

PAPER ABSTRACT BOOK

# SHAPING NEW KNOWLEDGES

104<sup>TH</sup>

ACSA  
ANNUAL  
MEETING  
2016

ROBERT CORSER  
SHARON HAAR

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## **2016 ACSA 104<sup>TH</sup> ANNUAL MEETING**

Shaping New Knowledges

### **CO-CHAIRS**

Robert Corser, University of Washington

Sharon Haar, University of Michigan

### **HOST SCHOOLS**

University of Washington



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THURSDAY

# Acting Out: The Politics and Practices of Interventions

## **ARCHITECTURE AS A VERB/DESIGN AS CULTURAL PRACTICE**

B.D. Wortham-Galvin, Portland State University

This paper will challenge the notion of by whom and for whom is the practice of architecture in the twenty-first century, by: acknowledging the current stranglehold of the “Bilbao Effect” on the institution; introducing a discussion of values-centered paradigms used in architecture, preservation, and design thinking; and, describing an architectural thesis that confronts traditional paradigms by focusing on cultural praxis and discussions of who qualifies as a form giver and how form is given.

## **HOLD, DENOTE OR RESERVE: SPATIAL STRATEGIES IN DETROIT’S AVAILABLE SPACE**

Ana Morcillo Pallares, University of Michigan

Detroit is a product of many stakeholders who are modifying its structure for a variety of reasons. The partial, temporal or permanent use of available space through strategies of adding, nesting, incorporating ready-mades, colonizing through networks or linear interventions have a common determination to hold, denote or reserve place. The “placeholders” amplify, modify, superimpose and sensibly alter the existing condition of open space in the city. This article proposes a different reading of Detroit’s urban density through the analysis of initiatives which negotiate unique spatial conditions and citizen demands in the context of a large American city trying to rebuild itself. The study of spatial strategies and adapted mechanisms by anonymous citizens bring to fruition new methods of participation in relation to the specifics of the city, its politics, its aesthetics and the desire for public empowerment of the people.

## **THE ACT(IVAT)OR’S TOOLBOX: EXPANDED ROLES, ACTIONS, AND PARAMETERS IN THE PRODUCTION OF THE URBAN COMMONS**

Antje K. Steinmuller, California College of the Arts

It takes more than a physical intervention to produce successful urban public spaces. As more and more urban spaces are formed and activated from the bottom up through citizen-architect collaborations and initiatives, the design tasks involved need redefinition. This paper is based on the premise that any successful urban public space is a product of the complex interaction of architectural, social, temporal and representational parameters. The paper examines and expands these parameters in the context of public space generated from the bottom up, arguing that the design considerations must include in equal measure the configuration of the physical construct, the choreography of the use of the space, the formation of its image, and the integration of citizens into the process. To do this, both tactical (possible actions in space) and strategic (rules and structures conceived for the longer-term activations of space) ways of working must be integrated into a process that is in itself an object and outcome of design.

The paper focuses on bottom-up interventions that aim to produce public space as a new type of urban commons, collectively made and managed. It argues for an expanded set of tools, skills, and knowledge associated with the role of the architect in the production of these kinds of urban public spaces. The paper unfolds the parameters for designing public space around the known terms of hardware, software, orgware and brandware, and proposes a fifth term - formware - to describe the task of designing the process itself. Specifically, it uses a collaborative studio project for an intervention in, and activation of, an urban commons in Madrid as a case study to examine the organization of the design work according to these parameters - outlining a pedagogical model for generating the expanded skills and knowledge in architectural education. Ultimately, in a climate where urban space is increasingly activated through collaboratively produced bottom-up interventions, the paper seeks to reassert the role of the architect - as both actor and activator, tactician and strategist - in processes that require the productive integration of multiple participants with various expertise and knowledge.

# Architecture is Philosophy: Beyond the Post-Critical

## **DISCIPLINARY PROMISCUITY AND ITS DISCONTENTS**

Eva Perez de Vega, Parsons The New School for Design

Both Architecture and Philosophy tend to appropriate and contaminate fields other than their own; philosophers have the capacity to turn everything into a philosophical problem, and architects similarly tend to appropriate issues and frame them as architectural concerns. Running parallel to the tendency of disciplinary exchange is, in actuality, an increasing suspicion of cross-breeding among disciplines, and an almost anxious attitude from those who -perhaps not wrongly- feel threatened by external forces pushing onto their domain. While this apparent promiscuity seems to have been remarkably beneficial on a number of fronts, it also raises many difficult questions about the integrity of each discipline, their standing in history, and their current specific engagement in society.

There is an increasing interest in philosophy by architects, and also by philosophers in architecture. Yet there is also an underlying belief that architecture and philosophy deal with entirely different realms of competency; architecture is generally understood as a material practice resulting in the construction of buildings experienced through our bodily sensations, and philosophy as the discipline engaged with thought and knowledge. While not altogether false, these conceptions fall into the very restrictive framework of duality, paralleling the old mind-body dichotomy, from which it is very difficult to find a way forward.

The aim of this paper is to introduce a new framework within which to question and re-conceptualize the relationship between the two disciplines that will not place them in opposition to one another. As a means to set up the problem, in the first part of this paper we will contrapose two different contemporary views regarding the problem of disciplinary exchange; one from an architect, Patrik Schumacher, and the other from a philosopher, Simon Critchley. The second part will introduce the theory that will serve as a new framework for dispelling dichotomies and uncovering novel possibilities of interaction, namely assemblage theory, as first introduced by Gilles Deleuze and further developed by contemporary philosopher Manuel DeLanda. The third part of the paper will use assemblage theory to tie these viewpoints into a coherent conceptual framework.

## **OBJECTS UNKNOWN AGAINST BUILDINGS WELL-KNOWN: NOTES ON A PEDESTRIAN KNOWLEDGE OF ARCHITECTURE**

Philip Schauss, The New School for Social Research

In architectural history and theory, the occupants of buildings are continuously and profoundly unformulated. This omission, however, is not particular to architectural discourse. It is rooted within a productive insecurity that pervades the humanities as a whole. The things one can certainly say of the subject, let alone of the subject that inhabits architecture, seem exasperatingly skeletal. This goes hand in hand with a hesitance to speculate on how “we humans” experience anything as ubiquitous and varied as Architecture (capital A). If indeed we can't quite say how we are, then maybe our buildings can assist in holding up a mirror.

## **LOCATING ARCHITECTURAL PRODUCTION**

Phillip Anzalone, New York City College of Technology

Stephanie Bayard, Pratt Institute Graduate School of Architecture

Architectural education and practice are engaged in a point of reflection on the relationship between theory and application, which can be viewed as the struggle to find truth and value in scientific, technological and cultural terms. Recent forays into philosophical discourse in the critical era of architectural theory, followed by post-critical humanistic reaction, reflects the current uncertainty of architectural trajectories seeking to embrace both the theoretical and practice. The Authors argue that a study of the space of production in architectural research holds prospects in clarifying the role of experimentation in theory and practice, integrating varieties of simulation, analysis and realization composing contemporary practice, and revealing a novel thread for philosophical investigation into architectural education.

## **REVISITING ASSEMBLAGE: A SEARCH FOR THE FORCE OF ARCHITECTURAL THINKING**

Randall Teal, University of Idaho

The demise of the architectural journal *Assemblage* in 2000 is nearly coincident with the rise of the Post-critical turn in architecture. This article uses *Assemblage* as a touchstone to frame an argument for reclaiming the power of philosophy in architecture by connecting architectural theory to architectural thinking. That is, I am not interested in making theoretically informed buildings; but rather, I am interested fostering rigorous practices of thought within the architectural discipline.

# Open: Challenging Materiality: Industry Collaborations Reshaping Design

## INVESTIGATING PERCEPTIONS OF THE ARCHITECTS' ROLE IN INTEGRATED PRACTICES

Hamid Abdirad, University of Washington  
Christopher Monson, University of Washington

In the AEC industry, Integrated Project Delivery (IPD) is a contractual paradigm shift that encourages project parties to change the nature of their relationships by sharing risks and rewards through integration and collaboration in design and construction processes. Through its ever-increasing application, IPD has changed roles, responsibilities, and participation of architects and design firms in projects. While the existing literature has shown how an IPD context is different from traditional project delivery methods, very little research has focused on the changes integrated practices are causing in the architectural domain. To fill this gap, we review prior research to identify, extract, and report perceptions of integrated practices and their impact on architectural practice and compare these to IPD concepts and definitions. The main goal of this study is to offer some important insights into often unnoticed and non-obvious changes in architects' roles and influence in integrated practices. The study examines four thematic comparisons between existing literature and IPD definitions in collaboration processes, project leadership and management, means and methods of team communication, and risks and liabilities. From these comparisons, we conclude that integrated practices have changed architects' roles and responsibilities in terms of design leadership, design decision making, contractual transactions, and design control of architectural quality. The implications for architectural practice are considered by addressing risks and opportunities. The outcomes of IPD in terms of the concerns of architects and industry participants' perceptions deserve to be addressed by how integrated practices are defined, promoted, and advanced through the AEC industry.

## PARADOXICAL TERRITORIES BETWEEN TRADITIONAL AND DIGITAL CRAFTS IN JAPANESE JOINERY

Ahmed K. Ali, Texas A&M University

When Torashichi Sumiyoshi and Gengo Matsui wrote their book titled *Wood Joints in Classical Japanese Architecture* in 1989, Computer Numeric Controlled Technology was maybe at its infancy. Moreover, Traditional Japanese joinery has been reserved for solid heavy timber only. Today Glulam is on the rise of being used globally as a sustainable material and an alternative to concrete and steel. Although one can argue that a traditional craft should be kept adhered to its processes, materials and methods, a question arise of what if digital fabrication machines and laminated timber be applied to a traditional art and craft such as Japanese joinery? What are the possibilities and limitations one can explore? Does technology offer a "one size fits all" solution to any building material and method? Architect Renzo Piano often refers to technology in architecture or the term "techne" as the art of joining or the art of making things.[1] And in his famous 1954 essay on technology, Heidegger explores the meaning of the word technology, tracing it to the Greek technikon meaning that which belongs to techne. With pertinence to Piano and the fabricatore idea, Heidegger also makes two observations about techne. First, the word is applicable not only to the talents and skills of the craftsman but also to the world of the intellect and of the fine arts. Secondly, Heidegger says: "techne belongs to the bringing-forth, to poesis; it is something poetic." [2]

This paper is an attempt to address an open-ended dialogue between traditional and digital fabrication through an experimental study investigated by students of architecture. Students were asked to study traditional Japanese Joinery and in particular the work of Sumiyoshi and Matsui and select two wood joints, one is a splice joint and the other is a connecting joint. The task was to recreate the same joints in full scale with real wood materials but using CNC technology and instead of heavy timber use a glulam engineered wood composites. Through the process of understanding how a traditional hand made joinery could be created using digital fabrication, deeper investigation of manufacturing processes was understood, recreated and developed. Students were also asked to record their experience through drawings and photography.

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# Open: Challenging Materiality: Industry Collaborations Reshaping Design (continued)

## PCM, COLLABORATIONS WITH BASF

Georg Rafailidis, University At Buffalo, SUNY

This paper documents research that was undertaken with the support of and in collaboration with the chemical company BASF, in the development of a glass block facade component filled with wax PCM (phase change material). For now, PCM is used in architecture solely for its technical performance in increasing the thermal mass of building elements. Supported by BASF, we investigated the formal and experiential potential of wax based phase change material, which has been valued until now only for its technical performance in increasing the thermal storage capacity of lightweight building components. We explored the architectural potential of wax PCM, asking the questions:

How can this temperature-sensitive material organize space?

Is temperature the only parameter in working with wax PCM?

Can we derive a coherent logic of construction and assembly from this amorphous material?

## PRICING THE FACTORY-BUILT HOUSE

Alex T. Anderson, University of Washington

The architecturally-significant factory-built house is readily achievable but has never attained significant commercial success, a fact exhibited repeatedly over the last century in prototypes received enthusiastically by the public but purchased by almost no one. This failure is partly the fault of the architectural visionaries, who repeatedly ask: why can't the house be produced with the same efficiency, speed, economy, and quality as an automobile? It turns out that this is the easy question. Instead of asking how to produce houses in factories, architects collaborating with industry need to consider more deeply how they can convince people to buy and enjoy living in factory-built houses. Marketing is the more serious challenge. One important aspect of marketing is determining how to account meaningfully for the cost benefits of industrialized house production. The reality is that consumer choices are almost always strongly constrained by cost, but "cheap" is rarely considered favorably. A crucial challenge, then, is to sell the well-designed factory-built house in a price-driven market. Looking past the disappointment of our "century of failure," as Stephen Kieran and James Timberlake refer to it, brings to light many fascinating, if unsuccessful, efforts in this direction. It reveals that the narrative of low cost in the marketing of mass-production houses shifted as cultural values evolved. Within those trends, companies tried to gain advantage for their particular products. The earliest pre-cut, package houses in the 1910s, for example, advertised low cost primarily as a reward for homeowner labor. After World War II, when middle-class demand for houses was exceptionally high, factory-built house schemes capitalized on American pride in its rapidly modernizing infrastructure and the country's huge post-war manufacturing capacity. They did this by advertising technical or abstract price benefits accrued through savings of weight and time. A significant shift in the promotion of low cost for factory-built houses occurred in the 1970s, when manufacturers and government sponsors specifically addressed low income buyers and focused almost exclusively on "affordable housing." Firms marketing to middle-class consumers, anxious to avoid association with "cheap" manufactured houses, deemphasized low cost as a primary feature of their products. Over the last decade, a resurgence in the modernist dream of the factory-built house has attracted wealthier clients not because of low purchase price, but because sustainable manufacturing techniques appear to support a lifestyle that reduces building and planetary life-cycle costs. This essay examines five mass-production house schemes that express the value of low cost in different ways: the Alladin Readi-Cut House of the 1910s, Buckminster Fuller's Dymaxion House and the Lustron Home of the late 1940s, the early 1970s Operation Breakthrough houses in Kirkland, Washington, and Michelle Kaufmann's Glidehouse of the mid 2000s. The five examples here hint at why the dream of the factory-built house has never quite come to fruition and demonstrate that architects will only succeed in achieving it if they look way beyond the intrigue of production toward the challenges of effective marketing and sustaining volume sales over the long term.



# Urban Knowledge in Architectural Education: Session 1

## **NEIGHBORHOOD ARCHEOLOGY: SITE ANALYSIS AS A DESIGN TOOL FOR URBAN PUBLIC HOUSING**

Choon Choi, Seoul National University

The “archeology of us,” or archeological study of the contemporary past is regarded as an instrumental pedagogic tool for teaching students how to piece together a loose collection of found artifacts and hypothesize implicit relationships between human behavior and contemporary material culture. Applied to architecture, Korean urban housing in particular, its methodology can be useful in understanding the abject quality of Korean communities, which can be sensed but not described. It is not the intention of this research exercise to formulate concrete rules regarding architectural context and human behavior. A mere recognition that our material culture, or architectural environment, at times induces certain patterns in social interaction, rather than being passively shaped by it, is enough to spark new ideas to help visualize an alternate future for these suspended communities.

## **CROSS MEDIA IMAGING OF LATIN AMERICAN INFORMAL CITIES**

Carie Penabad, University of Miami  
Adib Cure, University of Miami

What should we know about the city in order to design for it?

This is the initial question posed by the panel session entitled Urban Knowledge in Architectural Education. The focus of this paper will be the presentation of a cross disciplinary project that engages architecture faculty and students, architects, urban designers, data analyst and software engineers in the development of a digital mapping kit that allows for the effective and inexpensive digital mapping of informal settlements. This kit has been deployed in several Latin American cities as part of a series of upper level design studios; and has produced original documentation that has served as the basis for more informed design decisions both at the urban and architectural scales.

## **TOWARDS A QUEER URBAN DESIGN METHODOLOGY**

B.D. Wortham-Galvin, Portland State University

Who and what is being left out and left behind of design and development decisions of the twenty-first century city? How can architects, landscape architects, planners and preservationists change how they know—and therefore make—the city so that they might promote a city of difference rather than continue to propagate a nostalgic (and outdated) notion of the city as community? This paper proposes that the idea of the city—and how we adapt its existing resources—could benefit from a rethinking of both what we reuse and how we alter those things. In order to change the what and the how of the city made (and, therefore, extend narratives of power and control), this paper focuses on by whom and for whom is the city as a means toward pursuing urban transformation. Specifically, this paper will assert the queer in a methodology of an urban adaptation in order to destabilize the norms of urban design practice. To facilitate this discussion, this paper will describe the pedagogy and design methods used a framework for the investigations of an architecture thesis by Dustin Buzzard entitled “Painting the Town Pink (2013).” In this case, the queer will be asserted as a method for destabilizing naturalized norms of urban design knowledge and practice.

## **KNOWING WHAT WE DON'T KNOW**

Jeffrey Nesbit, University of North Carolina at Charlotte

How do we examine, detect, and design for an environment we know so little about? With the ever-increasingly complex layers embedded into the city's dense fabric, one piece of knowledge is for certain; we are urban detectives at best. Although we will more than likely never know the city as a whole, intelligently deciphered ‘codes’ from public architectures deliver clues from such unknown processes. In other words, recording outcomes directly linked to self-determined urban adaptations can allude to a sort of ‘dna’ reading of the city's ‘code’.

This paper reflects the pedagogical goals set within a study abroad program in the northeast Asian megalopolis of Seoul, South Korea. This architectural studio intentionally generates sensitive questions concerning the rise of capital development. The studio operates more as a detective interrogating and exposing what we don't know in an attempt to reveal certain aspects of hidden, internalized urban morphological exchange. Using public architecture as focus for evaluation, the work proceeds across three stages of knowledge; (1) measuring the city as a precedent, (2) detection of city codes, and (3) translating urban evidences into negotiable design criteria for future responsive speculation.

# Acting Out: The Politics and Practices of Interventions: Session 2

## **DRAW IN / DRAW OUT: PARTICIPATORY EXPERIENCE MAPS AS EVENT URBANISM**

Joshua M. Nason, University of Texas at Arlington

Can a temporary pavilion be a form of urbanism? Does such a device carry enough impact in its short time to affect the city in any meaningful way, or does it pass away into the realm of forgotten and superficial relics? And if a built work has limited effect due to inevitable temporality, what then could a drawing hope to do? Are there tactics to be deployed through such devices of experimentation and communication? As a designer, a toiler in the field of drawing and building, I grasp at hope that such devices can be impactful, even if temporary – even if unconventional in their affect. In fact, it's my hope that the very lack of conformity that leads to such questions, could in fact fuel new understandings beyond the usual methods.

The former questions, ostensibly arbitrary without specifics, lead to further introspection. If such a tactical and unconventional way of working were to be effective, how would it go about doing so? What types, roles, and potentials of such devices could accomplish such contrary efficacy? To put it plainly, if such devices are disconnected from the city and its inhabitants, they have little hope to make a difference. This connection, cloaked in context offers such devices the beneficial roles of the map. An analytical device deployed in order to test connection and affect understand and/or change within the said context. The map draws out relationships and meaning. But to be affective beyond the mere drawing out of information, the map must also draw in – draw in the participation of others, generating a veritable open-source mentality allowing more than the cartographer to offer input.

An example of this is found when considering the possibilities of maps operating at dimensions greater than two – maps that co-opt the role of the pavilion. Maps that thereby frame, generate and inspire unfamiliar spatial awareness and activation, fostering opportunities for event and participation to lock horns in a manner that informs visitors of their surroundings, connects participants to their city, and thus collects and catalogues their experience as experiential spatial data.

The Place Pavilions attempt to accomplish this by welcoming inhabitants to interact with that which they sense. These pavilions, designed and built through partnering faculty and students as creative colleagues, tectonically mediate between the reader and the read in a haptic and individualized, experiential manner. The goal is to introduce viewers to atypical readings of their surroundings by presenting to them detailed, specific, loaded and yet personalized views of what they otherwise take for granted. This paper relates the theoretical and pedagogical basis as well as the practical deployment of such pavilions as instances through which contextual understanding is engaged and therefore engaging.

## **HACKING URBAN SPACE, THE AGENCY OF THE OPEN SOURCE CITY**

Gernot Riether, Kennesaw State University  
Marcella Del Signore

Hacking is increasingly becoming a tactic used by many spatial practitioners who operate at the intersection of digital media and urban space. Information technology that has recently expanded urban systems has initiated new opportunities to hack the city. These opportunities—if recognized by the individual citizen—provide a powerful tool for change through questioning, altering, or subverting an existing system. Rather than waiting for city officials or private developers to take action, hacking could empower every citizen to participate in the construction of public space. As hacking has recently

become a tool for a number of projects and organizations that speculate on the development of public spaces such as “Civic Hackathons,” one can assume that hacking will increasingly develop as a strategy to empower the individual citizen to intervene in urban environments. It suggests a new form for the citizen to navigate the city, to understand it, and to interact with it in new and meaningful ways. This will not only change the urban environment but also challenge urban planners, architects, and city officials to rethink the current instruments and methods used to shape our cities.

## **POP-UP URBANISM AND THE RIGHT TO THE CITY:**

Anthony W. Schuman, New Jersey Institute of Technology

Activism in defense of a “right to the city” often targets gentrification, a largely market activity that produces dramatic physical, economic, and demographic change in working class neighborhoods as expanding real estate markets drive up rents and purchase prices and drive out residents who cannot sustain the elevated charges. Indeed, gentrification can be characterized as the transformation of a neighborhood, in terms of race and class, through the renovation of its housing stock. In recent years a wide range of spontaneous, small-scale overnight interventions, loosely grouped under the banner of “pop-up urbanism”, have sought to transform the current urban environment, notably with respect to replacing car-dominated streets with greener, more social spaces, as in the now annual and international “park(ing) day” events that temporarily replace parking spaces with “parklets”. “Pop-Up” interventions of this sort often have an insurgent, combative cast. They challenge fundamental assumptions underlying control of urban land. But while these overnight interventions may have a galvanizing effect, the process of social change neither begins nor ends with that catalytic moment. This paper is the story of the long gestation and lasting impact of a pop-up cultural event -- a music festival and an overnight “health and wellness village” -- in Newark, New Jersey.

## **PUBLIC SPACES AND IDEOLOGY: PUBLIC ART AND A NEW URBAN MOVEMENT IN IRAN**

Seyedeh Ladan Zarabadi, University of Cincinnati

The purpose of this paper is to examine two main issues. First, through the story of Iranian street art, it will show how public spaces in Iranian cities have come to function as a counter-ideological force. This research indicates that public art can be transformed into a communicative language that challenges the dominant power of the government. Here, public space is employed as a mediator between the power of a social body and governmental forces. Second, this paper analyzes the procedure and genus of urban interventions through graffiti and street arts in a totalitarian system. In other words, it examines how slow and gradual social interventions take place in an ideological context. The temporal scope of this research is from the beginning of the Islamic Revolution in 1979 until the present time.

This research draws on David Harvey and Jurgen Habermas's view about public sphere. Iranian urban spaces have been highly influenced by the Islamic ideological messages since the establishment of the Islamic Republic. The usage and repetition of particular themes and colors have resulted in a visual colonization of public spaces. This research shows that a visual urban movement, in a totalitarian system, is a form of intervention that can decolonize public spaces through street art.

Using Jurgen Habermas's view about public space and its evolution over time assists me in redefining the status of public space in the contemporary Iranian society. By exploring novel characteristics of public spaces, this research expounds how a new sense of public space is born and it becomes a dynamic place for debate rather than a static space for displaying policies of a certain group.

# Urban Knowledge in Architectural Education: Session 2

## **BEYOND INERT SITES-SCOPING THE URBAN LANDSCAPE\_ RE-CALIBRATING ARCHITECTURAL NARRATIVES AND PRACTICES THROUGH THE SHAPING OF NEW URBAN KNOWLEDGE IN ARCHITECTURAL EDUCATION**

Shannon Bassett, University At Buffalo, SUNY

This paper posits that we must better actively integrate urban knowledge into the traditional architectural project, and how we might address this in how we teach architecture. It discusses prevailing contexts of the urban, and how this might provoke a critical re-thinking of the proverbial architecture project or architecture as object, thus necessitating a shift in architectural education. Further, this might prompt a re-thinking beyond the singular inert site, with its conventional and fixed architectural programs, in favor of more open-ended hybrid programs, or new notions of site across scales as shaped by new urban knowledge. Subsequently, the shaping of new urban knowledge as garnered from design research across scales of the city and beyond the inert site in order to design within and for it. This might include critically reflecting if there are more flexible and dynamic methods of working beyond fixed sites which engage the city and its systems, including ecologies and infrastructures. Additionally, this might include acquiring new urban knowledges from the city, which might then be cultivated in feedback loops back into the architectural scale of programming or new notions of site.

This paper posits a framework and methodology where architectural education goes beyond the object, becoming more integrated and responsive to conditions of urbanism, where the architectural project integrates the forces of the city. This would translate to architecture students being educated to further hone their skills of lateral and strategic thinking, as well as to critically engage in more integrative approaches within the urban context and scales and city with architectural responses which are more flexible and which engage indeterminacy and open-endedness. Similarly, in an inversion, the architecture project might re-position itself when it considers itself beyond the scale of the inert site and different notions of site, with the potential of being a catalyst within the larger scale of the city.

This paper discusses the integration and shaping of new urban knowledge in architectural education with the methodology and concept of “scoping the urban landscape” which re-calibrates architectural narratives and practices through the shaping of new urban knowledge. These issues are investigated through the lens of three projects explored in both graduate architecture studios, as well as a graduate research design seminar. These projects moved beyond more conventional modes of addressing the architecture project as an inert site with given fixed programs to shaping urban knowledge of the city beyond. These included interdisciplinary borrowings of methods and modes of inquiry and graphic representation.

The paper concludes that the architectural project must be shaped by new knowledge garnered by the urban. It reiterates that this requires a paradigm shift and a fundamental re-questioning of the notion of site and as a design and static aspect of the architectural project, in addition to fixed programs. The concept of “scoping” the urban landscapes creates new architectural narratives, which are multi-layered and multi-scalar responses, while also requiring new methods of representation and process, which becomes critical in order to understand the urban built environment.

## **PROJECTING URBAN VILLAGES IN SHENZHEN**

Mari Fujita, University of British Columbia

The creation of Urban Villages in Shenzhen and other Chinese cities experiencing rapid growth is a product of the confrontation of two systems of land ownership in China. In a city that has grown from 30,000 inhabitants in 1980 to somewhere around 12 million inhabitants 35 years later, urban development has pushed through the peri-urban zone and consumed land in and around rural areas. Today 241 urban villages, or chengzhongcun, in Shenzhen remain as islands in a sea of urbanism, operating simultaneously as ‘other’ spaces as well as active colluders in the continuing urbanization of Shenzhen.

The situation on the ground in Shenzhen is one that is volatile and in flux; the confrontation of the two systems produce a spatial conflict that actively challenge Deng Xiaoping’s suggestion that the socialist system and the market economy are not contradictory. The future of the urban villages in Shenzhen is uncertain; the villages are generally perceived as undesirable places by the authorities and are the subject of policies that favor demolishing and redeveloping the areas into commercialized urban housing districts (Song et al). Some of the villages such as the Dafen painter’s village have become tourist zones and have a more secure near future due to their addition of new institutions such as an art gallery and an art school.

As architects and urbanists, how do we study the urban villages of Shenzhen in order to develop productive and original readings that can contribute to meaningful projections of possible futures for Shenzhen? How do we engage the political and spatial history of a place that is the product of a culture that is so different from our (western) one? How do we find the space in which the architect can assert agency and what form does this agency come in? This paper will give a brief history of the urban villages of Shenzhen and then examine three investigations of urban villages from three different projects: the book by Stefan Al titled *Villages in the City: A Guide to South China’s Informal Settlements*, *Studies on Shenzhen’s Urban Villages* by Urbanus Research Group, and “Negotiation” from a special issue of *hunch* from the Berlage Institute. The three projects offer different approaches to the question of what and how we should know about the city in order to design for it.

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# Urban Knowledge in Architectural Education: Session 2 (continued)

## **SOCIAL INTERACTION AND COHESION TOOL: INTEGRATING SOCIO-COMPUTATIONAL DESIGN IN URBAN ECOLOGY FOR BARCELONA'S SUPERILLES**

Philip Speranza, University of Oregon

The way urban inhabitants experience the processes of the city has changed. Each day more devices from the Internet of Things, IoT, (Weiser 1991) pervade the way we perceive the city as an assembly of related urban processes (DeLanda 2006) rather than solely as a collection of fixed physical infrastructure. How and what designers identify as urban problems, create new datasets, understand and integrate measurements of the urban environment with design has changed given the everyday non-human and human interaction of a next generation of designers. Smartphones provide portals to record in-situ perception of the site and the subsequent integration of that information is now possible via parametric geospatial information systems, GIS. Pins are dropped in Google Maps and datasets may be interacted with, quickly entering workflows to 3D spatial analysis tools. The selection and creation of new 'data from scratch' (Nabien, Ratti, et al 2013), integration and analysis of information may then indirectly or directly inform design processes and how design proposals may 'attach' themselves to the site (Latour et al 2005), entering into the new urban assembly that is experienced by the public over time. The question of 'how' is thus closely related to 'what' types of urban processes define each designers perception of urban condition including the relevance of the relationships of small-scale social phenomena.

## **THERE AND ELSEWHERE: ARCHITECTURE AND THE POLITICAL ECOLOGICAL CITY**

Brent Sturlaugson, University of Kentucky

In 2012, Aaron Betsky critiqued not only the newly redesigned One World Trade Center (1WTC), but also the architectural aspirations in contemporary culture at large. His review offered a tepid "meh" in reaction to David Childs's design, calling it "Not bad, not good, but just there." But upon closer inspection, 1WTC is more than "just there." In fact, it is very much there—and, perhaps equally as important, elsewhere. The network of actors mobilized by 1WTC offers a glimpse into a more nuanced understanding of both architecture and the city. In this reading, political ecology offers a theoretical framework for explaining the imbrication of both human and non-human actors in disparate geographies.

Childs's redesigns for the base of 1WTC received an exceptional amount of press. Politicians appreciated its dutiful adherence to counterterrorism measures, and critics relished in the opportunity to sink their teeth into what one admitted was "a nearly impossible task: devising a tower at once somber and soaring, open and unassailable, dignified but not dull." In these discussions, few details received more attention than the tower base. The resulting design mobilized a network of distant actors in shaping one of the world's most visible constructions. Understanding the role of architecture within this network, however, requires a more complex understanding of the city than those conventionally available to design disciplines. Political ecology, drawing from a diverse set of disciplines, provides a critical lens for seeing how architecture mobilizes a network of seemingly discordant actors.

Architectural education can draw on political ecology in three ways. First, analyses that consider a multitude of actors—both human and non-human—in the construction of sites, structures, and practices infuse projects with political, environmental, and historical depth. For example, a supply chain analysis at the outset of a design project stimulates thinking beyond the immediate context, and encourages a holistic approach. Second, representations that grapple with diverse geographies offer a critical lens for interpreting cities. For example, a section drawing that shows the quantity and quality of labor and materials introduces a spatial perspective to complex relations often drawn in plan. Third, designs that challenge disciplinary domains and venture into the realm of human geography, science and technology studies, and political theory create opportunities for meaningful interdisciplinary discussions rooted in spatial practices. Combined, political ecological approaches to architectural education open many possibilities for critical engagement with urban discourses. Despite Betsky's critique of 1WTC as being "a beacon in a landscape of meh," the political ecology of architecture renders the landscape—both there and elsewhere—charged for critical inquiry into what constitutes the city.



FRIDAY

# Divergent Modes of Engagement: Exploring the Spectrum of Collaborative and Participatory Practices: Session 1

## THE REWARDS OF COLLABORATION: LESSONS LEARNED FROM INNOVATIVE PRACTICES

Clare Olsen, California Polytechnic State University  
Sinead Mac Namara, Syracuse University

Throughout the history of the professions, architects and engineers have depended on one another for expertise, but in recent decades, as the practices grow undeniably more complex, that dependency has increased dramatically, generating new approaches to collaborative work. These collaborations pose challenges in their own right, but when done well, they can make design and construction processes more efficient and robust.

## TEACHING INTEGRATED PRACTICE: AN INTEGRATED PROJECT DELIVERY THEATER

Emily M. McGlohn, Mississippi State University  
Michele Herrmann, Mississippi State University  
Hans Curtis Herrmann, Mississippi State University

A significant portion of faculty at architecture and construction schools do not have industry experience with models of integrated practice (IP) such as design-build (DB) or integrated project delivery (IPD). As a result, they struggle to teach it effectively. As buildings grow in complexity, IP is becoming more prevalent because the fields of architecture, engineering, and construction are more interdependent. Introducing students to the principles of IP prepares them for professional collaboration, but without industry experience, these relatively new project delivery methods prove difficult to teach. This paper chronicles an academic experiment that explores an alternative method for teaching IP that does not rely as heavily on personal experience from practice.

In the 2012 NCARB Practice Analysis of Architecture, collaboration is identified as one of eight areas in which recent graduates need reinforcement. "The practice of architecture is a highly collaborative, team-driven effort; therefore, the ability to successfully interact with other professionals is essential."<sup>1</sup>

The results of a 2014 survey of architecture and construction faculty, by the authors of this paper, found that 71% of respondents have never practiced under an IP contract, such as DB or IPD. However, 79% of respondents plan to incorporate IP principles into their coursework. A large percentage of academics recognize the next generation of practitioners need to understand collaborative modes of working, but they lack professional experience with this increasingly critical practice. A bridge for this gap between academia and industry is simple; use the teaching abilities of faculty and the first-hand experience of industry professionals to demonstrate collaborative processes of design to students.

With this in mind, the authors developed and hosted the Integrated Project Delivery Theater, a two-day symposium that uses interactive problem-based vignettes and industry partnerships to demonstrate the principles of collaboration to architecture and construction students. The vignettes illustrated collaborative characteristics of IP: teams, process, risk, compensation/reward, communication/technology, and agreements. Industry professionals from the AIA Firm of the Year, Eskew+Dumez+Ripple, Turner Construction Company, and ADAMS, the owners representative, attended the event and made these concepts accessible to students through sharing personal experiences of working together on the New Orleans BioInnovation Center.

In a true collaboration between teachers and practicing professionals, a better way to teach IP is being developed for undergraduate architecture and construction students. This proposed alternative reduces pressure for teachers to have direct experience with IP through the use of vignettes based in general principles of collaboration and practitioner participation to help students effectively conceptualize these issues. As buildings become more complex and performance-based, practice demands early collaboration between design team members. Introducing students to the principles of IP will not only ready them for what lies ahead but will position them to shape the future of practice.

## BREAKING DOWN MYTHS AND STEREOTYPES: HARNESSING AND SHARING ARCHITECTURAL EDUCATION ON CAMPUS

Frances Traci Rider, North Carolina State University

Collaboration is a heavily weighted word in the design fields, particularly architecture. The prevalence of interdisciplinary teams and processes is growing in architecture, and needs to be better accommodated in architectural education. This paper reviews one possible structure to address this blossoming need in the form of an interdisciplinary LEED Lab course, led on campus by the NCSU School of Architecture. LEED Laboratory, a larger initiative of the U.S. Green Building Council's (USGBC) Center for Green Schools, is a transdisciplinary immersion course that utilizes the built environment to educate and prepare students to become green building leaders and sustainability-focused citizens ([www.usgbc.com](http://www.usgbc.com)). The NCSU LEED Lab course is one of a growing number of known similar courses being offered around the world, and one of the largest with twenty-five students from across three different colleges. Strategically organized so that the class is comprised of interdisciplinary teams, students are given the opportunity not only to work constructively with other fields, but also to view environmental challenges and opportunities from different perspectives. This is the only course at NCSU that simultaneously establishes interdisciplinary relationships, uses hands-on service learning exercises, and actively affects the broader environmental impact of the university.

This tested course focuses on the operations and maintenance of facilities on campus, using the campus as a living laboratory, and creating a vocabulary not just between other academic majors on campus, but also between students and the University Facilities Division, which rarely engages students directly. This paper reviews strategies for: (1) building rapport between diverse student participants through intentional exercises; (2) meaningfully engaging multiple disciplines and departments in the University Facilities Division; and (3) establishing a common vocabulary between architectural education and aligned, but vastly differing, disciplines. One of the primary goals - and challenges - with this interdisciplinary approach is to help the separate disciplines understand the value of each other. The different offerings, perspectives, worldviews, processes and work strategies of each discipline are valuable for each other to understand.

Strategies to unify the different disciplines throughout the course of the semester are reviewed, as well as the processes and goals for including the University Facilities Division staff. University departments engaged in the course over both semesters include Building Maintenance and Operations, Repair and Renovation, University Housekeeping, Energy Management, Waste Reduction and Recycling, Environmental Health and Safety, Energy Solutions, Purchasing, Grounds Management, and the Building Maintenance and Operations' Commissioning Team. The result of these efforts is a solid template for including integrated design in architectural education, and a methods for sharing architectural education across campus.

## HYBRID PRACTICE: EXPANDING THE DISCIPLINE OF ARCHITECTURE

Tim Castillo, University of New Mexico  
Matthew Gines, University of New Mexico

Emergent technologies continue to give new opportunities for design evolution. As we foster new relationships with interdisciplinary expertise, we explore new fluid forms of collaboration and dissemination. This paper reflects on the evolution of the interdisciplinary model that propagated a new hybrid instrument for local and global communication.

# Knowledge Fields: Between Architecture and Landscape: Session 1

## [UN]DESCRIBED FIELDS OF THE GREAT PLAINS

David Karle, University of Nebraska-Lincoln

The unbounded region of the Great Plains is largely unnoticed in architectural discourse and currently many parts of the region have been classified as underperforming primarily due to decreasing population and vulnerable environmental climate. The pace and fluctuation of development in the region, or lack thereof, highlights patterns of movement more clearly than the rapid growth of the largest U.S. cities. By enhancing the boundless spatial options between architecture, urbanism, and geography how might we engage in a projective practice on abundance? Operating in the historically temporal and current day undescribed fields of the Great Plains provided contemporary opportunities for architectural proposals that respond to the local and territorial environment. Although complicated by its own regional histories the Great Plains is a unique case study for the disciplines of architecture and landscape architecture to provide alternative practices in extreme environments and new ways of thinking about occupying vast openness.

## PLANETS, LANDSCAPES AND BODIES: THE BODY AS LANDSCAPE

Carla Leitao, Rensselaer Polytechnic Institute

This paper looks at the important factors changing concepts and constructs of planet, landscape, nature, artificial, objects and bodies, to propose ways of thinking of these concepts as highly temporary built forms.

If seen from a distance, one could say that the field of Landscape Architecture sows patches into new apparent continuities that work both vertically and horizontally in the planet's crust. In this way, it works very much like a new fabric or medium through which other assemblies are able to travel through, be nurtured, grow and also be controlled within a framework of 'use'.

Notwithstanding this, the range of elements that the field uses, while different from that of Architecture, can be said to nowadays provide a better framework to engage Architecture problems as it offers ways of thinking about field and bodies which go beyond usual cultural classifications used by the latter - instead, dealing with potential entities and bodies as being strongly performative in nature, and therefore engage cultural as a performative rather a taxonomic character. Still, the nature of behaving like a 'medium' in these disciplines still leaves some questions open as to the specific format and role of that mediation.

I would like to propose that we look into some suggested extreme ways in which the construction of these bodies/entities demands reform from these disciplines to become not only fields but to evolve their self-understanding as a practice.

Forcibly, most of these examples come from Science Fiction, whether formulated by fiction authors or scientists themselves.

## THE STORY OF A LUMP; CHARLES JENCK'S DIAGRAM, GARDEN AND THE LAW OF DIMINISHING ERECTIONS

Lydia Kallipoliti, Rensselaer Polytechnic Institute

Every architect can find common ground in Charles Jencks' "Evolutionary Tree to the year 2000." Originally published in Jencks' book *Architecture 2000* in 1971, the soft blobby diagram has become a comfortable space of mediation where fundamentally conflicting architectural traditions, devoid of their social, political and cultural context, may happily coexist encased in pulsating attractor basins, or "lumps". To Jencks, the diagram is an analogue biological structure directly excerpted from Charles Darwin's *Theory of Descent and the evolution of species*; he even goes as far to suggest the differences between 'architectural species' and 'natural species,' criticizing the former of jumping from one to another, marrying whoever they please and producing offspring; whereas in the case of natural species, for instance, "turtles do not successfully mate with giraffes." Despite the fastidious nature of this claim, Jencks' "Evolutionary Tree" has had significant disciplinary impact since its publication. The diagram and its lumps do not branch knowledge from specific roots, neither do they impose a hierarchy based on a rule-based forking system. Moreover, it is neither a network, with all points interconnected in a system. Jenck's tree is a-systematic and a-hierarchical; it suggests information floating, rotating and as he suggests kissing and mating.

The lumps resurge in materialized earth form in Dr. Jenck's latest project, the garden of Northumberlandia known as the "Lady of the North": a giant female figure sculpted over an expansive landscape in the fields of northern England. While previously known as a critic, historian and the "godfather of postmodernism," over the last two decades, Jencks has presented himself as a garden design, reorganizing the same lumps featured in his historiographic surveys as earthworks, as a type of management for the soil.

Looking back, the lumps in Jenck's diagrams and gardens are objects of desire and objects of agency, unable to represent conditions outside of their own autonomous existence. What does a lump mean as a historical void? Jencks only knows. No designer can be an actual observer, as the representational choices inevitably become metalanguages of ideology. This point, is as much a postmodernist thought as much as the very rise of postmodernism as a phenomenon; that of a happy pluralism emerging from Jenck's lumps.

What becomes critical, nevertheless, to interrogate these lumps not as strange figures that demand our systematic decipherment in formal analysis, but within the context of our contemporary information driven society. What is the relationship of such figural lumps to the lumps of data or clouds that surround our daily lives like murmurations? Through the comparative analysis of two projects, this paper will aim to address questions of representation in a time when data has become a second nature and to examine an emerging condition of data lumps, beyond our sense of representation and perception of the world as we encounter it.



# Knowledge in the Public Interest

## **CONSTITUTIONAL: FINNISH FRAMEWORKS OF ARCHITECTURE IN THE PUBLIC SECTOR AND DESIGN FOR GOVERNMENT**

Frances Hsu, Aalto University

This essay examines the work of Helsinki Design Lab, a Finnish model of design and research that brings architects into an expanded design process to address public policy formation. Part of initiatives put in place by the Finnish Parliament, in a culture where design is a part of governance processes, the model connects academic, activist, professional, government and industrial fields in transformative collaborations and processes that embed design into everyday life.

## **EXHIBITION AS A PEDAGOGICAL TOOL FOR EXPERIMENTAL AND PUBLIC ARCHITECTURE**

Zenovia Toloudi, Dartmouth College

Borrowing his father's metaphor, Pedro Gadanho characterizes the architectural profession as "cannibalistic," being destroyed from within: a system of consumption in which young unpaid interns grow to either hate or replicate it. This dichotomy is by no means foreign to current educational systems of architecture, which not only reinforce this cannibalism, but also further divide the community. In an era where mainly growing bottom-line profits are the focus of universal corporate cultures, being creative and experimental is less affordable, and also there is a lack of equal opportunities for all. Architecture, both in practice and education terms, remains competitive and very much attached to the rich-client/genius-architect couple. This essay presents a pedagogical model that critiques and challenges this enterprise by taking a different approach that allows and reinforces creativity and experimentation for students, while equipping them to become emergent professionals with skills to envision and produce a more social and more public architecture that integrates larger concerns. This pedagogical model borrows from art, exhibitions, installations, and participatory practices, and philosophical concepts and theories such as those of laboratories, atmospheres, and emancipation. The essay critically examines two experimental exhibitions that came out of Thesis Lab course and this pedagogy: Neoplayformz, a time-based exhibition of collective acts and experiences, that offered an alternative format to the intimidating architectural review; and Thesis Lab 2014 exhibition/publication, a documentation of the experimentation with full-scale installations, immersive experiences, and provocative interventions, towards the exploration of a more civic-minded architecture. Beyond exhibitions, these venues used publications, blogs, social media, and other participatory platforms to broadcast the new ideas and to engage the multiple publics in the process, production, and criticism. They sought new formats for a non-"cannibalistic" architectural practice, which is beyond the model of service and clients, and allows collaboration without eliminating the individual voice. Participants explored collective non-hierarchical groups or actions that may offer to individual creators the opportunity to instigate a series of interventions: the design and production of their own architectures that improve their surroundings and environments.

## **GENTRIFICATION AND THE HETEROGENEOUS CITY: FINDING A ROLE FOR DESIGN**

Sally Harrison, Temple University  
Andrew Jacobs

In cities where de-industrialization has left large segments of their populations in poverty, once thriving working class neighborhoods are increasingly threatened by rapid market-driven gentrification that transforms them in terms of race and economic class. Poor residents are pressured to move by rising living cost, local cultures are erased and replaced by dominant cultural norms and urban space evolves towards a homogeneous formal language. Gentrification poses a threat to the realization of just and democratic urban life, a life in which a broad array of people have the "right to the city" which, as Lefebvre suggests includes the right to appropriation: access, use and pleasure that constitute a broader conceptualization of ownership.

That cities will change is indisputable, and change is mostly a sign of health, but it is also true that contemporary neighborhood change increasingly operates on an extraterritorial plane happening quickly, opportunistically and unilaterally. With an invisible hand deftly at work, neighborhoods are evaluated and developed as trading commodities – what Lefebvre would call "exchange value" – rather than a mosaic of places for diverse constituencies. Gentrification leaves little room for a discourse around place that might lead to new sites of democratic engagement, to the emergence of hybrid institutions, and to the creation of more porous urban space. This paper will consider a pair of contiguous neighborhoods in Philadelphia where market-driven gentrification has come face to face with powerful grassroots civic advocacy; and it looks at what architects, landscape architects and urban designers can do to help neighborhoods resist gentrification and support heterogeneity in making places where the hand-print of multiple publics might be found.

# Knowledge in the Public Interest: Session 1 (continued)

## REVISITING AN ARCHITECTURE OF CHANGE: PRODUCING PUBLIC SCHOLARSHIP

José L.S. Gámez, University of North Carolina at Charlotte

Janni Sorensen, University of North Carolina at Charlotte

Tara Bengle

In 2008, a colleague and I wrote an essay that sought to establish a theoretical ground for publically engaged design. In that article we proclaimed that “an architecture of change” was needed—one that could engage a range of “political forces that shape theories, practices, academies, policies, and communities” (Author 2008: 18-19). We were suggesting, as have both Henri Lefebvre and Edward Soja, that working to address the needs of marginalized communities requires a political choice involving real and imagined geographies—both physical places and spatial knowledge. And, as workers within “the teaching machine”, we also saw a need to overcome disciplinary biases by strategically putting knowledge, particularly spatial knowledge, into action helping cross boundaries, question truths, and invite the outside in (Spivak 1993). We spoke of this as a form of infiltration and dismantlement.

Perhaps we jumped the gun a bit.

Given the important role that university programs have played in extending design into public arenas, our earlier suggestions need revision. Rather than dismantling academies, what is needed is a clearer positioning of our academies. This requires that schools of design (architecture, planning, landscape architecture, etc.) position themselves as venues of socio-political action. Academic worlds are such by definition; they are the gatekeepers of disciplinary knowledge, liminal spaces through which people pass, and arbiters of culture and taste. As such, spatial disciplines offer unique lenses through which the operations of power within the academy can be viewed and mitigated/redirectioned in ways that produce new publics, new spaces, and new forms of knowledge.

Clearly, then, Public Interest Design has a role within the academy but that role needs critical evaluation. Such a critical assessment is needed in order to firmly plant the seeds of transformation that will challenge forces that not only produce but also actively reproduce marginalization within an ongoing system of inequity. Through this paper, I hope to illustrate how the academy can be made more effective in this mission and how distinct modes of scholarship can break free from disciplinary ties while surviving within university environments. This is no small task: establishing spaces in which publically engaged work is both valued and validated within academic circles takes significant effort. However, models of public scholarship exist that prove valuable for design in the public interest. And, it could be argued that public interest design is the most effective form of civically engaged scholastic inquiry—but only if explicitly positioned as such. Publicly and politically engaged design initiatives can foster an appreciation for lived spaces; they can illustrate that social and the physical are interdependent; and they can help build grassroots strategies that can have transformational impacts upon both all involved as well as knowledge itself. In these ways, this form of inquiry also enables design disciplines to rid themselves of dilemmas that often plague studio-based curricula while enabling architectures of change.

# Standard Deviation: Session 1

## **ATRIA FATIGUE**

Jennifer Bonner, Harvard University

Atria Fatigue is onset by architects looking at too many atrium typologies within a short amount of time. Rarely a serious condition, Atria Fatigue, subsides after a few days of rest, although there is currently no known cure for the disease. A cool, dark room and the application of cold compresses tend to aid in quick relief. But before tending to treatment strategies and disease prevention, we must first briefly familiarize ourselves with the three viral strains associated with this fatigue presently circulating various schools of architecture: 1. Analytic Project, 2. Precedent Project and 3. Primitive Project.

## **BAD LINES**

Kyle Reynolds, University of Wisconsin-Milwaukee

The line holds architectural implications there is a complicit relationship between representation and architectural intention. The naïve curve, the bubbly cartoon, the clean orthogonal, the smooth spline, the chubby diagrammatic: each of these is inextricably affiliated with the architectural Project it delineates. These are “good lines”—they carry well-established and closely examined sets of techniques and associations; they reinforce the intentions of their respective architectural Projects; they’re graphically pleasing; they can be taught. One can look at the good line, look at the architecture, and see how one influences the other.

Just as there are “good lines,” which have been accepted into the discipline, there must also be “bad lines” that have been rejected. Bad lines do none of the things the good line does; they are taught by no one; they bear no relation to any architectural Project you can recall; they are non-communicative, illegible, unexamined, un-technical, and frankly, ugly. They are the wobbly, chamfered, too fat, too thin, sketchy, broken, imprecise, ill-formed, and shunned relatives of the good line. The bad line is as derided and avoided as the good line is championed and imitated.

## **GREAT (WITH A STRIKETHROUGH) EXPECTATIONS**

Andrew Atwood, University of California, Berkeley

This session topic makes me nervous. There are a few reasons for this and hopefully all of them will play out over the course of this paper. But I should state from the outset, it’s not because I do not support such a session topic. Compiling a bunch of eccentric architects into the same room to describe why and how they have altered or deviated from some normal path? Sounds great to me! I love strange things and transgressive characters who break rules; it’s the reason I’m submitting this application to be part of your club! Like everyone else in architecture, I want to be weird, special, and somehow different. I definitely do not want to be normal. I mean, aren’t all architects desperate to be [a little] different? Or - in the terms of this session topic - a little “deviant”?

## **LONG DISTANCE ARCHITECTURE**

Samuel Stewart-Halevy, School of the Art Institute of Chicago

What do we work on when we work on architecture, and what is architectural about this work? For a long time, the answer to the first part of this question might have been “the media of architectural representation,” and the answer to the second part might have been the “indirect nature” of an architect’s operations. Alternately described as a “translatory distance” and “notational gap,” the suspension between the architect and the object of architectural labor- namely the sited building- has been crucial in distinguishing architectural work from other, more direct forms of art making such as painting, sculpture and poetry and aligning it with “allographic” forms such as choreography and musical composition.[1]

Architects have traditionally negotiated the distance between the immediate and the remote, between drawing and building, between native and foreign forms of expertise, and between modes of representation and the delayed yet tangible results of these projections. In his seminal essay on architectural method, *Translations from Drawing to Building*, Robin Evans describes this perpetual negotiation as a form of conveyance. Drawing becomes a kind of vehicle, taking on “peculiar powers in relation to its putative subject.”[2] The architect must first suspend critical disbelief in order to imagine an ideal translatory path. It is only then that one may be able to obtain “precise knowledge of the pattern of deviations.”

This paper takes a broad view of recent trends in fabrication in order to ask whether the closure of this distance might also represent an abandonment of a broader scope of work and communication in favor of architecture that is nothing more than “small-batch.” In drawing a distinction between the non-standard and the standard deviation an alternative possibility emerges- the inflection of practice from within its shared language of graphic conventions. In widening the notational gap to its farthest extent, we might establish new kinds of social relations between the realms of “symbolic analysis” and “routine production” in the field. The farther our drawings are allowed to travel, the more likely it is that they will divert from their intended courses, inviting interpretation rather than closing down into forms that were overdetermined from the start.

[1] Goodman, Nelson. *Languages of Art: An Approach to a Theory of Symbols*, 2nd edition, Indianapolis: Hackett Publishing Company. 1976

[2] Evans, Robin. *Translations from Drawing to Building* (London: Architectural Association, 1997) p.154

# Divergent Modes of Engagement: Exploring the Spectrum of Collaborative and Participatory Practices: Session 2

**DESIGNERS, CITIZENS, CITIZEN-DESIGNERS: CHARTING NEW MODES OF ENGAGEMENT, COLLABORATION AND PROJECT OUTCOMES AT TULANE CITY CENTER**

Emilie Taylor

Maggie Hansen, Tulane University

Sue Mobley, Tulane University

Nick Jenisch

At Tulane City Center, we are working to expand the role of designers and the impact of good design in our home, New Orleans, by creating space for more voices in the design process. We act on the belief that all citizens are impacted by our built environment and should be empowered to participate in the decisions that shape it. Through this article we aim to explain, by way of three case study projects, what a deeper process of engagement entails and what results from this process. These three case study projects are examples of methods of engagement, a range of goals that come out of this engagement, and the shifting role we as designers take on within coalitions to deliver a meaningful project regardless of the goal. Although we are based within a school of architecture, through engagement we often discover that a building is not the best solution to address the needs of a community we are working with. As a design center we have the opportunity that professional firms often do not, to offer, as design professionals, a method of problem solving, diplomacy, and coalition building that better meet the immediate needs of our partner organizations. The projects outlined in this article underscore the role of design as a form of Legitimization (Transitional Space's Parise Skatepark), Education (the Lower Nine Vision Coalition), and Instigation (MaCCNO's Street Performance Guide).

## **CROSSING BOUNDARIES: COLLABORATIVE ARCHITECTURAL PRACTICES IN LATE-APARTHEID CAPE TOWN**

Sharone Tomer, University of California, Berkeley

This paper examines the concept of 'divergent modes of engagement' through a historical case: a set of practices in Cape Town, South Africa, during the last years of apartheid. These were instances of architects establishing pedagogical and professional practices that sought to counter apartheid norms by forging connections between architects and typically marginalized groups. The knowledge produced through these cases speaks to pedagogical models, regarding how architecture is taught and the content of an architectural education. The cases also reveal how architects frame their own professional practices in relation to their ethics and the political-economic context within which they work. Together, the cases illustrate how architects may go about exceeding the typical limits of architectural practice. As such, the paper speaks beyond the particular historic moment – the ending of apartheid in Cape Town – to issues of professional privilege and the boundaries by which the architectural profession often defines itself. The paper is not an argument for undertaking collaborative practices, but rather an analysis of what is at stake when architects step outside the boundaries typically drawn around their profession. In it I will illustrate that 'engagement' means going beyond expanding the cast of agents involved in design, into the realm of destabilizing the social and intellectual conditions through which architecture is typically inscribed. This is thus an argument that to think about and undertake engagement means to question professional categories of racialized and class-based privilege, as well as the essential content of architectural knowledge.

## **CONSTITUTIONAL: FINNISH FRAMEWORKS OF ARCHITECTURE IN THE PUBLIC SECTOR AND DESIGN FOR GOVERNMENT**

Frances Hsu, Aalto University

This essay examines the work of Helsinki Design Lab, a Finnish model of design and research that brings architects into an expanded design process to address public policy formation. Part of initiatives put in place by the Finnish Parliament, in a culture where design is a part of governance processes, the model connects academic, activist, professional, government and industrial fields in transformative collaborations and processes that embed design into everyday life.

## **STONE SOUP AND THE CATALYTIC POWER OF PARTICIPATORY PRACTICE**

Phoebe Crisman, University of Virginia

Contemporary architectural discourse about new modes of collaborative practice often focus on the production benefits of digital technology, parametric design, and rapid prototyping to the exclusion of socio-economic considerations. Kenneth Frampton critiques this disjuncture in his analysis of the current fascination with building cladding. "Thus we are confronted not only with a fetishistic emphasis on the membrane as an end in itself but also with the problematic displacement of the 'what' with the 'how.'" (Bernstein, Deamer 2010). In this post-critical climate, the discipline has become increasingly fixated on the how. Humanitarian aid projects for the global South often present the most troubling misalignment of socio-economic context and architectural technology, as designers employ their normal mode of production with dramatically different conditions and collaborators. Such projects reject the value of participatory practice and incorporate building materials and advanced technologies that far exceed the acquisition, construction, and maintenance capacity of a particular context. By examining the participatory practice of ATOPIA Research, this essay investigated how new knowledge can be generated through architectural engagement with social justice issues and technical limitations. ATOPIA is a critical practice that operates in the central Kenyan highlands where deforestation and ongoing climate change produce poor soil conditions and increasingly erratic rain patterns of drought and torrential storms. Access to clean drinking water is a major problem in the region. School attendance is reduced by rampant waterborne illness, subsequent malnutrition, and long hours spent collecting water prevent many girls from attending school at all. They have designed a series of smart and sustainable WATERBANK projects that advocate for "localized, decentralized and non-linear approaches to infrastructure design combined with direct community engagement in the management of resources and resource distribution" (Atopia 2014). The story of Stone Soup, a ubiquitous allegory about cooperation, elucidates their approach. "In a straightforward way we design 'Soup Stones,' the 'things' that will stimulate individual and collection action" (Atopia 2014). Their first Waterbank School, recently completed in rural Laikipia, Kenya, employs local labor, local materials, and local construction techniques. The low-cost school harvests 350,000 liters of rainwater each year and a cistern beneath the central communal courtyard stores water for dry months ahead. A circular stonewall surrounding a nine-square concrete grid creates comfortable microclimates and protected spaces for vegetable gardens and gathering. Recalling the politicized work of Lina Bo Bardi and Architettura Nova's argument for a 'poetics of economy' and an 'aesthetics of poverty,' these powerful projects exemplify why the architectural discipline must think critically about who is being sheltered, why and with 'what', in addition to the 'how' of technological innovation and gratuitous form. ATOPIA has developed a mode of participatory practice that solves both the immediate problem of access to fresh drinking water and larger catalytic goals for disadvantaged communities.

# Knowledge Fields: Between Architecture and Landscape: Session 2

## **CONTESTED TERRAIN: PROFESSIONAL JURISDICTION AS A FRAME FOR ANALYZING THE ARCHITECTURE/LANDSCAPE DIVIDE**

Zachary Tate Porter, SCI-Arc

During the late nineteenth and early twentieth centuries, the discourses and practices associated with the design of buildings and cities in the United States became increasingly differentiated and segregated according to the formation of distinct disciplinary boundaries. This division of expertise gave rise to four modern professions: civil engineering, architecture, landscape architecture, and city planning. My research hypothesizes that the emergence of these four distinct professions ultimately had dramatic implications for the relationship between building and ground. Whereas some aspects of architectural production can be neatly compartmentalized within one discipline or another, the integration of a building into its immediate site and surrounding landscape relies on the structured coordination among several experts, each of whom holds one piece of the larger puzzle. As contemporary theorists speculate on the possibility of hybridized design practices, I propose professional jurisdiction as a framework for understanding the historical context of the architecture/landscape divide. This framework is suggested through the juxtaposition of two independent discourses: architectural theories on “ground” and the sociology of professions. Ultimately, the paper aims to produce a trajectory for future research on the ways in which professionalization shaped shifting conceptions of landscape, site, and ground within American architectural practice.

## **PLANNING AS A SYSTEMIC CATALYST**

Bradford Watson, Montana State University

Make no little plans; they have no magic to stir men’s blood and probably themselves will not be realized. Make big plans; aim high in hope and work.  
– Daniel H. Burnham

Planning is fundamental to the success of any project, even more significant in the realm of Non-Profit and Public work. In our current economy where funding for projects that are for “the good of the people” are reduced, we need to make big plans that do not rely on big funding. Designers need to embrace this new paradigm of working as an opportunity for our plans to be implemented as the start of a larger systemic strategy. We need to determine the critical moves that accomplish more than the budget allows and establish succession plans that are self-perpetuating. Or at a minimum, develop planning strategies that shift current resource allocation from maintenance to efforts that are productive. We need to be entrepreneurial in our efforts to create agency, not just for designers, but for the community that we are engaging. Through systems analysis led master planning we can identify opportunities to for interventions that set in motion a larger plan rather than waiting for the funding to implement everything at once. Additionally, these plans need to provide the opportunity for community ownership and the flexibility for the co-opting and evolution of the design.

This challenge has been the basis for graduate design studios examining the role of systems analysis and entrepreneurial agency as a framework for masterplanning and a method for determining the critical first moves. The masterplanning had to accomplish the goals of the client working within the constraints of budget and regulation while also determining how a phased implementation could always feel whole without limiting the overall plan. Through long term planning, and an overlay of cost-benefit analysis, students determined the appropriate first phase of implementation. In some cases this was an evidencing through traditional representation. While in others it was constructing the first phase of the master plan as a prompt for the community to embrace the place, giving ownership of the process to the public rather than the institution. In all cases the first move is only the start of the larger plan, a catalyst for the site’s development.

This paper will evidence the design and implementation process of two graduate design studios working with a small town government and developer and a consortium of county, state and federal offices and a community intertwined in reclamation. The paper will also examine proposed strategies as entrepreneurial opportunities for students to impact existing systems through design. These proposals identify an opportunity within an existing framework that can be exploited to improve the system without impacting cost, sometimes even resulting in reducing cost. The paper will demonstrate how these speculative strategies have created opportunities for implementation and how the ideals of Burnham’s “big plan” scaffold the trajectory for a current agency of work.

## **TOPOLOGIES OF EXCLUSION**

Kathy Velikov, University of Michigan

This paper is situated within theories of speculative realism and ecological awareness that open ontological and epistemological frameworks for design practices to navigate new routes between the disciplinarily understood fields of architecture and landscape. Interrogating the work of a recent architectural thesis unit led by the author, design agendas for complex “expelled” sites are conceived of through synthetic material, architectural, and landscape practices, that simultaneously mobilize landscape processes and operations, architectural formation and figuration, and material synthesis. The hybrid design approaches explored in the work deploy strategies such as appropriated conventions, practices, histories, and mediums from both disciplinary fields, combined with design thinking that is agile across temporal and operational scales. The works presented here are categorized through three areas of approach: metaphysical devices; material orchestrations; and speculative narratives.

# Structure as Design Knowledge

## **OVERHANG: CORBELLED STRUCTURAL SYSTEMS**

Georg Rafailidis, University At Buffalo, SUNY

This paper documents current research being done in the design of corbelled dry-stacked compressive structures.

Corbelled structures are the poor relative in the family of structural systems. They did not get much attention of the architectural and structural community over the last century. A couple of recent mathematical papers, however, reveal new groundbreaking insights into the nature of corbelled structures, as they have never been actualized in architecture.

Until recently, it was thought that the harmonic stack allows for the largest overhang of a fixed number of corbelled stacked blocks. The paper "Maximum Overhang" by Paterson, Peres, Thorup, Winkler and Zwick (2009) showed, however, that the largest overhang is actually achieved with totally irregular stack formations which cannot be described mathematically and can only be found through numerical approximation. Whereas that paper discussed two-dimensional formations, this research investigates the spatial dimension of these stacking typologies and includes further parameters like the center of gravity, weight distribution and materiality. Beyond empirical structural tests, this research looks at the architectural possibilities and spatial applications of the three-dimensionalized sectional typologies discussed by Paterson et al.

## **STRUCTURE, ARCHITECTURE, AND COMPUTATION: PAST AND FUTURE**

Renaud Danhaive, MIT

In architectural design, the past decades have been marked by the evolution of the computer from a drawing instrument to a design tool. It is clear that computation has had, and will continue to have, a significant impact on the design process. Bill Addis (2007) identifies the post-1960's period as the Computer Age in structural design, and this classification is, if not absolute, relevant for architecture as well. Computers have not only enabled the construction of some of the world's most daring structures, but also have also given birth to new styles and visions. Styles were constructed based on the new modeling possibilities offered by software and the computer played a crucial role in the development of new architectural visions in the second part of the twentieth century (Picon, 2010). However, computation and, specifically, the development of numerical solvers for structural analysis, did not mean that engineers designed more efficient structures. On the contrary, the rise of finite element analysis enabled a 'make-it-work' approach, exemplified first by the Sydney Opera House of the Utzon-Arup duo and many projects after. In terms of design thinking, this represented a huge shift compared to the philosophy of engineers and architects of the 1950's, or even of the Architectural Engineering Age in general as described by Addis (2007). Computation was a revolution that would deeply influence the architect-engineer collaboration. Today, the revolution has matured and both practitioners and academics now have the necessary perspective to grasp the influence of the computer on design professions. With the development of new computational paradigms for design, along with the contemporary economic, social and, environmental context, there is compelling evidence that the barriers existing between the two professions can now be broken down with the use of computation.

Through an abridged history of architecture, structure, and computation, this paper will briefly examine how structure and architecture interacted in the recent past and how a renewed synthesis of the two disciplines can occur in the near future. It is structured in two parts. First, we will progress from the 1950's until today to succinctly explain how computation has changed the collaboration between architects and engineers, while focusing on the generally overlooked idea that, until recently, computation has had a negative impact on the synthesis of architecture and technological disciplines. We will then use Picon's concept of social imagination (2001) to explain how conditions are in place for a renewed synergy of architecture and engineering. The second part will succinctly present research on new computational ideas and tools to explore architectural and structural design intent symbiotically.

# Structure as Design Knowledge (continued)

## TRANSPARENT STRUCTURES

Beverly Choe, Stanford University  
Jun Sato

Transparent Structures was a Design/Build course taught to two different groups of students during the spring and summer of 2015. This course asked students to investigate the use of glass as both a structural system and spatial medium. Following a methodology which we call Responsive Structures, students tested the physical and visual properties of engineered high-strength glass, and developed structural systems and spatial configurations to expand our ideas of what glass can do. This methodology encouraged the fluid, adaptive growth of the structures from cellular, module based models to a full scale installation. The spirit of play and investigation was realized through a series of exercises that began with small-scale modeling and the development of a structural module, which gradually grew into larger, more complex aggregations. The focus then shifted into larger scale prototyping and the refinement of the assembly tectonics, and ended with the full scale realization of the design. Through these steps, students gained a hands-on, immediate, and palpable understanding of the properties and behaviors of this glass.

At our installations, the primary materials we used were a combination of Leoflex and Dragontrail glass panels, manufactured and donated by Asahi Glass Company, which were sized from 12"x12" to 24"x24". A competitor of Gorilla Glass, both types of glass are commonly used as cover glass on cell phone displays. They are an alkali-aluminosilicate sheet glass, chemically strengthened and therefore much stronger and thinner than conventional soda lime-glass. These panels were fastened together by a series of slender, bendable aluminum straps which are bolted onto the panels. Unlike conventional glass, this glass is also ductile. Due to the ductility, strength and lightweight nature of the panels, a new set of design opportunities was presented to us. The results, including photos, of both installations, are included in the full paper.

The frameless tectonic of the glass modules establishes an uninterrupted dynamic visual field. No longer bound by the metal frames that tend to follow a regular grid, the module developed by the students created a layered "deep skin" rather than a singular membrane. The transparent and translucent surfaces used in these installations acted as a perceptual filter, creating complex spatial experiences.

The Responsive Structures methodology synthesizes structural, spatial and visual design processes, and through its hands-on approach at a range of scales, fosters adaptive and investigative attitudes toward design. It elicits an open-ended examination of the structural and geometrical capacity of a material. At our installations, we were able to investigate the relationship between surface and structure and discover new types of space. The frameless glass structures established a thickened space which rendered a nuanced play of transparency, translucency, shadow and light. By encouraging hands-on play to explore the potentials of our material, students learned how the structural dynamics of the material could drive the growth and organic development of the design.

## MODEL BEHAVIOR: THE EVOLVING USE OF PHYSICAL PROTOTYPES IN STRUCTURAL SHELL DESIGN, 1959-1974

Rob Whitehead, Iowa State University

Advancements in the use of physical models played a uniquely beneficial role in the design development of innovative structural shells designs during a critical fifteen-year period of design innovation in the mid-20th century. Previously, physical models had been used to estimate or confirm structural behavior of complicated monolithic structural shells, but during this time, Heinz Isler and Frei Otto proposed new types of design processes that used models more extensively. To evolve their designs, they evolved their tools—a relevant lesson for contemporary considerations of structural design. In exploring the link between what these historic innovators designed and how they designed, this paper will argue that the use of physical models surpassed the common roles of form finding and failure testing to become central tools for analyzing the performance and production of the structures.

## Standard Deviation: Session 2

### **A Mass of Things that would Approximate a Wall**

Andrew Holder

It is possible to imagine architecture as sufficiently dense accumulation of sculpture. That is, instead of a room, a hall, a plaza, or any other abstract unit of space that organizes solid material around itself as a fortifying container, the empty zone you currently occupy is the residue left over between a collection of designed solids, which, by virtue of the way they have accumulated, leave a gap between them that affords places and uses for people. This essay argues for the situation of the contemporary understanding of object-driven architecture in an historical trajectory originating in the Baroque and the Rococo – the first periods in history when masses of things would aspire approximate the familiar elements of architecture. Further, it offers suggestions for how to forestall a popular dismissal of the work before it reaches maturity.

### **Darlings**

Clark Thenhaus, California College of the Arts

There are certain things in architecture that are beloved. They endear themselves to us. We coddle them – they, in turn, comfort us. We, as a discipline, claim them as our own and guild them in our disciplinary halls. They are our Darlings and they exhibit stamina by virtue of their history, and yet are compelling with the promise of future offspring. Darlings are disciplinarily proper. They simultaneously secure the perimeter of disciplinary history while also marking its core. Domes, columns, and arches are a few of our Darlings. They, however, can be more broadly framed under the umbrella of typology and through this lens can they be said to exhibit deviations from established norms. As implicit in the call for this session, the instructional is sometimes requisite to deviation. An architectural parallel to the instructional can be found in typological genealogies, and from this our Darlings remain active fodder for calculated transgressions. Typology in general, and the Darlings in particular, offer the discipline both a rich history and an untiring contemporaneity. Where past ideas concerning typology – tracing de Quincy through Colquhoun – rely largely on reproducibility or systemization, typology today appears to operate less as a standard for replication, imitation, or process than as a surrogate medium for more compelling attitudes towards formal and cultural transgressions of known building elements or characteristics. Coupled with this is a diverse cohort of architects whose infidelity to any particular digital techniques allow for re-visiting deeply rooted typologies in architecture without revivalism, historicism, or demonstrations of abstract digital effects. Yet, this paper also implies an oblique approach to this call – one which obviates concern over terms like ‘error’ or ‘glitch’ as proper discoveries for deviation. Instead, typological transgressions oppose the accidental ‘whoops daisy’ and instead arise from disciplined intentionality with careful execution in order to substantiate the breach of typological contract. Here then, deviation is not so concerned with the effects of pattern mapping, haptic making, or digital glitches, but rather with the careful distancing and measurable repose from established norms, conventions, and knowledge sets. This paper considers what I am calling Darling Typologies and their capacity for producing new architectural knowledge, experimentation, and speculation through deviations from typological histories within current, as well as proceeding and likely future, generations. The final section of this paper also seeks to convene new conversations around typology and context. Perhaps through this coupling the gap between an autonomous project and a territorial practice can acquire new social salience without sacrificing disciplinary knowledge.

### **Deviating from Convention: Finding Opportunities in Errors**

James Kerestes, Ball State University

This paper focuses on how the discipline of architecture can develop new knowledge opportunities by critically examining current methods of design and making. The research concentrates on deviating from architectural conventions by means of ruination – the destruction of familiar formal typologies culminating in unexpected design outcomes – in order to discover novel design techniques hidden within conventional tools and practices. How does ruination effect architectural design processes, specifically digital modeling software and digital fabrication techniques? By investigating errors and glitches within these tools as opportunities for further exploration, new territories of scholarship in teaching and learning can be pursued.

### **No Rhyme or Reason: The Whimsicality of Folk Art Environments**

Molly Hunker, Syracuse University

Gregory Corso, Syracuse University

This paper discusses research conducted by the authors in 2015-2016 regarding the improper and unorthodox techniques at play in American folk art environments. These folk art projects rely not on drawings, schemes, or design planning, but rather are dependent on inspiration and compositional impulse, in short, whim. By virtue of their whimsicality, these projects dismiss ideals of the contemporary architecture project such as elegance (beauty), order, and geometric intricacy, in favor of charm, incongruity, and strange craftsmanship. In particular, a closer examination of the implications of whimsicality puts pressure on the established tenants of the design process. By naively letting impulse drive decisions, the traditional vocabulary of contemporary architecture is cleared, and new design opportunities emerge.



# International Design/Build: Community Service or Architectural Imperialism

## INVESTIGATING THE AFRICAN CITY: REM KOOLHAAS, JACQUES HERZOG, PIERRE DE MEURON, AND OTHERS

Elisa Dainese, University of Pennsylvania

The African continent and its manifestations appear in international exhibitions of art, receive broad coverage in prominent international magazines, and have become an established topic of scholarly research across fields of study. Especially in spatial disciplines, such as architecture and urban planning, the sub-Saharan metropolis has occupied a special position as laboratory of Western ideas about urban space. Recently, Remment Koolhaas, Pritzker Architecture Prize Laureate in 2000, has focused his interests on the city of Lagos, in Nigeria, as part of his Harvard Project on the City (HPC). Following his example, numerous other European and American architects have developed courses on the African metropolis, among them Jacques Herzog and Pierre de Meuron, Pritzker Architecture Prize Laureates in 2001, who have concentrated their attention on the Kenyan city of Nairobi.

In the last decades, the efforts of these leading theorists, practitioners, and educators towards the African metropolis have been applauded by many members of the architectural community, but at the same time incited fierce criticism. The debate focuses on foreign designers' ability to improve life and conditions in the African city: critics question the legitimacy and methodology of outside interventions in the continent. In several architectural publications, scholars have charged Koolhaas, Herzog, and De Meuron's visions to be partial and emphasizing congestion. Understanding African cities as laboratories of Western urban theories, they perpetuate a mode of "colonial paternalism." For some of those contributing to the debate, these architects' focus on the African city is inherently suspect and produces what some critics call a (post)colonial "impulse" typical of cultural imperialist perspectives.

In what follows, the article examines the methodological and pedagogical work on the African city of Koolhaas, Herzog, De Meuron, and their collaborators. The essay considers the well-established criticism of their investigations, and places it in dialogue with the emerging literature on postcolonial urban studies, which promote creative ways of thinking about the African city, its cultural diversity, and complexity.

## PRACTICING HUMILITY IN DESIGN: UNDERSTANDING CONTEXT AND COMMUNITY ENGAGEMENT IN INTERNATIONAL PROJECTS

Megan Elizabeth Reineccius, Opticos Design Inc.

The intention of a development organization is, as the word 'development' implies, the motivation for or creation of positive change to environment; however, historically development projects from the late 19th century imperialist creation of European style cities built by the British in East Africa to the mid-century use of Africa as a "laboratory and playground of modernist architects and town planners" to today's with the countless failed and abandoned housing projects of the Haitian post-earthquake construction, 'development project are often, inefficient, and detrimental to the cultural and ecological environment. Two of the recently released UN Sustainable Development Goals emphasize the need for building sustainable and inclusive infrastructure, cities, and communities. Goal 11.c tasks nations to, "support least developed countries including through financial and technical assistance, in building sustainable and resilient buildings utilizing local material." While there is urgency to this call, leaders of design and construction need to exercise humility and reflection on how international design is approached to avoid further detrimental construction. Moving into the first case study, we begin to see how learning from, rather than about

the people who live within these building can inform and transform how architects and planners move forward with sustainable, appropriate, and dignified development.

## UNINTENDED CONSEQUENCES

Michael Zaretsky, University of Cincinnati

In Bruce Nussbaum's 2011 article entitled "Is Humanitarian Design the New Imperialism?" he expresses frustration with the assumption made by westerners that they can show up in some radically different culture and help them solve their design problems. He aptly asks "...[M]ight Indian, Brazilian and African designers have important design lessons to teach Western designers?" His points are valid, but these concerns are not new.

In 1998, Monsignor Ivan Illich addressed this new imperialism in his seminal talk "To Hell With Good Intentions" which was presented to the Conference on InterAmerican Student Projects in Cuernavaca, Mexico. Speaking to a group that was planning on volunteering in Mexico, he stated:

"By definition, you cannot help being ultimately vacationing salesmen for the middleclass 'American Way of Life,' since that is really the only life you know. A group like this could not have developed unless a mood in the United States had supported the belief that any true American must share God's blessings with his poorer fellow men. The idea that every American has something to give, and at all times may, can and should give it, explains why it occurred to students that they could help Mexican peasants "develop" by spending a few months in their villages."

A group of American college students made a film in 2011 entitled "What Are We Doing Here" in which they spent several months traveling through Africa visiting the Millennium Development Cities and sharing their revelations. They had read about the great plans behind the Millennium Development Goals, but the realities were very different. They came face to face with some of the blatant lies and manipulation that are behind the creation of the image of Africa that is common in the United States.

All of these examples and many more are essential resources for anyone traveling to an impoverished community to do Architecture or any sort of "outreach." Any student or faculty member who is involved in this type of experience needs to be exposed to and engaged with essential resources on global aid, partnerships and outreach. Those involved in international design projects must recognize the dangers of the New Imperialism.

This paper highlights lessons learned while taking students to East Africa and while leading an international design/build project in Tanzania.

## SUCCESS FROM THE BOTTOM UP - LESSONS LEARNING IN HAITI'S ARCHAIE REGION

Steven Fett, University of Miami

Jaime Correa, University of Miami

Professional engagements in foreign territories can be complicated. In unknown terrains, preconceived notions of goodness and beauty, predetermined outcomes, and a pervasive sense of otherness infiltrate almost every professional action. Our work in the Archaie region of Haiti was not exempt from any of these complications. This paper summarizes the results of our mission to draw a regional "roadmap for change" after the devastating earthquake of 2010, and highlights lessons learned to advance the work of professionals involved in the physical design of cities and architecture as well as new methodologies for scholarship and research in foreign territories.

# Making It: Labor, Participatory Architecture, and the Politics of the Algorithm: Session 1

## **ASSEMBLIES OF LABOR**

Wei-Han Vivian Lee, University of Toronto  
James D Macgillivray, University of Toronto

The binary opposition of laborer and user of architecture in the 20th century privileges the end user of a building as the recipient of the architect's design work. As Edward Ford and Peggy Deamer have noted, early 20th century programs such as social housing, institutional building and industrial collectives all posited the user's well being as the true hallmark of altruism in design. This was a distinct break from 19th century architectural theorists like John Ruskin and the Arts and Crafts movement who were far more concerned with the craftsman and trades that labored to build. Not surprisingly, with the onset of computational design and digital fabrication, concerns for the laborers' well-being have been subsumed by a race towards digital-formal eye candy built by robots.

This paper first outlines installation scale projects where latent in the design is an attempt to bring back the voice of the craftsman while providing authorship to the student labor force. In large, building scale applications of computational design however, contemporary practices have evolved to create a new expertise crafts-force that combines an emphatic and integrated voice of designers, engineers, fabricators, and builders. The second half of the article describes these collaborations, and demonstrates the advancement of workflow between computational design, fabrication, and building delivery through detailed case studies. Much of the research is gathered through in-depth interviews with project managers, consultants, and engineers to describe the current landscape of architectural practice and the resurgence of an expertise craft in the labor of building.

## **CAMPO VACCINO A DRAWING EXERCISE NOT FOUND IN THE CHING BOOK**

James Michael Tate, University of Michigan

During a three month period in the winter of 2015 a really big drawing was conceived, installed, exhibited, and destroyed. 96 x 236 inches in size, the drawing took 200 hours to make with a material cost of \$14.52. The author of the drawing worked at a rate of \$0/hour and the ultimate destruction of the drawing after existing for a little more than a month rendered the unique artifact worthless as a consumable or collectible object. Additionally, because the drawing was conceived to be integral to other pieces in the exhibition, the value of the drawing in many ways depended on its relationship to the other parts of the project and to the room itself. When we think of architecture as a service we are ultimately selling our drawings and models, but when we make things to catalyze discourse, our investment in them and their value is something the field continues to struggle with and position their contribution in the production of knowledge.

## **CONCRETE LABOR**

Tsz Yan Ng, University of Michigan

This paper examines concrete construction, using the Lafayette 148 New York Shantou Building in China as a foil to discuss construction logic driven by labor. The paper seeks to identify different considerations of labor historically in concrete architecture and contemporaneously in practice. As such, the processes of building, in context to global architectural practice, is examined to ask where can design influence labor? What kind of labor is it? And who's labor are we referring to?

## **GENERAL CONTRACTORS AND ARCHITECTS' DISTANCE FROM LABOR**

George B. Johnston, Georgia Institute of Technology

This paper focuses on a formative episode in the history of the U.S. architecture profession at the turn of the 20th century when the shifting relationship between architects and tradespeople became increasingly palpable. Terms of a uniform contract governing relations among owners, builders, and architects became flashpoints for controversy as contractors directly challenged the presumptive authority of the architect as impartial and final arbiter of all contractual disputes. Architects' own internal debates and sounds of alarm about the rising influence of general contractors mark a moment in time when architects fretted about the changing shape of their profession even while acquiescing to a new order of project responsibility and control.

# Probing Technique: Building Research in Architecture's Modernity: Session 1

## COMMUNICATING WITH MACHINES: BEZIER CURVE AS 'INFORMATIONAL ONTOLOGY'

AnnMarie Brennan, University of Melbourne

One of the biggest problems in the postwar period for the design offices of car and airplane manufacturers featured the problem of accurately reproducing complex curved surfaces in scaled models, and the precise transfer of these curves and surfaces from a blueprint or model to digital form (referred to as the blueprint-to-computer challenge). Many of the digital tools involving curves and splines embedded within contemporary software used in every architectural firm are the result of this challenge. The industries involved in the blueprint-to-computer challenge included companies such as the aircraft manufacturers North American Aviation and Boeing, engineers at MIT, and car manufacturers General Motors, Citroën, and Renault.

It is with the historical study of Paul de Casteljou at Citroën and Pierre Bezier at Renault that we find the precursors of embedded intelligence of smooth surfaces in computer-aided design; originating within a technical chain of operations to create a model, and then a series machine tools, to mold or stamp flat-blanks of metal into complex curved forms. When we think of smooth surfaces in architecture, we rarely imagine that their technological origins lay within the ability to cut and machine 3D dimensional forms using numerical control, however this is its genealogy. De Casteljou and Bezier improved upon existing intermediary language in order to translate complex surfaces. These mathematical algorithms helped to communicate one form of 2D representation into 3D form using a technological ensemble of machines. The blueprint-to-computer challenge was not merely a process of forming metal, more importantly it was a significant moment in establishing a new mode of information which involved establishing a means of communication between humans and machines. This was a problem taken up by U.S. mathematicians Norbert Wiener, Claude Shannon, and John von Neuman, and as this paper will investigate, the work of French philosopher Gilbert Simondon.

At the same time that de Casteljou and Bezier were working on streamlining the manufacturing of smooth car body components, Simondon was creating a novel approach to rethinking the relationship between humans and machines by introducing a new mode of information based upon a unique interpretation of cybernetics (or the communication between humans and machines). Unlike the theories of von Neuman and Shannon, Simondon believed information was not defined by its source and receiver, but from the relationship between the two, what he termed as information's interoperability, i.e. information's changed mode of processing information. This paper examines the history of the Bezier curve in light of Simondon's work, who best described the significance of this moment in terms of defining a new mode of being in relation to machines, explained in his 1958 main thesis *L'individuation à la lumière des notions de forme et d'information*. The paper argues that the technical operation of the blueprint-to-computer challenge and its resolution – the Bezier curve – serves as a paradigm of Simondon's Informational Ontology; as creating an intermediary, or mediation between matter and form.

## PERFORMANCE

Elijah Huge, Wesleyan University

Performance:

Entry from "Saving the City: an Encyclopedia of Calamity-mollifying Devices"

Aside from keeping the rain out and producing some usable space, architecture is nothing but a special effects machine.

- Elizabeth Diller, *The Blur Building and Other Tech-empowered Architecture*, 2007

Industrialization brought new threats to the city (electricity, speed, explosives) while also dramatically increasing the scale of historical perils (flood, fire, theft). In turn, these threats gave rise to a field of new products, accessory to conventional building. Negotiating the thresholds between the developing infrastructures of the city and its private spaces (as insured and legally defined), these emergency devices can be understood collectively as a crumple zone intended not to prevent urban disaster but to absorb, limit, and contain its effects. In their early forms, the automatic sprinkler, exterior fire escape, panic bar, emergency light, and theft alarm were, like Franklin's original lightning rod, ready for production and deployment on a large scale, without definitive spatial identity, and suitable for use in new or existing construction. Culminating in their current ubiquity, the integration of these devices into the spatial and psychological landscape of the city is the story of the Encyclopedia.

From Automatic Sprinklers to Blur

The history of building research is, perhaps self-evidently, intertwined with the history of building failure - with architectural underperformance. While architecture's own origin myths may cast fire in the benevolent role of hearth, giving "rise to the coming together of men, to the deliberative assembly, and to social intercourse," it was the combustibility of material architecturally arranged that kindled the flames of systematic building research during the latter half of the 19th century in the United States. Architectural emergency devices are typically slow to find acceptance for design applications. Instead, camouflage and concealment are usually the favored strategies, ornament and *trompe l'oeil* the favored techniques. Since their introduction into architecture in the late 1800s, automatic sprinklers have by turns been decorated, customized as design objects, and made "invisible," buried in drop ceilings behind white circular caps that both hide and hint at their persistent presence. The historical migration of these inventions - from experimental "plug-ins" to integral and legally mandated components - has allowed them to acquire surrogate spatial identities, redrawing architecture's limits around their inclusion. It is not that architecture has become unimaginable without them; rather, their omission has become an impossibility for architecture. In their ongoing technical refinement, they have also created the potential for an alternative architectural materiality.

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# Probing Technique: Building Research in Architecture's Modernity: Session 1 (continued)

## TRANSFERS OF MODERNISM: CONSTRUCTING SOVIET POSTWAR URBANITY

Masha Panteleyeva, Princeton University

The paper investigates the transference of architectural knowledge between France, East Germany and the Soviet Union in the state of the postwar housing crisis in close link with its unstable and unique political and social framework. In that context most of the buildings associated with the new architectural typologies developed during the reconstruction period were subsidized by the state and characterized by the close involvement of political figures, where disparities in social ideology caused a rapidly increasing split within the previously uniform European tradition of prefabricated technologies. In the 1940s, East Germany quickly shifted towards the style of Soviet Socialist Realism and a more conservative urban planning, criticizing modernism as a “pro-American”, bourgeois building tradition. However, already in 1953, when after Stalin's death Khrushchev proclaimed a turn to total industrialization of the Soviet Bloc, East German architects were “forced” to once again realign with the modernist technological advancements in prefabricated building. The Soviet Union was lagging behind the technological development of western European countries, and in the late 1950s adopted the French methods originally designed by the engineer Raymond Camus in 1948, eventually exporting the adopted model, transformed by multiple technological, political and cultural aspects, to the developing industrial towns of East Germany.

As a case study, the paper investigates more closely the activity of the Soviet institution—the Academy of Construction and Architecture of the USSR (ACIA)—established by Khrushchev in 1955 after the abolition of the Academy of Architecture. The newly restructured organization was responsible for the development of new building standards to replace the outdated Stalinist regulations. As the outcome, they produced a document titled “The Norms and Regulations of Planning and Construction” that was drafted not only on the basis of Soviet building experience but also included wide references to foreign expertise in urban planning.

As a particular technology, the paper focuses on the development of the large-panel prefabricated building systems assembled on site—both as an architectural method and a political strategy—that was originally developed in France with the initiative of the Ministry of Reconstruction and Urbanism in the late 1940s and soon experienced a rapid adaptation across Europe. The paper analyzes the process of how its aesthetic and technological advancements underwent “back-and-forth” cultural alterations between the countries, and how its politicized nature eventually determined the failure of the system in the West while becoming a long-lasting success in Eastern Europe.

# The Architecture of History: Session 1

## **A GENEALOGY OF DRAWINGS: THE EVOLUTION OF FINE-ARTS ARCHITECTURAL EDUCATION**

Yanze Wang, Columbia University

Architectural drawing system is a bridge between design and construction. Stemming from the Ecole des Beaux-Arts, paper drawings have been characterized by fine arts in teaching and learning process for centuries. However, this traditional representation of architecture is being challenged in the present time. Here comes up with the question: is it necessary to maintain this traditional approach? Meantime, it reflects an essential issue about the role of history in architecture.

To revoke the prosperity of traditional drawings, a brief introduction to the evolution history of drawings involving the definition of architects, the renovation of drawing skills and the profound social background is given. It concludes with two characters of drawings: ideal art and objective depiction, which result in the endurance of the old drawing system. Then illustrating with some drawing samples, the research demonstrates the extension of the fine-arts education in China from the 1920s to 1980s. The attitude towards tradition fluctuated strongly during the given period. Especially in the 1980s, under the impact of new pedagogy, the role of drawing in architectural education changed a lot. Based on the continuity of the fine-arts education system, the discussion on 'Spatial Drawing' in contemporary context is proposed. Overall, the research aims to clarify changes of historical consciousness in the field of architectural education by concentrating on the evolution of traditional drawings.

## **INVENTING HISTORY**

Liane A. Hancock, Louisiana Tech University

This is a story about the invention of history to substantiate the future. At its center is the exploitation of a graphic device to validate the adoption of an entirely new building material, not once but twice, and a trope which influenced the birth of the modernist city. This deceit was entirely in the service of the advancement of architecture, to the profit of a few very motivated men. Today, this graphic device continues to promulgate a narrative that filters the truth.

## **LE CORBUSIER'S MUSEUM OF UNLIMITED EXTENSION: SPIRALS AND OCCLUSION MAPS**

Mike Christenson, North Dakota State University

In this paper, I examine the possibility of algorithmically modeling the formal structure as well as the "structure of visibility" of a group of projects designed by Le Corbusier throughout the twentieth century. The paper is an attempt to show how an understanding of contemporary digital technologies and procedures can inform historical understanding of architectural works.

## **PROVOKING THE 'THINGNESS' OF HISTORY: THE ANTI-TELEOLOGICAL HERMENEUTICS OF STEEN EILER RASMUSSEN**

Anthony Raynsford, San Jose State University

Steen Eiler Rasmussen's now classic treatise of 1959, *Experiencing Architecture*, repeatedly turns to the question of historical imagination as a phenomenological tool for engaging with the architectural present. Far from minimizing or reducing the fullness of history, I would argue, Rasmussen intended to invoke its multiplicity, its variability and its unexpected shifts or reversals. This essay then specifically traces the way in which Rasmussen transformed art historical methods of narrating successive stylistic changes into a more open-ended pedagogy for using the architectural past within the present. It was only in transforming architectural history from a unified line of development into a simultaneous field of opposing choices that the modern architect could consciously choose the appropriate tools for the present, without falling victim to the illusion that the dominant practices were inevitably the correct ones. History, liberated from linear narrative, permitted free aesthetic choice in the present. At the same time, however, the rigor of experiential hermeneutics was meant to ensure that the free choices would not become arbitrary but would bear some concrete relationship to the total pattern of the present, to its various spaces, things and activities.

SATURDAY

# Beginnings in the Context of New Knowledge

## FIRST IMPRESSIONS: MOHOLY-NAGY AND THE PROTOTYPE IN THE CURRICULUM

Jodi La Coe, Virginia Tech

The word, prototype, derives from the Greek, *πρωτότυπον* (*prototypon*), meaning “primitive form,” combining the roots, *πρώτος* (*protos*), which means “first,” and *τύπος* (*typos*), “impression.” Moholy-Nagy’s belief in the importance of first impressions is revealed in his development of the Bauhaus’ Basic Course into the School of Design’s Foundation Course as a model for integrative thinking permeating the entire curriculum and, thereby, creating a lasting impression on both the student and society.

## STIRRING THE POT: THEORY AND BEGINNING DESIGN

Robert M. Arens, California Polytechnic State University

In light of pressing environmental and technological issues, architecture as a discipline faces a massive re-evaluation of how buildings are conceived, designed and constructed. These issues and their implications are generally understood by architects, but for the sake of discussion consider that buildings and their proliferation in the landscape have contributed to a permanent degradation of the environment, and that digitization, computation and mass customization are testing the limits of former modes of thinking and making. All this to say that technology and the environment now captivate the architectural imagination.

This raises the question: how can these potentially oppositional issues be introduced, understood and balanced in the minds of beginning design students? Although the role of theory is generally diminished in architectural education, if carefully chosen it may provide a platform with which to synthesize technology and the environment. More importantly, theory can help ground social concerns and humanist values in design thinking, two considerations that can become lost as designers grapple with the juggernauts of technology and the environment.

This paper argues that theory can play a vital role in design thinking if 1) it is approached as “tool” aligned with other design instruments, 2) if it is situated within specific circumstances and it avoids globalizing or authorizing tendencies, and 3) it is expected to function in the material world in an instrumental and operative manner. As a productive tool, theory deserves a place in all design studios, but especially beginning design. Now more than ever the world of ideas can inspire young students to look both within and beyond the specific circumstances of their projects and help them navigate and perhaps reconcile the ascendant issues of environmental responsiveness and technological contemporaneity.

As an example I’ll discuss how two strains of theory, Michael Heizer’s approach to situating his work in the American West and Gottfried Semper’s Four Elements of Architecture, were used to frame student work at two very different scales, that of the environment and that of the object. Chosen due to their alignment with issues central to the second-year fall quarter curriculum at Cal Poly (site and tectonics), these positions were introduced not as universally-applied truths but rather as contingent design tools that students would select for themselves on future projects. Carefully orchestrated in three phases, the three-week project not only introduced students to theory but also demonstrated how it can help interweave complex factors. This project served as the student’s first step in understanding theory’s role in defining the relationship between the built environment and the changing nature of the world at large.

## UNPRINCIPLED: TOWARD NEW VALUES FOR FOUNDATIONS EDUCATION IN ARCHITECTURE

Patrick Rhodes, American University of Sharjah

The architecture profession has faced radical changes over the last decade—the impact of the global recession on the building industry, the expanding importance of emerging markets in developing countries, the increasing demand and desire for alternative forms of practice, and the generational shift in the nature of the workforce, to name a few—and will most likely continue to transform dramatically in the years to come. Considering that beginnings often shape the ends, is beginning design education, or foundations, situated appropriately to respond to, much less anticipate, these changes? Despite the few recent reports of moves toward radical, experimental pedagogies and the widely held beliefs that technology and “proto-practice” are the answer,<sup>2</sup> there is little evidence that foundations education as practiced is anything but traditional, depending on design principles and technique to prepare students for the profession. Given the unlikelihood that architecture education will be comprehensively reformed and that first-year programs are typically last in line for resources, innovative methodologies in foundations must be profound and effective, but simple. While balance, proportion, rhythm, repetition, among many other fundamental guiding design principles will remain primary in a foundations education, learning outcomes must adapt to meet and even expect shifting demands in the field, focusing less on the principles of design and more on the capacities graduates need to adjust to an ever-evolving professional landscape and maintain the vitality of architecture education, if not the profession itself. To focus on the student as product rather than what they produce. To instill valuable aptitudes rather than a set of technical, vocational skills. To educate and transform rather than train.

# Open: Hoarding, Updating, Drafting: The Production of Knowledge in Architectural History

## **HOARDING KNOWLEDGE: FR YERBURY AND HOWARD ROBERTSON'S RECORDS OF THE MODERN MOVEMENT**

Jasmine Benyamin, University of Wisconsin-Milwaukee

In this paper, I introduce F.R. Yerbury and Howard Robertson's illustrated writings on the modern movement. While their oeuvre is not contemporary, I propose that their forays into media and journalism - and the perils therein - serve as a precursor to current anxieties about architectural knowledge in relation to agency and national identity. While new technologies of reproductibility and dissemination promise to subvert borders, architects and their historians persist in claiming discreet territories of authorship.

## **DRAFTING KNOWLEDGE: THE VICTORIAN ARCHITECT AS MASTERFUL DICTATOR**

Katherine Wheeler, University of Miami

During the Royal Institute of British Architects General Conference of Architects in 1887, several of the papers questioned drawing's role as a mediator and representative of the architect's knowledge and position in the building process. Richard Phené Spiers, Master of Architecture at the Royal Academy of Art, boldly declared: "Ceci tuera cela, le dessin tuera l'architecture." "This will kill that; the drawing will kill architecture. ... In these days of expert draughtsmanship this [the drawing]...is what we have to fear most." In criticizing the exquisite rendering style of architects who emulated the Ecole des Beaux Arts, he claimed that they had become blind to the realities of materials and construction in the quest for a beautiful drawing. That same year, Spiers had also published a book that explained in detail how the drawing could represent the architect's knowledge of the building arts. The architect John Dando Sedding saw things differently, however, and sought for further remove from the drawing in practice. He maintained that it was a fallacy to think that "adequate working designs can be expressed on paper." He believed that the increased use of working drawings made architecture a profession of "design" not craft. Working drawings for Sedding had allowed the architect in his "supreme folly and suicidal presumption" to become a "masterful dictator" who enslaved the craftsmen by contractually limiting all work done to the "necessary full-size and detail drawings."

Pressures from outside the profession in the nineteenth century had forced architects to adopt the working drawing (and specification) as means of communicating information that previously had been the realm of oral communication between the builder, or left entirely to the skilled craftsman. The rise of the general contractor and the bidding of projects damaged the working relationship of the architect and builder. The working drawing became the way that the Victorian architect could maintain his status in the building hierarchy, present himself as a professional, and display his knowledge of construction as well as design.

## **MODERNISM OR MANNERISM: VILLA STEIN-DE MONZIE AND THE UPDATING KNOWLEDGE OF MODERN ARCHITECTURE**

Zhengyang Hua, Iowa State University

In Le Corbusier's didactic *Œuvre Complète 1910-1929*, Villa Stein-de Monzie at Garches, France is an intriguing piece of work. It, according to the architect himself, typified a very difficult composition. Yet, without further explanation given for that, the emphasis was placed on the structural performance, functional arrangement, mathematical precision, and implementation of the five points. These all contributed to a new architecture diametrically opposed to the academicism that he condemned for stylistic pastiche and negligence in realities. A few progressive historians in the late 1920s such as Sigfried Giedion immediately noticed this house, accepting its formal manifestations as crystallization of Modern Architecture — reference to historical styles was eliminated and a new aesthetic was taking shape. Nonetheless, in 1947, Colin Rowe not only revealed certain unexpected similarities between Villa Stein-de Monzie and Palladio's Villa Foscari, but also identified their crucial differences. Those parallels suggested that instead of eclectic stylization there were other meaningful approaches to precedents. Those distinctions implied that modernist space still awaited extended interpretations. Moreover, the complexities of Villa Stein-de Monzie exposed in Rowe's analysis bear close resemblance to the mannerist expression that three years later he would investigate and astonishingly connect with Modern Architecture. The paper attempts to conduct a brief but fundamental review of the respective comments on Villa Stein-de Monzie by Sigfried Giedion and Colin Rowe. It is argued that, from Giedion to Rowe, besides deepened insights into the building itself, broadened is the understanding of Modern Architecture, particularly with respect to the idea of architectural space and the notion of architectural history. Both Giedion and Rowe shaped new knowledge for the discipline of architecture.



# Water, Water Everywhere...: Session 1

## **LINES OF RESILIENCE AND INTERDEPENDENCE IN KAMPUNG MELAYU, JAKARTA**

Adrienne Wilson Joergensen, ETH Zürich  
Alexander Lehnerer, ETH Zürich

A growing megacity of 10 million, which stands at the core of an urban region of 28 million, and the capital of the world's largest archipelago nation, Jakarta, Indonesia, also marks the confluence point of thirteen rivers that flow from Java's volcanoes into the Java Sea. ("Jakarta Population 2013.") As its government, residents, and rivers vie for ownership of the ground—which here is equal to establishing an individual's 'right to live in the city'—new migrants seeking to get a foothold in Jakarta must cope with varying legalities of tenure status. (Leaf 1992) Living in the city's margins, they face extreme conditions such as flooding and rising sea levels, often with little or no municipal services or infrastructure.

While Jakarta's complex urban issues have been studied at a larger urban scale, this studio of Indonesian and Singaporean architectural students aimed to document the impacts of these competing forces by studying a very small area. Our hypothesis was that by looking at a precise point where the lines demarcating property ownership, administration and flooding met, we could understand the larger complexities of this sprawling megacity. Rather than presenting design proposals, we wanted to document and learn from the techniques that residents of Kampung Melayu, an urban village along Jakarta's Ciliwung River, use to resist pressures from the city and the river. Unlike in our Western system of property ownership, the rights and administration over the ground are constantly in question here. Using precise architectural drawing methods and personal interviews, we traced lines on the ground—from individual plot boundaries, to flood levels, to common space—to document how the intersection between water, ground and property changes. As we studied the residents' calculated acts of risk and resilience with the river, our research revealed typologies of interdependence between them.

## **MAKING SPACE FOR WATER: BUILDING RESILIENCE AMIDST NORFOLK'S RISING TIDE**

Phoebe Crisman, University of Virginia

New public policies and design strategies are essential as climate change and sea level rise threaten coastal communities. Eleven of the world's fifteen largest cities are located along the coast or on estuaries, while over 50% of the population of the United States lives near the coast. How can architects respond to the challenge of water-related risk? This paper examines an ongoing University of Virginia design research study in Norfolk, Virginia—one of the most threatened coastal cities in the US. Nearly 25% of city land lies in the 100-year floodplain, including downtown Norfolk and its waterfront. Tidal tributaries and wetlands have been filled or piped, the shoreline has been hardened with concrete bulkheads, and extensive dredging has transformed river flow. Typical high tides overflow stormwater infrastructure and the situation is urgent. The trans-disciplinary research team is collaborating with the City of Norfolk and an environmental NGO, the Elizabeth River Project, to develop adaptive design proposals for the flood-threatened Harbor Park district. Once a thriving working waterfront, this vacant, 36-acre coastal brownfield is cut off from downtown Norfolk by a tangle of elevated highways. Going beyond a mitigation mindset, this crumbling post-industrial edge has been reconceived as a half-mile long living shoreline demonstrating resilient urban and architectural strategies while remediating contaminated land. Natural and synthetic strategies are combined in creative ways, such as a wetland inundation park, a series of floating islands, a linear riparian park fronting blocks of flood wall and levee protected buildings, and other restored ecologies. The protective measures are designed as restorative and recreational public places that connect Norfolk residents with their river. As a means of drawing more people to the waterfront and demonstrating ways of building in this wet landscape, an associated undergraduate architecture studio designed a restored waterfront park and small environmental center that promotes health and wellness, creates strong connections between outside and inside, employs sustainable materials and innovative details, and educates about sustainability through design. This faculty research project, along with student proposals from an associated UVA undergraduate studio, are informing the City of Norfolk's ambitious efforts to plan for coastal resilience. Working within watery landscapes and environmental restoration processes, architects can reveal that which is usually hidden—hydrological flows, tidal estuary ecology, invisible toxins, and the geology and settlement history of the Elizabeth River shoreline. These designs seek to elucidate relationships between ecology and constructed systems from the infrastructural to the architectural scale. While focused on the Harbor Park district of Norfolk, this research proposes translatable strategies for coastal resilience in vulnerable urban settlements threatened by sea level rise, environmental degradation, and the loss of cultural heritage. The intense global interest in the urban implications of climate change and sea level rise, as well as the poetic possibilities at the threshold of land and water, underscore the timely significance of architects making space for water.

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# Water, Water Everywhere...: Session 1 (continued)

## **RISING TIDES | CHANGING LIVES**

Nikole Bouchard, University of Wisconsin-Milwaukee

The riverine country of Bangladesh is one of the world's most vulnerable countries to climate change due to its geographic location. Nestled between the Himalayan Mountains and The Bay of Bengal, Bangladesh's fragile ecosystem is dotted with hills, lakes, rivers and mangrove forests. Each year the Bangladeshi People are in constant battle with natural calamities like cyclones and floods. These annual disasters bring death and destruction to the country, leaving millions of people without homes, food, water and electricity. Rising Tides | Changing Lives is an ongoing research project that investigates the current conditions (cultural, climatic and landscape) of Bangladesh in an effort to understand how we may begin to develop architectural interventions for such inevitable climate crisis conditions.

## **TRANSITIONAL STATES: HYDRAULIC HISTORY AND ARCHITECTURAL ACTIVISM**

Catherine Bonier, Louisiana State University

Disaster, suspense, and material loss are often the first results of taking a decided step, either by nations or by individuals.

The question is posed, "there is too much water and also too little, what can we do?" This is the contemporary conundrum. Water is rising, and weather events challenge every boundary between land and sea. Simultaneously seasonal drought parches Silicon Valley, unobtrusively mocking technological fixes. Clean water remains a luxury in many of the world's most populous cities, and ancient water-related diseases such as cholera and yellow fever still stalk the globe. Urban rivers offer the potential of remediation and recreation, but also threaten floods and illness. We define water as a resource and a crisis, and hope that we can preserve it and be defended against it. But what can architecture do?

In the face of pressing problems, we naturally turn to the most advanced technology and theory, but what about advanced infrastructural history? Does the past have anything to teach us, particularly about the role of design in crafting water management solutions which thoughtfully incorporate both public health and urban life? Can an active understanding of hydraulic history arm architecture students for careers which will evolve in dialog with pressing issues around urban water, public health, and civic space? Perhaps through the investigation and evaluation of historical design responses to past water crises, students and practitioners can gain the inspiration for designs which are both poetic and political.

A brief assessment of two counter-posed periods in hydraulic history brings into question our contemporary theories of urban water and public health. The first period of large scale hydraulic modernization took place in most American and European cities by the latter half of the nineteenth century, when comprehensive plans were put in effect to remediate water-borne disease through the construction of waterworks, sewers, and parks. Sanitation was the watchword, and civilian and professional corps were organized to restructure and to monitor urban infrastructure and public health. This time period can be posed against our contemporary moment of flexible and green infrastructures, attempts to remediate the nineteenth-century's heavy-handed solutions to urban water management. By paying careful attention to the opportunities and failures of these two moments of hydraulic threat and hopeful remediation, I hope that designers, educators, and students may enter our new era of watery challenges with sufficient insight and boldness to imagine ways of working with water that surpass sustainability. As water has destabilized urban life in the past, each moment of chaos has allowed a transition in thought and the invention of new approaches to infrastructure, public space, and civic life.

# Giving up Control: Finding New Agency in the Era of Interdisciplinary Practice

## EDUCATING FOR AN EMBODIED CULTURE OF BUILDING

Chad Kraus, University of Kansas  
Nils Gore, University of Kansas

This paper argues that a different kind of architectural education produces a different kind of architect, through both the factual knowledge gained in the classroom, but, more importantly, through the less-explicit socialization processes that are embedded in that experience. Designbuild education, a particular variant of experiential learning in the architectural academy, holds tremendous potential for shaping the architect's habitus – thereby expanding her agency. The rise of designbuild education comes as a much-needed antidote to a weakened profession that has been steadily retracting from the whole culture of building. The consequence of an expanded designbuild habitus is that it empowers future architects with a deeper toolbox from which to draw upon in making design decisions. Experiential learning of all sorts helps to exercise future architects' multiple intelligences, and designbuild education, as an especially potent experiential learning approach, helps exercise the intelligences having to do with collaboration, logistics, materials/tectonics, construction means and methods, financial planning, value-based decision making, and execution. Only time will tell what continued effect these pedagogies will have on the profession, however, at the end of the day, a healthy, valued, and indispensable architecture profession will surely benefit from a balanced, engaged, and more robust kind of architectural education. Architecture, in its expanded habitus, will more fully connote a fertile activity with equal parts design, art, science, craft, and technology - a socio-cultural enterprise linked to thinking holistically and contextually. Architects will develop an expanded view of agency in realms conventionally not thought of as 'architectural.'

## HOW TO USE THIS BOOK: GUIDANCE IN A PERMISSIVE SOCIETY.

Janette Kim, Syracuse University

Guidebooks are everywhere. From the *Harvard Design School Guide to Shopping* to *Made in Tokyo*, guidebooks are multiplying so quickly that they seem to have overthrown the manifesto as a principal text for architectural agency. Far removed from the commanding stance of Futurist authors, guidebooks employ a gentler art of persuasion. Guidebooks outline 'best practices,' open access to hidden corners of the city, and share skills with receptive readers. As vehicles for influence, they empower readers to participate in the realization of their authors' architectural ideas. And yet, while guidebooks empower readers to take action, their impulse to instruct also strips away the ability to interrogate the book's underlying arguments. Does this turn towards participation risk disarming the power of both author and reader? Does it incapacitate revolutionary thinking?

This paper examines the guidebook genre, both within and outside of architecture, to ask where agency resides within contemporary aspirations for permissiveness and participation. The paper reviews two primary examples: *Valve Handbook for New Employees: A fearless adventure in knowing what to do when no one's there telling you what to do*, and this author's own forthcoming publication, *The Underdome Guide to Energy Reform*. The former is a worker manual for a Seattle software company that encourages employees to choose their teams organically, decide for themselves which product to support, and what experiments to run. The book cleverly institutionalizes the self-organizing principles of Valve's founders. But a person can get fired from Valve. Beneath a 'can do' spirit, the text shies away from acknowledging responsibility for this most critical contradiction. The guidebook has replaced the manifesto, stripping away any revolutionary spirit with reassurances amidst a world lacking in moral certitude.

*The Underdome Guide* models a different kind of guidebook. It operates as a cross between a voter guide and an architectural handbook to map contending political positions behind energy reform and demonstrate architectural strategies complicit in these agendas. In this way, the book prompts architects to consider the collective implications of their work, and find alliances or new positions. Like the *Valve Handbook*, this book resists any fixed ideology of the manifesto, and uses the guidebook genre to sound a call to action for its readers. In contrast, however, it frames debates for its readers in a way that can spark reflection on the criteria behind the actions it sparks.

As a site for action, the guidebook wavers between standardization and the proliferation of new ideas. It veers between the amelioration of anxiety and its closer examination. One of the pitfalls of the guidebook is that it presumes to speak for you. And yet, the guidebook is critical for us today because it dares to go beyond the naiveté of the manifesto. It can venture arguments aware of their own contradictions. It can frame a range of possibilities, and frame uncertainties in a manner poised between reflection and action.

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# Giving up Control: Finding New Agency in the Era of Interdisciplinary Practice: (continued)

## **OUR MODEL OF MODELS: AS IF WE EVER HAD CONTROL**

Kiel Moe, Harvard University

The twin fantasies of agency and control that guide much contemporary architectural discourse is indicative of the failures of our model of models in architecture. This contribution will present the absolutely persistent but absolutely anachronistic hylomorphic model of architectural pedagogy and practice and contrast it with a more immanent model of causality. These deeply contrasting ontological models in turn allow us to peer into equally divergent models of agency. To adequately address the topic of this session, we must confront the epistemological challenges and path dependency of our traditional hylomorphic model of models, and our traditional model of agency in particular. Other models of agency exist and are better suited to the design opportunities and obligations of the century. To exemplify the challenges and path dependency of the traditional model, I use the pervasive and perverse history of “Environmental Control Systems” courses in architectural curricula as one means to illustrate architecture’s hylomorphic, and hilariously hubristic, preoccupation with control. If only anyone were laughing...

## **WHERE KNOWLEDGE RESIDES: EXPLORING ARCHITECTURE OF LEARNING AND KNOWING FROM THE COMMUNITY OF PRACTICE PERSPECTIVE**

Amin Mojtahedi, University of Wisconsin-Milwaukee

In his 1994 essay, *Truth without Correspondence to Reality*, Richard Rorty writes that “one should stop worrying about whether what one believes is well-grounded and start worrying about whether one has been imaginative enough to think up interesting alternatives to one’s present beliefs” (p. 34). Advocating for theoretical inter-disciplinarity as a catalyst toward new design agency, this paper explores a theoretical model from which contemporary practice can draw principles and apply to the design of certain places. The model contributes to the topic by offering interpretations and insights about the programmatic, physical, and spatial aspects of sites of production in the knowledge economy including work and educational spaces.

The paper investigates the architectural aspect of a knowledge strategy and social learning perspective known as the community of practice (CoP). The premise of this work is to argue for the community of practice as a theory that provides a novel and relevant social insight for the architectural pre-design, design, and evaluation of the new sites of production in the knowledge economy. Following this, the study explores several cases including research establishments, university buildings, schools, and workplaces through the lens of the CoP theory. Finally, I draw on the writings of Étienne Wenger about aspects of practice in CoPs to identify and explain architectural patterns that could provide a basis for the architectural pre-design and design of CoP-supportive settings.

# Open: Critical Call

## **PLANNING CRITICISM: OPERATIVE CONTINGENCIES IN THE PROJECT OF THE ITALIAN TENDENZA**

Pasquale De Paola, Louisiana Tech University

Contemporary architectural production seems to be generally defined by the recent fascination with speculative technologies and interdisciplinary processes. However, it has also become evident that its sense of criticality appears to lack the discursive specificity or a tendency that sees architecture as a form of internal knowledge characterized by its inherent will to the critical. It also re-assesses the importance and centrality of the architectural artifact as the point of reference for a reestablished sense of criticality.

Threatened by technological optimization, the concept of autonomy appears to reaffirm architecture's own disciplinary resistance whose ultimate goal is to recapture its critical role within the contemporary. Considering the conference thematic investigations regarding architecture's multiplicity of constituencies and the emergence of new shapes of knowledge, this paper follows a more historical model of critical investigation that sees architecture as a comprehensive design practice characterized by internal ideological and theoretical resistance. Most importantly, this understanding implies the existence of a condition, which is emphatically defined by the Kantian's conviction that the critical represents "knowledge within knowledge," a position that, in Robert Somol's words, "turns up attention causing an awareness, a self-reflective search for meaning, as in a formalism or writings." Indeed, the critical matters primarily because it offers an opportunity to resist within a disciplinary field that appears to be expanding and stretching to the point of non-return. While questions of interdisciplinarity remains essential toward an understanding of future architectural contingencies, it is only by questioning the status quo of architecture and re-examining its past that a new sense of criticality can be generated.

In order to re-assess architecture's critical role and redefine the disciplinary domain of its production, this paper looks beyond forms of technocratic utopias, while it historically analyzes operative theoretical contingencies relative to the project of the Italian Tendenza, which is examined as an historical form of ideological criticism of the discipline of architecture and its contentious relationship between intellectual and capitalistic production. Particularly, this paper explores the ideological and historiographical production of the 1960s and 1970s. This was when the term Rationalism and its theoretical body of work acquired renewed prestige replacing the ephemeral aesthetic of the modernist movement with a grounded and critical discourse based on Aldo Rossi and Massimo Scolari's declaration that "Architecture needed to return to the affirmation of its own statute" in order to free itself from any form of technocratic utopia.

## **THE ACT AND ART OF ARCHITECTURAL CRITIQUE: A DRAWING, A HOUSE, AND A SIGN**

Andreea Mihalache, Mississippi State University

The role of criticism is not to split, but rather to bring matters together in an assembly. Philosopher Bruno Latour makes the argument that the responsibility of the critic, (and, implicitly, critique), is not to divide, but instead to "offer the participants arenas in which to gather." In light of Latour's proposition, I will examine the generative and creative role of architectural criticism and some of the many guises under which it might take shape. I propose that the critical call of architecture is often hidden in plain sight in works that camouflage themselves under seemingly disengaged positions, and which, upon closer inspection, act as resources of architectural imagination.

Latour described the two contradictory positions prevalent in contemporary criticism as the "fairy" and the "fact." From the "fairy" position, critics show that material entities do nothing by themselves and it is people who project onto them their own desires. On the other hand, from the "fact" position, critics show that people's behavior is determined by exterior forces or matters of fact. Latour distances himself from the phenomenological position, which would only further reinforce the rift between objects and things, and advocates for what he calls a "fair" position in which "the critic is not the one who debunks, but the one who assembles," and, I suggest, brings forth the creative role of criticism.

I examine three different pieces: a drawing by Saul Steinberg published in 1949, the Splitnik (a display house at the American Exhibition in Moscow in 1959), and Robert Venturi's commercial sign for the remodeling of Grand's restaurant in 1961 and I argue that the critical voice of architecture manifests itself as actively "dissecting," "orchestrating," and "reshuffling" conventional meanings and interpretations. The three pieces show how sectioning through a body (of knowledge or architectural) is essential to critiquing, however, they all bring together people and artefacts accomplishing Latour's third "fair" way that bridges the gap between facts and fairies. "Critical architecture," I propose, belongs as much to the territory of judging, as it belongs to the realm of imagination and invention.

## **TOWARDS AN ETHICAL TECHNIQUE: REFRAMING ARCHITECTURE'S "CRITICAL CALL" THROUGH HANNAH ARENDT**

Paul Holmquist, Carleton University

This paper examines how the critical vocation of architecture might be reclaimed through the reconsideration of the interrelationship of technique and politics in the political philosophy of Hannah Arendt. Through her conception of a fabricated common world that plays an essential role in the constitution of a properly human, political reality, architecture can assume the task of participating in the cultural endeavor to projectively envisage a possible politics of human realization on the basis of its own disciplinary knowledge and methods, rather than implement instrumental political theories. Through the development of "ethical technique," by which to guide the fabrication of the condition of the common, and constructively embody the recognition of a primary political reality arising out of human plurality and difference, architecture can potentially prepare for the emergence of a politics alternative to that of the apparatus of capital. In so doing, architecture could re-assert its disciplinary authority, and its capacity to bear upon the most vital human questions.

# Open: Intelligent Architectural Settings: Tools for Societal and Programmatic Performance Analytics

## **COMPRESSED- PATTERN ROBOTIC ARCHITECTURE [COPRA]: A RESEARCH THROUGH DESIGN EXEMPLAR FOR INTELLIGENT ARCHITECTURAL SETTINGS OF THE INFORMATION AGE]: A RESEARCH THROUGH DESIGN EXEMPLAR FOR INTELLIGENT ARCHITECTURAL SETTINGS OF THE INFORMATION AGE**

Keith Evan Green, Clemson University

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This paper reports on our development of a conceptual model, a design exemplar, of a purposeful, inhabitable, intelligent architectural setting, spatially reconfigured by means of robotics. Our novel conceptual model, CoPRA, is inspired by Christopher Alexander's notion of a "Compressed-Pattern Architecture," in which a single space is reorganized to become many different, functional rooms. In our exemplar, this reorganization is not performed by inhabitants, manually, but instead by robotics actuated in response to human activity as sensed by an embedded computational system. Whether the spatial reorganization of CoPRA occurs intelligently or interactively, it occurs through precise, purposeful control in support of human needs and opportunities. CoPRA was developed through a careful process defined by "Research through Design" [RtD], an emerging methodology in human-computer interaction and design research that promises to prove productive to designing intelligent architectural settings. More broadly, RtD and Compressed-Pattern Architecture represent two productive conceptual tools for a growing research community focused at the interface of architecture and computing. Our own interdisciplinary team is currently applying these two means, along with the CoPRA exemplar, in our design, prototyping and evaluation of a functional, cyber-physical library module, room-scaled, delivered to the interior of an existing branch public library serving an underserved community that would otherwise not receive library facilities exhibiting much in the way of functional, technological or design sophistication.

## **DATA-DRIVEN DESIGN PROCESS FOR HUMAN INTERACTION, URBAN METABOLISM, HEALTH AND WELL-BEING, AND URBAN ECOTONES IN SMART CITIES**

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This paper addresses the architecture of urban development and smart city planning. The techniques described here are grounded in a data-driven design approach that gathers and analyzes information from a city and its inhabitants, leading to creative and efficient user-centric designs. While research related to smart cities is becoming increasingly abundant, research on the data-driven design approach to smart city architecture is still in its infancy. The core question of this research is how designers can influence the paradigm of smart cities by putting an emphasis on data-driven design processes. Spokane, Washington's Smart City Accelerator Group, which includes Washington State University's School of Design + Construction, is researching how to incorporate smart city technologies in Spokane's University District. Through the Integrated Design Research (IDR) Studios at WSU, researchers are experimenting with different methods across multiple disciplines to determine what mechanisms can be used to best create cities that monitor, analyze, and utilize data to improve infrastructure, security, and social and economic services for their inhabitants. Students in the fields of architecture, interior design, and landscape architecture are incorporating research-based, data-driven design solutions to confront current and future needs that can be addressed through the built environment. Researchers

at IDR Studios evaluate smart cities through four main categories: Human Interaction, Urban Metabolism, Health and Well-Being, and Urban Ecotones. By examining Human Interaction with natural, technological, social, and built environments, researchers aim to create a city whose infrastructure, services, and systems cater specifically to the individuals living in that particular location. A city's Urban Metabolism is the interaction of resources, materials, and people that researchers hope to shape into more efficiently functioning system. Technologies may also be utilized to improve Health and Well-Being in a city, by providing opportunities and services that more effectively respond to and influence people's behaviors. Finally, Urban Ecotones are areas in the city that are separated by existing conditions—either physical or social. Researchers are investigating ways in which these dividing lines can be blurred or bypassed to enhance the culture, health, and inclusivity of the city. By data-mapping the Spokane University District's existing conditions and health indicators, researchers at IDR Studios are using solid empirical data to develop design solutions that will improve the area's welfare, social health, and community engagement. It is anticipated that this work can help to create a paradigm shift in the mindsets of the city's inhabitants, bringing the city of Spokane closer to achieving its goal of becoming a technologically advanced, human-centric smart city.

## **EMBEDDED AND INTERCONNECTED BUILDINGS: TOWARD INTELLIGENT ARCHITECTURE**

Andrzej Zarzycki, New Jersey Institute of Technology

A city as defined by aesthetic principles and compositional patterns no longer exists. Form is out and interactions are in. Behavioral patterns stemming from individual preferences redefine what is commonly shared and agreed upon. Now inhabitants not only live in the city; they author it with their daily activities, personal communications, and consumption patterns forming an intangible layer—the invisible city—of interconnected networks, momentary media presence, and human-to-object interactions. This new dimension of the city puts in question past urban theories and organizing principles. This paper looks at the legacy of the past theories as well as new upcoming drives that will define urban frameworks in the future. It specifically identifies the emergence of identities, autonomous agents, and interconnected networks as formative elements of future cities.

## **PROTEAN PROTOTYPES: ASSEMBLING URBAN PLATFORMS FOR APPROPRIATION**

Geoffrey Thun, University of Michigan

Kathy Velikov, University of Michigan

This paper discusses the deployment of actor network and assemblage theories both as approaches for urban analysis and as means to inform design research operating on questions of urban access to social needs through recent work re-conceptualizing existing infrastructures of transit space, and the role of these 'public' spaces in delivering access. The resulting design projects explicitly link the agency of things (such as urban artifacts, infrastructures, and networks) with politico-economic frameworks in order to develop speculative scenarios for the city that aim to overcome urban marginalization, while simultaneously expanding the subjects and mechanisms through which design operates within and upon the urban. The term "protean" refers to works that possess a varied nature, or have the ability to assume diverse forms and roles, both spatially and as agents within the city. Engaged with the political and urban discourses of Lefebvre, Soja, and Sassen, the work proposes an operational framework and strategic toolkit, intended to be scalable and portable to other situations, for the appropriation of public infrastructural space towards the creation of multi-use platforms that enable new assemblages of use and access.

## Water, Water Everywhere...: Session 2

### **FUTURE-PROOFING WATER INFRASTRUCTURE FROM AN ECONOMIC AND HAZARD RESILIENCE PERSPECTIVE**

Brian Rich

Meghan Gattuso, University of Washington

Tijuana and San Diego are two cities, separated by a border, but share critical components of our built environment. They share water sources, water infrastructure, and the same climate. They have similar populations and population growth patterns, yet their plans for dealing with water scarcity issues, and their planning for potential natural hazards vary widely. Tijuana's critical water infrastructure has much room for improvement, as well as a strong need for improvement.

This paper examines different future proofing options for increasing both the resilience and capabilities of Tijuana's critical infrastructure, using San Diego as a comparative control. It also examines the problems in effectively pricing water as a commodity, and the productivity impact of non-potable piped water on Tijuana's GDP, to serve as an economic rationale and incentive for investing in Tijuana's critical water infrastructure system. Common vulnerabilities of water infrastructure systems are explored. The system improvements being pursued by San Diego demonstrate the application of the Principles of Future-Proofing as guidance for infrastructure projects to yield a high return on investment which offsets the potential losses due to the economic value of water.

### **REMAKING WATER LEGIBLE: A PROTOTYPE FOR A COMMUNICATIVE LANDSCAPE**

Michelle Laboy, Northeastern University

The notion of "communicativeness" is embodied in Olmstead's work in Boston: a belief in the restorative value of landscape and in the social agenda of design that connects human beings to nature. In a contemporary context James Corner argues that "more than aesthetic and representational spaces", the most important aspect of many traditional landscapes, such as Olmstead's infrastructural landscapes in Boston, is that they "function as important ecological vessels and pathways". The recent focus on Resilience is inextricably tied to socio-ecological systems: the organizational and communication structures that couple humans with natural systems. Within this intellectual context, architects and landscape architects must question "how" and "why" should urban landscapes be communicative of ecological process and of the dynamic relationships of culture and the environment. A challenge is forming a landscape that engages both the large-scale project and the cumulative effects of individual actors. This design research project engages with a number of questions: how can we make the more sustainable processes of water visible in daily urban life? How can water once again become a force to productively shape the human experience of urban space? How can water connect cultural and ecological systems? A result of a design competition amplified with research funding, this first deployment of a small scale prototype in a public space plagued by groundwater problems, tests how can one of the most invisible processes in urban landscapes, ground water recharge, be engaged in the poetics of public place making, how technology can be coupled with natural systems in public space, and how can design communicate information on ecological services and processes that not only becomes useful but also transformative of the cultural identity of a community. Digital technologies for sensing, monitoring and communicating information about the environmental and cultural performance of design empower designers to communicate ecological value, and to make decisions that improve the performance of urban landscapes. This form of design research is of critical importance in this moment of ecological crisis. Communicating to the public the dynamic process of ecologies is challenging and imperfect, but experiments to uncover this potential are essential to begin to build resilience at multiple scales.

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# Water, Water Everywhere...: Session 2 (continued)

## RETREAT

Suzanne Lettieri, Cornell University

Flood lines exist simultaneously as a trace and forewarning, informing us where water has been and what it will ultimately claim. These lines are revealed both in elevation and in plan as traces, physical manifestations, and invisible boundaries, after the water has receded, leaving a measurable presence in physical loss and economic debt. These lines are revealed both in elevation and in plan as traces, physical manifestations, and invisible boundaries, after the water has receded, leaving a measurable presence in physical loss and economic debt.

In elevation, waterlines serve as a historic measurement of water height. This datum is articulated physically by incentivized raised houses, creating a new horizon line that divides what can get wet from what must stay dry, and ultimately informing the ever-fluctuating base flood elevation (BFE). In plan, perhaps the most politically charged manifestation of flood lines, Flood Insurance Rate Maps (FIRM), demarcate the shifting Special Flood Hazard Areas (SFHAs), where mandatory flood insurance applies. Beyond the physical watermarks left after a storm, these invisible lines have perhaps more massive consequences on architectural form, urban life, regional planning, and future visions for how to live with water.

## TO DEFEND, RETREAT OR ADAPT? DESIGN RESPONSES TO THE EXCESS AND DISAPPEARANCE OF WATER

Seth McDowell, University of Virginia

Hieronymus Bosch's "The Hell and the Flood", a panel from the triptych *Deliverance from the Deluge* painted on the inside of an altarpiece, reveals an image of a post-apocalyptic landscape. The water has subsided, and rotting corpses of drowned sinners litter the land. This Old Testament narrative depicts water as a device for ethical cleansing. Yet, if the moral connotations are set aside, the Deluge in Genesis 8 is essentially a story of human's technological adaptation to imposing natural phenomena. The ark, as a response for survival, has become the paradigm for humanity's response to ecological disaster: construct a mechanism for deliverance. This paper is a catalog of mechanisms that enable the control of, escape from, and adaptation to water. Two hydrological crises are examined here, the rising and the disappearing of water, which present fundamental complications for humanity's dependence on the natural resource. Each of these extreme conditions for water is evaluated relative to design strategies for defense, retreat, and adaptation.

In the wake of an escalating global crisis with water, this paper is a critical inventory and analysis of innovative architecture and design solutions to address the rising and disappearing of water. As fear of ecological disaster ferments in contemporary architectural discourse, design competition briefs, conference topics, and journal themes optimistically call for designers to reconcile or reimagine the relationship between water, architecture, and the city. Anxiety is elevated by the onslaught of extreme weather in the form of superstorms, hurricanes, tsunamis, landslides, floods, and droughts whose frequency and intensity continue to increase. Couple the ever-present exposure to disaster with scientific data that suggests a future characterized by climate change and population growth, and we have the ingredients for a full-fledged paranoia: the perfect motivation for absurd, expansive, and radical building projects.

This paper reiterates a vast transformation occurring in architecture, landscape architecture, and urban design—a transformation that is particularly evident in the fundamental relationship between human habitation and water. It is the transformation from the conquering paradigm, in which construction becomes a mechanism for controlling nature, to a more adaptive and responsive agenda in which construction is situated as a latent system, fluctuating in response to the forces of ecology. Computational and simulation tools now enable designers to precisely evaluate the symbiotic relationship between constructed and natural environments, prompting more responsive iterations in the technological conquest over nature. This evolving ecological precision encourages solutions of a calculated language. We have transitioned from a mode of controlled nature to the condition of calibrated ecologies.

The projects highlighted here embody this moment of calibrated ecology. While the imagery is dominated by blue and green, do not be seduced; these are often highly artificial environments, if not full-fledged mutants, whose ecosystems are generated through structured design operations. In an age of genetic engineering, design has adopted the ability to manipulate the DNA of natural systems in order to achieve an interdependent relationship between the constructed and the natural.



