and reformulate the authors' original critique, in order to provide a more nuanced discussion of decoration and distortion. This paper's central claims are advanced in three steps. First, I argue that sustainable buildings increasingly take the form of decorated sheds: energy efficiency and enclosure durability benefit from compact building form; a compact building — one without gratuitous distortion of the enclosure surfaces — is, ipso facto, a shed; such sheds must have continuous control layers, e.g., air barriers and thermal insulation, which create a discontinuity between exterior cladding and building interiors; and cladding, visible to the outside world and disengaged from the building's underlying structure and interior, can easily be configured as a carrier of decoration. These tendencies are increasingly encouraged in contemporary code mandates and can be seen in programs developed by organizations including Net-Zero Energy Homes, Living Buildings, and the Passive House Institute. Second, while ideas about decorated sheds and ducks theorized in Learning from Las Vegas offer important insights into the design and critique of buildings, I argue that a close reading reveals several logical errors and inconsistencies. Third, I develop a more nuanced argument, one that considers the distinction between decorated sheds and ducks in terms of a fluid matrix organized along the axes of decoration and distortion. Reframing the concepts developed by Venturi, Scott Brown, and Izenour allows these concepts to be better applied to the contemporary use of decorated sheds for sustainable, energy-efficient building.

The Marquee as Radical Expression of Cultural Freedom in the Last Colonial Frontier of American Expansion

Jared Macken, Oklahoma State University

In 1928, the marquee for the newly constructed Tall Chief Theater illuminated a section of Fairfax, Oklahoma's main street for the first time. The glowing three-dimensional sign extended above the theater's parapet wall and cantilevered over the sidewalk, creating a social space that beckoned citizens to congregate underneath, and then ushered them to the cultural space inside. The marquee and theater transformed individual audience members into a community at a time when the town was recovering from tragedy. The theater was constructed by Alex Tall Chief, a member of the Osage Nation and a survivor of the Osage reign of terror—a murder conspiracy that targeted citizens of the oil-wealthy Native American nation. This organized racial violence transformed the bustling main street into a dangerous inequitable space. The Tall Chief Theater was, however, constructed just two years after the last murderer had been convicted, creating a defiant edifice representing radical ideals of cultural freedom. The theater became the symbolic center for the community while fostering the performance career of Elizabeth Maria Tall Chief, the founder's daughter, who became the first prima ballerina from the United States. The Tall Chief's marquee became a prominent beacon of cultural freedom, coalescing a community that desperately needed unification, while connecting it with a global art scene. This paper compares the architectural form of the Tall Chief theater with two other marquee buildings: the Dreamland Theater in the Greenwood District of Tulsa (1914), and the Aldridge Theater in Oklahoma City (1920). Each structure unified marginalized communities during this last phase of American expansion when "pioneer" towns were used to break land treaties with Native American Nations and were racially segregated spaces. Theater marquees became primary features within main streets and physical manifestations onto which marginalized communities could project ideologies of freedom, even while facing extreme racial violence. This paper seeks to reinsert the architectural and historical narratives of underrepresented communities into the history of Oklahoma, in order to better understand the state's role in colonial town building, while also illuminating alternative histories that have been historically suppressed.

Material (Non)Fictions: Drawing the Planetary through Matter and Media
William Doss, Louisiana Tech University

“... his identity registered, his boarding pass in his pocket, he had nothing to do but wait for the sequence of events... it was in these crowded places where thousands of individual itineraries converged for a moment, unaware of one another... where fugitive feelings occur of the possibility of continuing adventure, the feeling that all there is to do is to ‘see what happens’.” -Marc Augé, Non-Places: Introduction to an Anthropology of Supermodernity1 Architectural theory courses are often structured around lectures and written papers, positioning theory as interpretive rather than operative. While this format is academically rigorous, it can distance students from the generative and speculative capacities that define architectural practice. This paper presents a pedagogical experiment that integrates speculative graphic storytelling and artificial intelligence into an undergraduate architectural theory course as a means of reintroducing design thinking into theoretical inquiry. Grounded in readings that address material systems, planetary-scale processes, and the limits of human control, the course unfolds in two phases: research-driven material investigation and narrative-based speculative production. Students first engage empirical research into material flows, histories, and environmental consequences before translating this knowledge into graphic narratives developed through AI-assisted image and text generation. Rather than replacing traditional lectures or written assignments, this project operates alongside them, offering an alternative mode of theoretical engagement that emphasizes making, storytelling, and critical reflection. The paper argues that speculative narrative production constrained by factual research and theoretical framing can deepen student engagement with architectural theory while fostering a more nuanced understanding of authorship, agency, and material responsibility in an era of planetary uncertainty.

Healthy Buildings, Places & Systems

Saturday, March 28, 2026
11:00am-12:30pm

Designing & Evaluating Restorative Spaces: A Proposed Study for Examining the Psychological Impact of Architectural Interventions on Attention Restoration and Mood

Katie Stranix, University of Virginia

This paper presents a proposed study of a recently completed, student-led design-build project investigating how architectural form, space, and dynamic light and sound sequences can influence psychological well-being and perceived connection to nature. The project involves minimal and maximal interventions within two existing 75-square-foot quiet rooms located on the ground floor of a Fitwel-certified Student Health and Wellness Building at the University of Virginia. Both interventions are guided by biophilic design principles and informed by environmental psychology—specifically Prospect-Refuge Theory, Stress Reduction Theory, and Attention Restoration Theory. The rooms test how these theories can be translated into architectural strategies within interior environments that lack direct visual or physical connection to nature. The design of interior spaces has profound effects on our psychological state, yet rigorous design research in architecture rarely examines these effects directly. The study's primary goal is to identify which elements of the architectural intervention users find most impactful for stress reduction and mood improvement. A secondary aim is to use these findings to inform future design guidelines for restorative architectural spaces and to identify the impact of architecture on psychological well-being. Feedback will be gathered via a short-form survey incorporating the Trait Anxiety Inventory as well as specific questions about the architectural elements of the space to assess the restorative impact of each intervention.

One Health Design: A Holistic Approach to Health in Architecture Education
Athina Papadopoulou, New York Institute of Technology

The One Health framework, grounded in systems and ecological thinking, offers a holistic lens for understanding the interdependence of human, animal, and environmental health. Within this framework, the built environment emerges as a critical determinant of health: research shows that spatial, material, and environmental conditions can either support physical and mental health or contribute to chronic disease and cognitive decline. Despite this evidence, the integration of holistic, health-oriented approaches in architectural education remains limited. This paper argues for embedding One Health principles into architecture pedagogy through One Health Design—an interdisciplinary, inclusive, and materially informed pedagogical framework. Drawing on case studies conducted by the author, the paper demonstrates how architectural education can address health holistically through Design for All Abilities, Healthy Material Design, and Multispecies Design. The first set of case studies examines inclusive, user-centered courses developed in collaboration with disability communities, special education professionals, and health practitioners. These courses emphasize multisensory, embodied engagement and challenge ocularcentric design norms. Student projects—ranging from tactile navigation interfaces and anxiety-reducing wearables to VR-based physical training tools and accessible built environments—illustrate how experiential learning fosters empathy, inclusivity, and a deeper understanding of diverse user needs. The second and third case study clusters address healthy materials and multispecies ethics. Through hands-on fabrication of biobased materials and life-cycle analysis of everyday objects, students critically examine the environmental toxicity and health impacts of conventional manufacturing and construction practices, while design exercises emphasize circular, regenerative, and biodegradable alternatives. In parallel, research studios foreground ecological thinking and multispecies perspectives, encouraging students to consider how design affects animals, plants, and ecosystems through species mapping and biodiversity-focused proposals. The One Health Design pedagogical framework repositions architecture as a relational, ethical, and ecological practice embedded within interconnected systems of health, advocating for integrated curricular models and holistic design criteria that reflect the inseparable nature of human and environmental health in the built environment.

Engaging Disability: Allied Practices Of Inclusive Design Teaching
Andrew Gipe-Lazarou, Virginia Tech

In 2009, as an undergraduate student at the University of Maryland School of Architecture, I had the opportunity to work closely with the National Federation of the Blind, to co-organize the first-ever architecture program for individuals with vision-impairment. This experience cemented my commitment as a non-disabled ally–to advocate for disability representation and awareness in design practice and education. Today, as an Assistant Professor at the Virginia Tech School of Architecture, I lead the Blind Design Workshop (BDW), an annual learning initiative organized by undergraduate architecture students for aspiring designers with vision impairment, which reimagines the delivery of inclusive education by exploring new applications of assistive technologies, multi-sensory learning tools, and AI.2 This paper outlines the methods I've deployed in my workshops, architecture studio projects, and research seminars to integrate the lived experience of disability and address some of the challenges and opportunities of engaging in human-centered design teaching.

Skyspaces in Double-Skin Facades: Opportunities for Natural Ventilation and Enhanced Occupant Experience in High-Rise Office Buildings

Yohan Kim, University of Florida

High-rise office buildings often limit occupant access to and engagement with the external environment, particularly on higher floors. Skyspaces, inhabitable double-skin facades (DSFs), can enhance occupant experience while supporting natural ventilation. Although DSFs are widely used to regulate airflow and wind pressure, the integration of inhabitable DSFs and their influence on adjacent indoor spaces have yet to be fully explored. This early-stage study aims to address these gaps and examines design configurations of inhabitable DSFs, including cavity depth, typology, and location. The study focuses on airflow behavior on higher floors of a 60-story office building, where wind effects are dominant, and evaluates natural ventilation potential. Computational fluid dynamics simulations employ a domain-decoupling approach to separately model outdoor and indoor airflow, and performance is assessed based on indoor air velocity criteria. Two skyspace typologies, hollow and corner, are evaluated at windward, leeward, and side locations under isothermal conditions. Results indicate that leeward and side skyspaces generally maintain air velocities within an acceptable range, while windward placements produce higher and more concentrated velocities. Hollow and corner typologies behave similarly, with shallow windward configurations slightly reducing velocities, although localized elevated flow is still observed behind the skyspace. Overall, leeward and side skyspaces can be integrated without substantially affecting indoor airflow, but further simulations incorporating thermal effects and additional evaluation metrics are needed for a more comprehensive performance assessment.

Design & Community

Saturday, March 28, 2026
11:00am-12:30pm

Convergence/Divergence: Designing Futures through ReCall & Response
Coleman Jordan, Morgan State University

ReCall & Response is a design-build pavilion project that investigates how architecture can operate as an active agent of Pan-African solidarity through the spatialization of African and diasporic sound cultures. Conceived in response to contemporary conditions of cultural erasure, displacement, and political vulnerability affecting racialized, refugee, and immigrant communities of African descent, the project advances the hypothesis that architecture structured through rhythmic and performative logics—specifically call-and-response—can foster cultural endurance, collective care, and spatial justice. Rather than treating sound as an atmospheric or symbolic supplement, ReCall & Response positions African drum culture as an organizing framework for architectural form, spatial governance, and use. The pavilion was first realized and exhibited in Venice in 2025 as an inhabitable drum and performance space, designed and constructed through a collaborative design-build process involving designers, students, craftspeople, and musicians. Conceived as an event-based architecture, the pavilion is activated through ritual, performance, and communal participation rather than static occupation. The project is grounded in scholarship that understands African drums as linguistic, social, and political technologies. Studies of talking drums demonstrate how tonal rhythm transmits meaning, memory, and governance, while diasporic histories reveal how drumming traditions persisted under colonial repression through adaptation, as exemplified by the Afro-Peruvian cajón. Across the African Diaspora—from West Africa to the Caribbean, Brazil, and North America—drumming has functioned as a mechanism for sustaining cultural identity, collective movement, and political belonging. These traditions continue to inform African American cultural practices and contemporary musical forms, where groove and repetition structure embodied memory and social alignment. Methodologically, ReCall & Response translates drum logic directly into architectural organization. Meter informs bay spacing; tempo structures circulation; rests generate zones of reflection; and call-and-response governs spatial reconfiguration and performance. Formally, the pavilion references the djembe in profile while incorporating the cajón as its primary striking surface, acknowledging diasporic adaptation under conditions of constraint. Structurally, the pavilion is composed of repeating timber frames fabricated from CNC-routed plywood ribs and assembled as a repairable, modular kit-of-parts designed for disassembly, reuse, and re-scoring in new contexts. Wax-print textiles produced in collaboration with a refugee-led design studio reinforce the project's participatory and ethical framework. The pavilion's inaugural activation centered on ritual, including the pouring of libations for peace and Pan-African solidarity, followed by performances structured through call-and-response between West African talking drummers and a student drumline. These activations transformed the pavilion into a sonic relay across generations and geographies, inviting audience participation and collective engagement. Positioned as the first installation in a traveling exhibition, ReCall & Response will be presented at the 2026 Pan-African Biennial in Kenya and the 2027 Biennale in Brazil, where it will be re-scored in dialogue with local drum cultures. Ultimately, the project reframes architectural practice through African and diasporic epistemologies, proposing an architecture that listens, responds, and resonates across borders, histories, and futures.

Reverse Design Innovation – Countering Extractive Practices Through City Design, Adaptive P/re-use, And Non-speculative Models

Sascha Delz & Julia Sulzer, University of Southern California

This essay is a preliminary attempt to question and reframe some specific aspects of our professional education as architectural and urban designers to counteract the challenges driven by the extractive practices of the current economic system built on unlimited growth, environmental destruction, and social disparities. Our considerations derive from research on non-speculative housing and economic models, our ongoing explorations of circularity in design and construction, as well as from a recently established postgraduate degree program, within which we have had leading roles in developing content and conducting design courses and research seminars. Under our stewardship, the program promotes architectural and city design as a comprehensive, collective, circular, non-extractive, and non-speculative framework. It thus advocates for a more radical shift when engaging with socially equitable and environmentally sustainable approaches by diverging from established design practices based on linear models on the one hand, and converging design activities with processes usually left to industry and policymaking on the other hand.

Leah; Lands End Adaptable Home
Jori Erdman & Lemara Morrell, James Madison University

Coastal communities such as Gloucester, Virginia face accelerating threats from sea level rise and chronic flooding that jeopardize both the built environment and the cultural practices tied to working waterfronts. As climate projections increasingly frame retreat as the only viable response, this design research project proposes an alternative architectural position: that extended habitation within unstable coastal ecologies is possible through a rethinking of permanence, infrastructure, and ecological integration. Developed through a multi-year collaboration among students at James Madison University, industry partners, community experts, and Virginia Sea Grant, the project explores a speculative housing prototype that combines ecological site systems, natural building methods, and movable infrastructure. Central to the proposal is a hybrid architectural system that decouples permanent structure from mobile service pods containing essential building systems, including an above-ground wastewater treatment appliance designed to address the widespread failure of conventional septic systems in coastal regions. Grounded in systems thinking, the project situates architecture as an active participant in ecological processes rather than a defensive barrier against environmental change. Site strategies such as oyster reefs, berms, and salt-tolerant plantings work in concert with elevated construction and durable tabby walls to manage flooding while supporting water quality, habitat formation, and local food systems. As sea levels rise, the permanent portions of the structure are envisioned as biologically productive ruins, contributing to coastal ecology rather than environmental debris. The project argues for an architectural ethic of adaptability—one that prioritizes temporal assembly, infrastructural mobility, and community agency. In doing so, it positions architecture as a mediator of continuity within ecological time, offering design strategies that sustain coastal life while acknowledging inevitable transformation.