The second semester of the first year design studio was an introduction to generative form-making in architecture.

As a point of departure, this studio investigated three distinct but interrelated form-making methodologies: solids, surfaces and lines. Through a series of three projects, students generated abstract but coherent formal systems that were spatial, structural and organizational, as well as varied in scale, density, configuration, etc. They then used these formal explorations as a basis for developing design proposals that addressed fundamental issues of program/use and site/context. Each of the initial investigations was limited and exacting to the identified form-making methodology while further developments demanded an understanding and integration of all three logics and their relationship to each other.

The introduction of 3D modeling in Rhino was closely integrated with design exercises. Digital models were used in tandem with analog models, drawings and diagrams as the primary instruments of design inquiry and development.
Studio Two Zero Two B utilized a synthetic material pedagogy that linked three disparate exercises — precedent analysis, full-scale material research, and a building design project — together as a singular investigation of material systems. Throughout the semester, students were repeatedly challenged to re-think their material systems at different sizes, scales, and shapes in a non-linear sequence: oscillation of project size from building to pavilion to building, shifting working scale from 1:100 to 1:5 to 1:1 to 1:100, and morphing site boundary-shape from irregular to rectangular to triangular. In addition, the medium of investigation ranged from analytical drawings to material prototypes to graphic representation to physical models to full-scale constructs. The only constant was the students’ material systems. Standing on the shoulders of distinguished precedents, students were challenged to demonstrate an applied understanding of their precedent’s systemic formation or generative instructions through a systemic evolution of its two material systems: structure and envelope. Systemic innovation required an understanding of each system’s specific design performance criteria, and recognition that the system’s performance criteria will transcend its materiality. Full-scale exercises were employed here as a means to an end, to introduce material specificity, production concerns, and research into the studio design process. Students learned how to produce and develop a set of instruments including shop drawings, fabrication gigs, and 1:1 prototypes, for others to use towards the realization of a project’s design intent. Material studies, as integrated workshop exercises, were valuable pedagogic tools to promote and cultivate material agency in the studio design process. Looking at the semester’s work as a continuum, there was a clear thread of development with each exercise building upon the previous; and the students’ building design projects (final project outcomes) demonstrate the success of the pedagogy in cultivating deep investigations into material systems within an entry-level course.
This studio occupies a critical location in your development as an architecture student. It stands at the end of the structured core studio sequence, and provides a foundation for the differentiated, increasingly self-structured topic studios. The comprehensive design problem requires you to implement all the knowledge and skills you’ve accumulated during the core sequence, to extend the depth and breadth of your understanding of design issues, and to deal definitively with the interaction of formal, experiential, regulatory and technical requirements of architectural design.

The studio will provide an opportunity through the semester-long design problem for you to develop a deep understanding of program within your design project. While a basic program will be given, you will interrogate and expand upon notions of program to augment and enhance your conceptual ideas.

The studio will focus extensively on the integration of building systems, including physical systems (structure and enclosure) and experiential systems (circulation and day lighting). You will provide for ventilation, heating and cooling (both natural and mechanical), for day lighting and artificial lighting, and for acoustic amenity. You will build into your design life-safety, egress and accessibility requirements, as embodied in model building codes. You will develop a portion of your project in detail to investigate, understand and ensure integration of the various systems in your design.

However, it is critical that despite the focus on building systems, that your projects remain critically and conceptually compelling as architectural ideas. Conceptual ideas should not be conceded as secondary to technical requirements, but rather should be the fundamental basis for developing and designing them. The ability to integrate technical and programmatic requirements with clear architectural concepts is what distinguishes “Architecture” from “building”.

Finally, you will continue to develop your ability to integrate your thinking as an architect with that of greater territories, here through a focus on site. Both program- and systems-based decisions are directly influenced by, and maintain influence upon, issues of site, and you will intensely consider such relationships throughout the semester.

Semester Structure
The semester is structured around an extended design project that will be investigated in considerable depth. The project is broken into five discrete phases which will be completed and reviewed at defined times.

The schedule requires you to generate a developed conceptual design by midterm (including diagrammatic designs for structural and mechanical systems), then to develop selected elements and systems of the building to a detailed level, and finally to revisit and revise the entire design in light of the implications of the detailed development.

The five phases of the semester are:
- Design Phase 1: Site Analysis and Preliminary Design Exercise
- Design Phase 2: Diagrammatic Schematic Design Alternatives
- Design Phase 3: Schematic Development Phase
- Design Phase 4: Detailed Development Phase
- Design Phase 5: Revision and Completion of Projects

(2 weeks) (1.5 weeks) (3.5 weeks) (4.5 weeks) (3.5 weeks)
402 Architectural Design IV

COORDINATOR:
Roland Wahlroos-Ritter

INSTRUCTOR:
Alvin Huang
Rick Gooding
Neil Leach
Scott Myles
Gary Paige
Lawrence Scarpa
Warren Techentin
Roland Wahlroos-Ritter
Jonathan Ward
Hraztan Zeitlian

“When the outcome drives the process we will only ever go to where we’ve already been. If process drives outcome we may not know where we’re going, but we will know we want to be there.”
—Bruce Mau, Incomplete Manifesto for Growth

Arch 402ac in Fall 2013 was a research topic studio taught by Alvin Huang, Rick Gooding, Neil Leach and Scott Myles, Gary Paige, Lawrence Scarpa, Warren Techentin, Roland Wahlroos-Ritter, Jonathan Ward and Hraztan Zeitlian. The 11 research studio sections focused on the role of research as a formational driver of design projects. The approaches to design research ranged from quantitative to qualitative research; observational to experimental research; applied to developmental research in speculative design solutions.

Individual faculty members led their students in topical examination of a particular areas of research, including urban design, programatic drivers, advanced design technology and techniques, fabrication and building technologies, parametric and interactive designs, vertical typologies and sustainable building. A critical instrument for the design research in each section was the production of a research book by individual students. The research book documented the research process, outcomes and conclusive design responses. The main objective of these speculative studies is the continued development of research skills and the ability to translate research conclusions into innovative designs.

To exemplify and instigate a critical discussion of the role of research in design, the studio was accompanied by a lecture series on the topic by Greg Lynn, Andrew Kudless, Alex McDowell and Rob Ley. A selection of work and 108 research books was on exhibit at the A+D Museum in January 2014.
SITE: Pershing Square

MORPHOLOGY: Isolated Pershing Square

BUILDING ANALYSIS: Unit Analysis & Interior Analysis

ELEVATION
SOUTH ELEVATION
NORTH ELEVATION
WEST ELEVATION
EAST

APARTMENT = an EFFICIENT ISOLATION?

Based on the site analysis, define the urban force around the site and create the public town square based on the urban due to careless design, and finally became a totally wasted space in the downtown that needs to be redesigned.

make park as an invisible place. There are many possible fluxes to the site, but Pershing Square is abandoned Pershing Square mainly performs as the parking lot. The surrounded walls around the site and elevated park Pershing Square contributes for supporting massive amounts of daily parking spaces and reduces the traffic congestions.

Pershing Square Takes up one of the biggest lot of downtown LA. It is one of the biggest parks in downtown, but

SITE ANALYSIS: Pedestrian Influence

Extended urban flow becomes structure and internal public gathering and circulation, and internal park becomes

Park follows the urban flow and extends to the top and occupies the interior volume of the building.

Each unit (two stories high around 5000 sqft) has unique shape and have variety of views.

APARTMENT

1 hr 30min

30min

20min

1 hr

Consequently, there are more people tend to live in the city LA downtown is not suitable for single family

Apartments does not physically allow communication between people in the building

= It is the same as living in the island

So even public space is isolated and lost its potential for people to communicate each other.

Each block in downtown are basically an island that are physically disconnected from each other

Inefficiency for Better life

Inefficiency is the goal of the project: Instead of clustered apartment units, house in the city where people can have their own backyard; vertical community where people can interact and communicate living is not about efficiency. Inefficiency is the goal of the project: Instead of clustered apartment units, house in the city where people can have their own backyard; vertical community where people can interact and communicate

Eficiency is not the goal of the project. Efficient machine for living and efficient city scape have been proven us that

2013 Los Angeles

CITY GRID: Extension of isolation

5'

+ Lively and Fun

-9th floor -continuous park

31%

40%

30min

1 hr

20min

+ wasting your life in the car

-50s ~ 80s Los Angeles

Santa Monica (Lunch) Downtown LA + Relatively danger

- New Typology that can provide Condition of community

-50'

-9th floor -continuous park

Inefficiency for communication

Therefore, parking capacity and entrance and exits for the parking needs to be stayed. If the parking needs to be stayed.

B

M

At the moment, the site is a large parking lot and a single block for people to use. Create an underground tunnel for vehicles and people

Block the direct short-cuts and create spaces to allow physical interaction between people based on pedestrian flow

SITE ANALYSIS: Natural Light

31%

40%

PERSHING SQUARE STATION

Hard Scape suitable

Semi-Public Gathering Spaces

Residential District - A

Residential District - B

Exo-Skin: Water Vein of the Building

Collect the used water from each unit and purify the used water from underground

Adaptivity over time

Final Presentation

BUILDING ANALYSIS: Districts in Vertical Community & Circulation

STUDIO: ARCH402A

INSTRUCTOR: ALVIN HUANG

STUDENT: JAE JUH LEE

MACHINES FOR ADAPTIVE LIVING

Hybrid the Best part of Each

+ Inefficiency

-9th floor -continuous park

A New Typology that can provide Condition of community

?
On the night of December 12, 2013, the installation came alive. As part of LA Artwalk in Downtown Los Angeles, hundreds of guests interacted with our studio's various mechanisms. Some were surprised, some were amazed, some were dazed, some were scared, but none left disappointed. The mix of bewilderment, laughter, and strange mechanical sounds activated the space that would've otherwise been left vacant. Each mechanism, by itself, might not seem to relate to architecture, but collectively, they create an environment in which it transforms people's experience of the space.

Humans have always taken ideas from the most experienced designer on Earth. Nature produces countless ingenious designs that are still constantly improving and self-revising as they evolve ever so slightly from generation to generation. B L O O M is a series of interactive lower mechanism that is developed from structural, aesthetic, and behavioral concepts in nature. Beginning with a study into the Detura Flower's blossom, twist, and extend motion, the mechanism is designed to efficiently translate a small twisting motion into extending arms then into a dramatic expansion of volume and/or surface area. The amboyant motion of the mechanisms alters people's sense of their surrounding.
501/502
Architectural Design V

The ARCH 501/502 two-semester sequence culminated the five-year B.Arch. curriculum with a cohesive and intensive study on a specific architectural scheme. Students selected one of seven faculty-driven themes. In the fall semester seminar, they performed analytical research and produced critical papers on topics of their choice relating to their chosen themes. The topics then drove the design of their final degree projects, presented in the spring. As a critical, research-based counterpart to the typical design studios that USC architecture students are accustomed to, the 502 studio integrated other facets of their education, challenging them to apply their analytical, critical thinking, representational, and design skills to a novel design challenge of their own making.

From prescriptive methodologies to innovative formats, from small to large scale, the collective pedagogy of the seven seminar/studio offerings accommodated a wide range of current cultural interests. Individual projects delved deep into the theoretical underpinnings of architectural possibilities, oftentimes posing more questions than finding answers. Laurel Broughton’s students (Making Strange Stranger than Fiction), for example, studied “the strange” and defamiliarized themselves with architecture’s traditionally “received” ideas, exploring extreme geometries, gravities, and programs. Doris Sung’s students (X-Architecture: Designing for the Mutant Superhero) also connected fantasy with reality, examining our current society’s infatuation with the supernatural in a tectonic and perceptual manner.

For others, design process was a means to developing a final design project. Eric Haas’ students (Numeric Control: Tales from the Crypt) investigated often-concealed levels of encrypted input and utilized innovative techniques to decipher the controlling logics that guide building design. In contrast, Marcos Sanchez’s studio (The Criminal Type) examined the new architectures of control in a world where crime and architecture have an ambiguous – but fascinating – relationship, illuminating the presence of blind spots or loopholes in the law enforcement system.

Making guided the design and production of the other three 502 studios. Lee Olvera’s students (Truth in Making, Craft: An Architectural Inquiry) made, by hand, meticulous Mao-style jackets and cabinets of wonder; Kris Mun’s students (Organs without Bodies: Bride Stripped Bare by her Bachelors) integrated arduino and robotics into machines that “make”; and Rob Ley’s students (Synthetic Transformation: Fabrics and Textiles) looked at how textiles and fabrics can inform architecture on a material or assembly level. These students produced stunning results that opened up new discourses on the tectonics, programming, uses, and purposes of architecture.

A survey of all 502 projects at the end of the semester, displayed at the Blue Tape Review and commencement exhibition, challenged us to define what architecture is, or what it might become. In many ways, the ARCH 501/502 sequence allows students (and faculty) to expose untapped areas of architectural design, relative to our evolving culture and interests, in an optimistic and comprehensive manner.
STUDIO DESIGN AWARD:
KEVIN REINHARDT
Given to the student that demonstrated design excellence throughout the five-year professional degree with the
FACULTY AWARD
FOR EXCELLENCE IN DESIGN:
KEVIN REINHARDT
In recognition of the student who demonstrated consistent excellence throughout the five-year professional Bachelor of Architecture program.

Cat Rug
Coffee Mug
Bathtub
Cactus Toilet
Cooktop Book
Dirty Wrench
Full-sized Bed

"in an attempt to supply the user with the highest degree of liberty within the most rigid possible figuration, architecture comes to recognize its real destiny in the urban phenomenon, and its real nature in the private. Thus, in contradictory fashion, on each single occasion it will prefigure a general layout of things and at the same time set itself up to defend the partiality of the individual experience with respect to collective experiences."

No-Stop City: Residential Parking by Archizoom Associates
ROBERT ALLEN ROGAFF AWARD:
ALEX HAGENTORN
In recognition of the student whose comprehensive project is deemed by the faculty as most promising in Architectural Delineation.
These are the everyday objects that inhabit our world. Within these objects, personal definitions often arise, but now these once familiar objects combine and take on a new meaning through scalar distortion. Inspired by Surrealists, Noscale502 uses drawing to defamiliarize everyday objects, distorting scale and perception, looking to spark the imagination and question the things around us. When illustrated, a drawing has the ability to take us beyond reality, and into our dreams. Through this endeavor, I hope to question my own architectural principles, attempting to dive into an architecture that sees beauty in everything.
ROBERT ALLEN ROGAff AWARD: KAREN LEE
In recognition of the student whose comprehensive project is deemed by the faculty as most promising in Architectural Delineation.

HIDE IN PLAIN SIGHT

[Mystique: Superhero]
Mystique has powers of a shape-shifter that allows her to transform into the appearance of any humanoid. Rather than focusing on her physical transformation, a perceptive transformation was used as an object changes according to the user’s position in space.

To move away from this tradition and human proportions that is legible architecture, what is illegibility in architecture? Illegibility in architecture would be based on perception. One idea is using the barcode or the QR code as a step to bring architecture into the digital realm as barcodes resides in all products that we use, however hidden. High contrast (black and white) stripes can be used to began to distort the perception of space like those used in optical illusions.
Shroud in Exposure

The process of making drives my work from design conception to completion of a finished product. Crafting an object forces a deep connection to the work at hand, providing me the greatest opportunity to produce skillfully crafted work that satisfies my design intentions; pursuing and developing these connections is my passion. This studio allows me to explore this passion willingly, encouraging discovery while fortifying and adding to my previous knowledge and practices.
ARCH 502 ARCHITECTURAL DESIGN

SEAN MILLER
advisor Lee Olvera
HAUSWARMING
Hauswarming investigates new methods of designing form with direct relationship to its context. The project is specifically interested in sculpting a process of design rather than a singular product. The existing conditions of a site, such as topography, trees, solar analysis, and geometry, become a series of inputs into a sophisticated swarm agent system that then produces a novel output. This output is not only informed by these contextual factors but also utilizes strategies in composite non-woven fabric systems such as resin-casted matt fiberglass to create forms with widely varying levels of enclosure, density, and filtration capabilities.
MICHAEL DEN HARTOG
advisor
Marcos Sanchez
KIRK BAIRIAN
advisor
Laurel Broughton

FIFTH YEAR INDEPENDENT RESEARCH AWARD: MICHAEL DEN HARTOG KIRK BAIRIAN
Given in recognition of exemplary scholarship and writing on a self-selected topic.

CLAUDIA OTTEN
COREY KOCZARSKY

The FIFTH YEAR FACULTY AWARD: CLAUDIA OTTEN COREY KOCZARSKY is given in recognition of the student who contributed positively to the studio culture.
DESIGN NARRATIVE
USC’s fluxHome™ is an innovative and affordable model for sustainable living incorporating off-the-shelf elements with digital fabrication technology to produce a net-zero house for the 21st century. Drawing upon regional precedents such as the courtyard or patio house and craftsman bungalow as well as new smart home technologies, fluxHome™ embraces the idea of change while reflecting the diverse social, cultural and environmental landscape of Southern California.

DESIGN PHILOSOPHY
fluxHome™ design is motivated by a combination of cultural, environmental and economic factors. With a climate that averages 300 days of sun per year, Southern California’s environment is characterized by the distinctive and pervasive qualities of its sunlight and moderate temperatures as well as the diversity of its ecologies and microclimates. fluxHome™ celebrates this by reimagining the tract house as a transformable environment. Instead of a generic stucco box, fluxHome™ has a thermally-responsive envelope and aperture system that can easily be opened and closed according to the weather and time of day, modulating sunlight and air and providing various degrees of shade and privacy. With fluxHome™, the typical suburban lot consisting of front lawn, side yard and backyard are reconceived as courtyard, veranda, and porch and integrated with the interior space, resulting in a home that seamlessly merges indoor and outdoors—the suburban tract house turned inside out.

As a model for smart growth and sustainable development, fluxHome™ combines a compact efficient form and open flexible floor plan with mass customized prefabricated elements, making it an ideal and affordable starter home that can grow or change according to the user’s needs.
FEATURES
Some of the unique features of fluxHome™ include:
—A compact, efficient building mass and envelope system to minimize solar heat gain and maximize natural ventilation;
—An aperture system consisting of retractable skylights, operable windows, light shelves and baffles and, sliding and folding window walls that permit inhabitants to easily regulate sunlight, air and privacy;
—Mass customized prefabricated elements that are produced using digital and analog fabrication technology; An open floor plan with courtyards, verandas and a sleeping porch that seamlessly integrate outdoor space with the interior environment;
—A hyper-efficient bathroom environment that can be used by more than one family member at a time.

TECHNOLOGIES
fluxHome™ employs an array of innovative technologies including:
A centralized air and light chimney that modulates and optimizes available light, and, works as a plenum for passive cooling and ventilation;
—An innovative heat pump package that provides heating, cooling and domestic water heating in one product, thereby maximizing energy efficiency while minimizing the potential for ozone depletion and global warming;
A thermally-responsive PerfSkin® rain screen facade system that regulates heat gain through passive cooling and low emissivity;
An intuitive user interface that monitors passive and active energy systems and can be controlled with an iPad or smart phone.

MARKET STRATEGY
While the initial user profile is based on a family of four, fluxHome™ is designed with flexibility and adaptability in mind. Various demographics and living scenarios including young couples, single parents with children, extended families, roommates and live-work arrangements can easily be accommodated. Designed as a viable alternative to the suburban tract house with affordability and energy efficiency as a focus, fluxHome™ can be configured as a starter home for a young couple or outfitted to suit the needs of an extended family.
USC SOA’s undergraduate curriculum has changed. Unquestionably, the visible transformation (in the form of phenomenal design output) is the result of a lot of hard work by a lot of talented students. But it’s also the byproduct of something that lies in the shadows of the finished projects—great teaching, with great teachers making critical changes to a robust, but sometimes large and unwieldy, program. These changes did not so much affect the overall curricular framework, but involved instead the committed re-thinking of each piece of that framework. So while our long-standing design studio structure remained, each semester in the sequence was analyzed for its strengths and weaknesses, and disciplined modifications (from small tweaks to major overhauls) were incorporated. And while the composition of the support course matrix is likewise intact, content has been revamped (and in some cases outright replaced) to create a more relevant counterpoint to what’s happening in the design studios and beyond.

The delight of being a teacher in a discipline such as architecture is that successful changes manifest themselves in unpredictable ways. This portion of Index, which covers 2013–14, is dedicated to a transformational collective discourse that has taken shape through the process of change touched on above, and to the faculty and students who have given eloquent voice to it. Some of those faculty are no longer with us—a special shout-out goes to Anthony Guida, who wrought substantive positive movement to the first year design studio. We have asked some of these faculty to give us their thoughts on pedagogy, or an example of their revamped pedagogy, for publication in these pages alongside selected student work.

How does it come together? The undergraduate curriculum at USC SOA is broad; we know this to be both a danger and a strength. It’s a danger because we will stagnate in our own bigness if we don’t keep sight of our main objective—which is to maintain currency through constant change (to paraphrase our Dean). It’s a strength because we can, with our remarkable and diverse student body, explore multiple design challenges through a wide range of focal points and research objectives. Therefore, we have demanded that each faculty member be a critical practitioner and multidisciplinary thinker, in order to provide the critical instruction essential to long-term success. In addition, we have asked them to come together to connect primary nodes within their individual design agendas, so that our design network, while increasingly far-reaching, is interconnected and strong. No question: It’s not perfect and may never be (how could it be?), but it’s definitely paying off.

Ours is a different program than it was seven, six, even five years ago. We are radically transformed, with a greatly altered identity. Not an unrecognizable one; we have been careful to pay attention to our roots in building science and an understanding of the city as well as context (yes, good old-fashioned context, still so primary to meaningful architectural production). The infusion of critical new faculty, along with the focused changes to our collective pedagogy, have resulted in the innovation you see in these pages. It runs the gamut from bold evocations of future cities to laser-sharp acupuncture into existing ones; from topical explorations in geometry, representation, and reductive form to, of course, buildings—buildings horizontal and vertical, passively responsive and robotically controlled, parametrically as well as analogically derived. All credit to our talented students, and the imaginative and critically inspired faculty who guide them.

ALICE KIMM, FAIA
DIRECTOR OF UNDERGRADUATE ARCHITECTURE
2010–2014
The most intriguing aspect of the nature of the pedagogy at USC is the dialectic between the graduate and undergraduate programs. While the fundamental knowledge of architecture and core strength of the profession are discussed and disseminated in parallel through the two programs, the agenda in design innovation research and theoretical parameters are integrated differently—through both strategic curricular organization and by developing an energetic and engaging cohort of tenure track faculty. They represent an incredibly diverse and therefore potent compound of innovative material and mechanism, interactive environment, digital design process, and spatial performance. The collaborations across campus have provided a rich academic and social network critical to pedagogical models. In the undergraduate program, inquiries are primarily carried through a horizontal progression, which cumulatively acquires a common agenda in historical studies, building physics, and global practices. Inquiries in the graduate programs are carried out vertically, which commands sustaining focus while allowing constant horizontal interaction.

With the unprecedented growth of the graduate program and optimization of the undergrad; with the maturing community of tenure track; with new leaders in each of the four academic disciplines, and a reborn Ph.D. program, the School is entering an unprecedented era of opportunity and promise. — QINGYUN MA, DEAN
A SCHOOL IS DEFINED BY ITS PEDAGOGY.

As the USC School of Architecture celebrates its 100th year, the opportunity for a reflective pause is due. The awe of the collective accomplishment of the past century is immediately broken and challenged by a need to forward focus. Humanity is challenged with serious issues. Architecture is a critical solution to respond intelligently. Everything has changed in the discipline. The goals are larger, the techniques are more sophisticated, and the stakes have never been higher. How we prepare and forge a new generation of thinkers, focused on the built environment and tackling the critical issues facing us as a society, require a comprehensive diversity. Cultural consideration, energy, material resources, form, function, economy, art, humanity are all at the forefront on our thinking. Synthetically merging their demands and collectively integrating their aspirations, Architecture must lead us forward.

The curriculum as an adaptive system, must still maintain the origins of our discipline, understanding history and technology, but must always maintain its agility to look forward integrating the newest tools, techniques and thematics.

Our guiding marker has been the relationship to critical practice. Dedicated to producing architects that change the world through built work, our pedagogy must be founded in an affiliation with the profession, with the physical practicalities of materials, energy, economy and law, and have full spectrum understanding of the responsibilities and opportunities embedded within a project cycle as critical touchstones for the advancement of the discipline. Focused on the re-assertion of the architect as the master builder, the architect must lead a team of expertise that requires a deep understanding of each part towards a synthetic vision of the whole.

Coursework is thus segments of a larger arcing agenda. Engaging the thought leaders in each of the areas, the student is challenged through the studio to experimentally and personally engage and synthesize these diverse strands in their creative process. Focused on design fundamentals, professional and technical integration and advanced theoretical inquiry across the evolutionary curriculum, the challenge becomes a layered palimpsest of navigated complexity. Logarithmically introducing the broadening responsibilities of the discipline, the simultaneous building of the theoretical and technical sophistication is critical. The resulting projects must respond with sophistication and intellectual prowess.

Expanding the themes of our curriculum is facilitated with new modes of teaching: concerted dedication to materiality through fabrication and full scale making; the introduction of a sustained commitment to Design Build; the expansion of tools and techniques for advance fabrication that demand a reconsideration of craft; engagement with the city through multi-disciplinary teams; enlistment of world class practices into the class; each of these methods among many others provide a challenge to not just what we teach but how we teach. The disciplines of architecture and academia are at exciting times in their histories. The USC School of Architecture continues to lead these trajectories.

GAIL PETER BORDEN, FAIA
ASSOCIATE DEAN FOR ACADEMIC AFFAIRS
ARCHITECTURE DISCIPLINE HEAD
DIRECTOR OF GRADUATE ARCHITECTURE PROGRAMS
ASSOCIATE PROFESSOR
USC SCHOOL OF ARCHITECTURE
“DESIGN MUST BE GROUNDED IN A DEEPER DISCIPLINARY KNOWLEDGE THAT COMES FROM HARD THINKING AS WELL AS SKILLED MAKING.”

The current issue of INDEX— a two-sided book— is not only representative of two different years at the USC School of Architecture but also a change of leadership in the Undergraduate Program. It’s an apt format, which allows for differences in pedagogy, sensibility and direction to be registered. This side and section of the book speculates about the future of the undergraduate programs with a symbolic return to the subject of Los Angeles (driven by a new vitality and energy). LA has always been in our backyard, yet with an increasing focus on globalization and technology, we may have lost sight of all that it has to offer. The USC School of Architecture should own LA as its subject—at every scale. We’ve been here for 100 years and have the deepest roots. Over the coming years we will rigorously build pieces of the city back into our program to re-form the undergraduate identity.

As the only professional degree, undergraduate architecture program in LA tied to a world-class research university, we are positioned to be the very best program in the country. If we claim to own our city, then we need to do it with the brightest and deepest students and faculty — those who are willing to engage the city in smart and fantastic new ways. We can’t just make buildings that look great. Design must be grounded in a deeper disciplinary knowledge that comes from hard thinking as well as skilled making. With the ambitious initiatives led by USC president C. L. Max Nikias, each generation of USC students is more capable and therefore ready to be challenged with the deeper inquiry of architecture in order to lead in the profession.

A ‘Super’ jury of architects invited from beyond the walls of USC selected the student work in this book during their time at our year-end ‘EXPO 2015’ open house and reviews. The work was chosen as the strongest in the school. While only a fragment of the spectrum of exceptional projects, these drawings, models, and media serve as exemplary models, clearly demonstrating the level of excellence and innovation in the undergraduate program.

HADRIAN PREDOCK, AIA
DIRECTOR OF UNDERGRADUATE
ARCHITECTURE
2014–PRESENT
The first semester design studio is an introduction to spatial design practice. Students develop the ability to use drawings and physical models to conceive, organize, and develop habitable, three-dimensional space.

Through four design projects of varied scale and increasing complexity, students address fundamental lessons of geometry, proportion, scale, formal organization, spatial definition, light, sequence, and movement. The study of relevant architectural precedents provides disciplinary focus to conceptual problems, and through these precedents, students are introduced to key disciplinary terms. Rigorous themes and processes are intended to advance representational skills and architectural conventions, competency in the clear communication of spatial ideas, and the ability to critically and creatively leverage design constraints.

In each design problem, diagrams and digitally produced orthographic drawings are the primary instruments of design inquiry and the tools used in an iterative design process to develop architectural solutions. Physical models, both interim design studies and refined final versions, support visualization and the testing of ideas in three dimensions. Refined graphic and verbal presentations are developed by each student to successfully communicate his or her design intent.
Architectural Design II
202b

COORDINATORS:
Eric Nulman
Roland Wahlroos-Ritter

INSTRUCTOR:
Laurel Broughton
Kris Mun
Scott Uriu
Jose Sanchez
John Frane
Valery Augustin

Studio 202 B (2015) retained the same course objective from the previous year—to promote and cultivate material agency in the studio design process—but approached it from an alternate pedagogic position. We moved away from the use of case studies and full-scale exercises as instructional tools, and adopted a “starter” to foster continuity and advance development. We began with an unfinished project—a geometric object that students designed the previous semester—and materialized it. Revisiting the object and its generative process, students developed a set of material systems to perform as their object’s structure and envelope. Formulated as two interrelated projects, the material objects and their tectonic systems were considered at two sizes—folly and small building—and in an effort to engage with architecture’s disciplinary lineage of an “object in the field”, including Los Angeles’s own Hollyhock House by Frank Lloyd Wright, both projects were strategically sited on a generous urban plot to allow for a 360° approach.

A single material (steel) was selected for all 100 students to encourage tectonic innovation. Steel buildings have a storied history in Los Angeles from the Case Study House Program to the Disney Concert Hall, and this was an opportunity to tie into and build upon that legacy. The limited material palate was not as restrictive as it first appeared and was a successful instructional mechanism to prompt students to be more specific about their desired architectural effects and to consider finishes, connections, panelization, and transparency through perforations as design tools (means) to achieve their end goals. At semester’s end the resultant tectonic objects bared little resemblance to the original un-materialized objects, both in their perception and affect.
we're all mad here.
“Skin + Bones” is the ARCH302b Spring 2015 integrative design studio taught by Mario Cipresso, Rick Gooding, Jeff Guh, Graeme Morland, Jennifer Siegal, Ed Woll, Selwyn Ting & coordinated by Alvin Huang. The semester long design project asked students to propose design solutions for a 30,000 sf Center for Architecture Los Angeles (CALA) in downtown Los Angeles. Each of the students was asked to explore the disciplinary potentials of structure (form / force / material) and skin (enclosure / articulation / performance) to express, organize & articulate their design strategies. Through the development of their projects, students were asked to develop critical design positions on the relationships and disjunctions between form, program, skin and performance. A multi-medium design process that included projected line drawings, physical models, 3D modeling, and digital fabrication was encouraged to produce a comprehensive set of design deliverables.
ARCH 302 B INTEGRATIVE STUDIO

UNDERGRADUATE 2014–2015

BRIAN DIMAGIBA

ARCH 302 B INTEGRATIVE STUDIO

UNDERGRADUATE 2014–2015

ARCH 302 B INTEGRATIVE STUDIO

BRIAN DIMAGIBA
Architectural Design IV

COORDINATOR: Roland Wahlroos-Ritter

Arch 402ac in Fall 2013 was a research topic studio taught by Alvin Huang, Rick Gooding, Neil Leach and Scott Myles, Gary Paige, Lawrence Scarpa, Warren Techentin, Roland Wahlroos-Ritter, Jonathan Ward and Hraztan Zeitlian. The 11 research studio sections focused on the role of research as a formational driver of design projects. The approaches to design research ranged from quantitative to qualitative research; observational to experimental research; applied to developmental research in speculative design solutions.

Individual faculty members led their students in topical examination of particular areas of research, including urban design, programmatic drivers, advanced design technology and techniques, fabrication and building technologies, parametric and interactive designs, vertical typologies and sustainable building. A critical instrument for the design research in each section was the production of a research book by individual students. The research book documented the research process, outcomes and conclusive design responses. The main objective of these speculative studies is the continued development of research skills and the ability to translate research conclusions into innovative designs.

To exemplify and instigate a critical discussion of the role of research in design, the studio was accompanied by a lecture series on the topic by Greg Lynn, Andrew Kudless, Alex McDowell and Rob Ley. A selection of work and 108 research books was on exhibit at the A+D Museum in January 2014.

“When the outcome drives the process we will only ever go to where we’ve already been. If process drives outcome we may not know where we’re going, but we will know we want to be there.”
—Bruce Mau, *Incomplete Manifesto for Growth*
The ARCH 501/502 two-semester sequence culminated the five-year B.Arch. curriculum with a cohesive and intensive study on a specific architectural scheme. Students selected one of seven faculty-driven themes. In the fall semester seminar, they performed analytical research and produced critical papers on topics of their choice relating to their chosen themes. The topics then drove the design of their final degree projects, presented in the spring. As a critical, research-based counterpart to the typical design studios that USC architecture students are accustomed to, the 502 studio integrated other facets of their education, challenging them to apply their analytical, critical thinking, representational, and design skills to a novel design challenge of their own making.

From prescriptive methodologies to innovative formats, from small to large scale, the collective pedagogy of the seven seminar/studio offerings accommodated a wide range of current cultural interests. Individual projects delved deep into the theoretical underpinnings of architectural possibilities, oftentimes posing more questions than finding answers. Laurel Broughton’s students (Making Strange Stranger than Fiction), for example, studied “the strange” and defamiliarized themselves with architecture’s traditionally “received” ideas, exploring extreme geometries, gravities, and programs. Doris Sung’s students (X-Architecture: Designing for the Mutant Superhero) also connected fantasy with reality, examining our current society’s infatuation with the supernatural in a tectonic and perceptual manner.

For others, design process was a means to developing a final design project. Eric Haas’ students (Numeric Control: Tales from the Crypt) investigated often-concealed levels of encrypted input and utilized innovative techniques to decipher the controlling logics that guide building design. In contrast, Marcos Sanchez’s studio (The Criminal Type) examined the new architectures of control in a world where crime and architecture have an ambiguous - but fascinating – relationship, illuminating the presence of blind spots or loopholes in the law enforcement system.

Making guided the design and production of the other three 502 studios. Lee Olvera’s students (Truth in Making, Craft: An Architectural Inquiry) made, by hand, meticulous Mao-style jackets and cabinets of wonder; Kris Mun’s students (Organs without Bodies: Bride Stripped Bare by her Bachelors) integrated arduino and robotics into machines that “make”; and Rob Ley’s students (Synthetic Transformation: Fabrics and Textiles) looked at how textiles and fabrics can inform architecture on a material or assembly level. These students produced stunning results that opened up new discourses on the tectonics, programming, uses, and purposes of architecture.

A survey of all 502 projects at the end of the semester, displayed at the Blue Tape Review and commencement exhibition, challenged us to define what architecture is, or what it might become. In many ways, the ARCH 501/502 sequence allows students (and faculty) to expose untapped areas of architectural design, relative to our evolving culture and interests, in an optimistic and comprehensive manner.
STUDIO DESIGN AWARD: YUAN YAO
Given to the student that demonstrated design excellence throughout the five-year professional degree with the highest design GPA.

CONJOINT TRILOGY: THE APPLE PILGRIMAGE
The project proposes an Apple Church which is the destination for the Apple pilgrims in 21st century. Through specific patterns of path and space, people are able to meet each other unexpectedly during the waiting and progressing in lines at the church of Apple. The conjointness is the moment when people meet each other, which in this project is the new anesthetizing purpose for life and a fabricated means of physical socializing.
FACULTY AWARD FOR EXCELLENCE IN DESIGN: DARLE SHINSATO
In recognition of the student who demonstrated consistent excellence throughout the five-year professional Bachelor of Architecture program.

SIMULTANE(C)ITY
Space is mutating due to the virtual dimension. Because public life is no longer bound to public space, physical parameters are not able to accommodate the limitless new spatial conditions. As a result, virtual globalization is leading to physical isolation and fragmented participation in the public realm as the online sphere becomes the most convenient public place. Simultane(c)ity aims to combat these issues by uniting the physical and digital dimensions. Spaces within the design are dynamic to adapt to the constantly changing spatial needs of individuals while providing a global network of public spaces that exist and operate concurrently through virtual connectivity.
ROBERT ALLEN ROGAFF AWARD: GABRIELA O’CONNOR
In recognition of the student whose comprehensive project is deemed by the faculty as most promising in Architectural Delineation.

NOTATION STUDIES: SCRIPTING MOVEMENT
This project creates a script/code that generates “random” circulation paths. Through a numerical and abstracted notation, traditional elements of movement (stair, ramp, elevator, escalator) are relinquished from their tendencies to conform to regulations and/or programmatic needs. The result is a series of generative studies that offer a new way of understanding movement.
ROBERT ALLEN
ROGAFF AWARD: ENDRA SIU
In recognition of the student whose comprehensive project is deemed by the faculty as most promising in Architectural Delineation.

FIKA MACHINE
Vending machines are merely the sum of our cultural desires; while not necessary per se, they exist simply to fulfill a constructed need for instant services, convenience, and gadgetry. If the delivery of the products in a vending machine enhances the consumption by becoming a part of the consumption, then one might assume that the medium through which products are purchased is crucial to the experience. This project seeks to apply these principles of pop consumption through an architectural wrapper via a prototype for a small pop-up cafe ready to be transported and instantly activated, creating a community-building experience of setting up the cafe environment whenever and wherever.
MAT/FAB AWARD: JANE HOMMA
In recognition of excellence in fabrication, craft, and tangible production, as exhibited in the final degree project.

VERSATILE YET DELICATE
Project Description: This example of craft of risk challenged people’s knowledge of the use of hot glue and its capabilities. Hot glue was not only the material to create floral patterns but was also the attachments to connect rows upon rows to form a jacket. Transparency, reflectivity, opacity, and pliability are qualities of the hot glue material that that jacket was designed to exemplify.
As processing becomes a larger and larger part of our lives, and the architecture practice, what do we do when we produce products that are beyond our comprehension? IMPOSTER is a code that first behaves like a standard transformative algorithm... however it is encoded with data trackers that trace and draw the process of transformation, self diagramming itself as it generates. This process is used not to automatize architecture, but examine the relationship between algorithmic processing and the architectural design process. As processing becomes a larger and larger part of our lives, and the architecture practice, what do we do when we produce products that are beyond our comprehension?
THOMAS BYERTS AWARD: LUIS VILLANUEVA
Given in recognition of outstanding final degree project involving social and community service.

The Third Nation

Between Mexico and the United States there exist a middle ground. An area demarcated not by borders but by a culture beyond that which is known to outsiders.

It is a region that sits between one nation and another, between wealth and poverty, and between two conflicting ideologies. It is a region border-dwellers call home and a place we will refer to as the “Third Nation.” The Third Nation is not an isolated phenomenon, it exists in the minds of people who live their lives between two countries and across two borders. It is a unique and fragile urban ecosystem—dependent on cultural exchange and capital reciprocity between two diverse regions.

In recent years, however, the Third Nation has gone from being a unique psycho-geography shared exclusively among those living along the border, to a real physical place. The world is changing and borders that once demarcated the end of countries are fading rapidly. From Dajabon, Dominican Republic, to Shenzhen, China, border regions are becoming exciting areas of independent trade and commerce. This is a trend fueled by Globalization and the insatiable human desire to connect. But while the trend is global, the effects of this movement remain a local issue for border-dwellers worldwide.
NICOLLE LANDOWSKI
advisor
Lee Olvera

DAVID LAI
advisor
Doris Sung

FIFTH YEAR INDEPENDENT RESEARCH AWARD: NICOLE LANDOWSKI
Given in recognition of exemplary scholarship and writing on a self-selected topic.

FIFTH YEAR FACULTY AWARD: DAVID LAI
Given in recognition of the student who contributed positively to the studio culture throughout the five-year professional Bachelor of Architecture program.
Performative Composites: Sailing Architecture

The USC School of Architecture hosted *Performative Composites: Sailing Architecture* on November 3–4, 2014. The two-day event, which included workshops, presentations, a panel discussion, and an exhibition opening, explored how sailing concepts, techniques, and material applications, particularly carbon fiber composites, suggest ways that architecture can achieve unprecedented design performance in the 21st century.

Innovations for sailing events such as the America’s Cup create a highly developed body of knowledge regarding the construction of exquisitely intelligent tools that sustainably and dynamically mediate between people and the fluxes of the natural environment. These design innovations in sailing embody many of our current aspirations for buildings: to convert natural conditions into energy, to reduce material consumption, transport, and construction costs through stronger, lighter materials, and to create spaces that respond technically and aesthetically to a multiplicity of environmental and programmatic requirements.
PERFORMATIVE COMPOSITES: SAILING ARCHITECTURE
PERFORMATIVE COMPOSITES: SAILING ARCHITECTURE
USC Architecture faculty Geoffrey von Oeyen conceived and planned the event, bringing together renowned design and sailing professionals, including **Greg Lynn** (Greg Lynn FORM), **Bill Kreysler** (Kreysler and Associates), **Kurt Jordan** (Oracle Team USA), **Bill Pearson** (North Sails), **Fred Courouble** (Courouble Design & Engineering), **Lynn Bowser** (Westerly Marine), **Bruno Belmont** (Beneteau Group), **Rick Pauer** (CCP Composites), and **Neil Smith** (Composites One). Over the two days, USC students participated in hands-on composites workshops conducted by Bill Kreysler, Neil Smith, and Rick Pauer, focusing on the translation of contemporary sailboat design and fabrication to architecture and construction. Highlights of the exhibition included an 800-pound carbon fiber hydrofoil from a 72-foot America’s Cup catamaran, on loan from Kreysler & Associates, and the drawings, renderings, models, and full-scale molds for the design and construction of the GF42 carbon fiber trimaran on loan by Greg Lynn FORM and Courouble Design & Engineering.