

# ACSA Creative Achievement Award

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2015-2016 Winner Submission Materials

TROY SCHAUM  
Rice University



# TOTALIZATION STUDIOS

Rice School of Architecture

Troy Schaum

Program Founder/Coordinator

William Cannady, Andrew Colopy, Douglas Oliver, Troy Schaum,  
Mark Wamble, Linna Choi, Tarik Oualalou, and John Casbarian

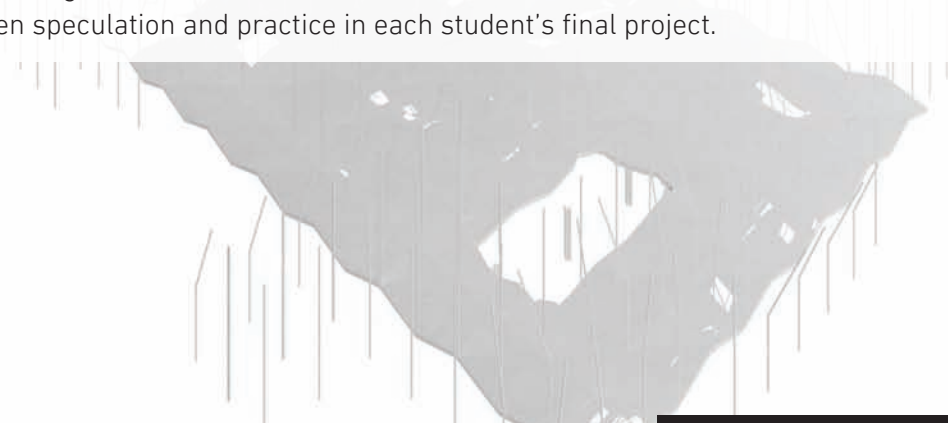
Instructors

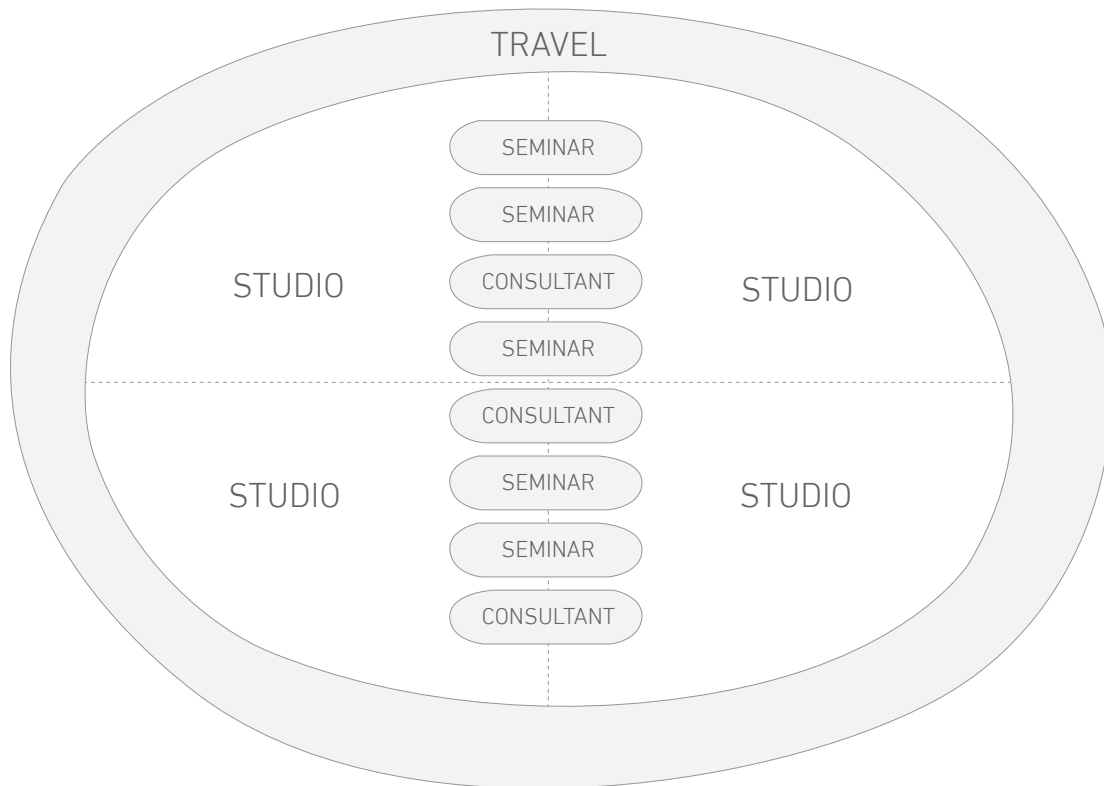
Architecture is the generalist discipline par excellence, requiring knowledge of geometry, politics, economics, history, technology and culture. Architects need to be able to read details, images, materials, precedents, ideas, and opportunities.

Architecture's expertise, in short, lies in its *totalization*.

The RSA Totalization Studios recognize that leveraging the *breadth of architectural practice* requires architects to *speculate in depth*.

Can a building's envelope be made of plastic? What's the 21st c. equivalent of the 19th c. steel frame? How do you cannibalize buildings to extend their useful life? In order to explore answers to types of questions, three Houston and one Paris-based studio work closely with consultants to each challenge conventions of facades, structure, MEP and materials. These immersive studios overlap strategically to share knowledge and push boundaries as part of the larger collective. The aim of the Totalization Studios is to eliminate the distinction between speculation and practice in each student's final project.





Every year each of the studios focus on a different component of building: *Envelope* (the superficial qualities of plastic envelopes – Colopy); *Material* (the material logic of composite construction - Schaum); *Structure* (how contemporary steel fabrication technology can affect structure – Wamble); and *Adaptive Re-use* (the creation of hybrid buildings through additions - Choi/Oulalou). The depth of each one of these studio's focused investigations is then amplified in breadth by the relationships between studios through shared workshops, lectures, research and travel.

To give these studios access to the most current techniques in the various specialties they are exploring, Totalization studios work with leading experts in their fields, including: Nat Oppenheimer, structural engineer with Robert Silman Associates, New York; Mark Malekshahi, mechanical engineer at Buro Happold, New York; Robert Heintges, founding partner at the facade firm, Heintges Associates, New York; and several Houston consultants. All of these consultants travel to the RSA for workshops and reviews of the studio's work in progress.

Students will engage in a range of scheduled workshops and seminars that provide support to the detailing and documenting of their projects, not just at the level of form and structure but also through material specification and cost analysis. To extend these collaborations as well as broaden the students' engagement with practice, all three Houston studios participate in a sponsored trip to New York City for site visits, office visits with the individual consultants, and general explorations of the city.

*Speculation and practice.* The Totalization Studio will be considered to be total only when the distinction between these terms becomes indistinguishable in each student's final project.

## CONSULTANT

The Totalization studios partner with several engineers and consultants through a series of office visits and in-studio workshops. At each workshop the student presents a proposal for their individual project to which the engineer can respond and offer guidance. The goal of the workshops is to provide space for a dialog about how the architectural vision can both inform and be informed by the technical constraints.

### HOUSTON ::

#### *Structural:*

Nat Oppenheimer :: Silman Associates  
Pat Arnett :: Silman Associates

#### *MEP:*

Mark Malekshahi :: Buro Happold

#### *Envelope Consultant:*

Robert Heintges :: Heintges  
Justin Hodahl :: Heintges

#### *Composites Consultant:*

Bill Kreysler :: Kreysler Associates

### PARIS ::

#### *Structural, MEP and Envelope:*

Antoine Maufay :: Arcora

#### *Code and Accessibility:*

Bob Mohr :: Kilo Architectures

## TRAVEL

All the Houston studios travel as a group to New York City for four days in September. This trip is planned for the group to have initial meetings with consultants which will review their individual experience and interest in each project. Each studio takes part in tours of precedent buildings to support their investigations into a particular building type or technology. Lastly, the students visit their studio project sites to both better understand the context that each project is situated within and to gather material for further site documentation

## JOINT SEMINAR

In order to engage in a collective dialogue on critical common building topics, a series of joint seminars is hosted in rotation by the studio faculty and some visitors. The seminars provide a background for understanding the history, context and ultimately the implementation of these issues in the building practice. Each category is discussed at least in part through examples of each faculty's engagement with these issues in their own practices.

*SEMINAR 1: Construction Documentation :: Troy Schaum*

*SEMINAR 2: Accessibility/Life Safety :: Mark Wamble*

*SEMINAR 3: Sustainability :: Doug Oliver*

*SEMINAR 4: Cost Analysis and Specifications :: Will Cannady*

*SEMINAR 5: Material Medium :: Andrew Colopy*

*SEMINAR 6: Development Costs and Construction Finance :: Steve Radom*



## ENVELOPE

Andrew Colopy: Quality Control

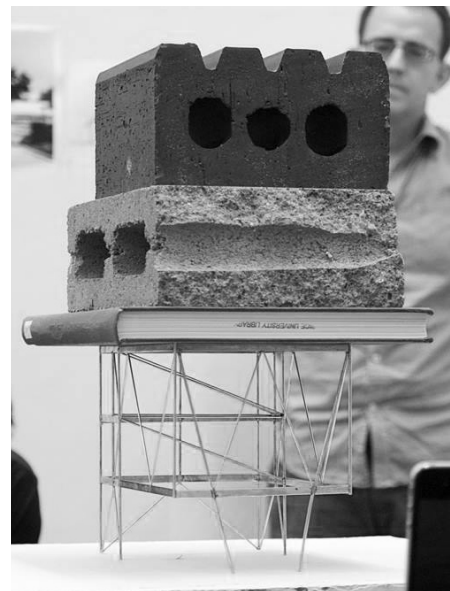
Plastic is both concept and material. In some sense, computation (in design and fabrication) has narrowed the gap, extending the plasticity of architectural form while augmenting our ability to simulate it materially. Yet, any generative capacity computation may afford is being met by an increased demand for performance (structural, environmental, economic). Nowhere is this conflict more pronounced than at the building's envelope, where the contemporary condition is one of absolute dependence upon plastic's performance yet one equally devoid of its appearance. Quality Control will mine this superficial territory, seeking new possibilities for the formal and aesthetic agency of plastic.



## MATERIAL

Troy Schaum: Featherweight Form

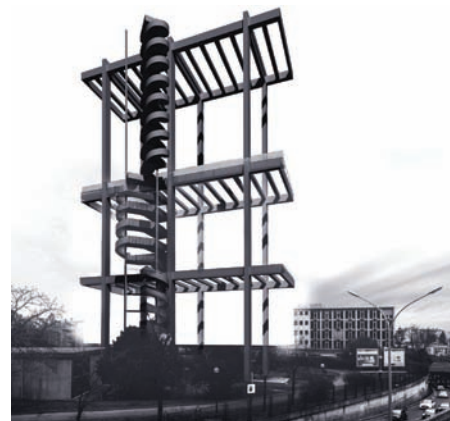
Fiber Reinforced Composite (FRC) fabrication in architecture is not new, but until recently, its application has predominantly been limited to decoration in historic preservation and in contemporary buildings in support of the postmodern return to ornament. This studio will move beyond this narrow formal potential to explore the material and structural logics of composite fabrication. By exploiting the repetition of mold making and casting inherent in the composite fabrication process; small variations in form, material and tectonic articulation will be explored. The unit of exploration can range from a single building component to the size of an entire modular housing unit.



## STRUCTURE

Mark Wamble

Steel construction has evolved significantly over the past two decades. Due to the engineer's enhanced ability to model and track the interaction of structural loads and resulting forces, and to the fabricators capacity to manufacture, deliver and install the corresponding structural elements with equal effectiveness, the limits of design have shifted. Architecture, in the disciplinary sense, has been a fortunate beneficiary of this evolution. Not only does the ability to simulate the performance of steel elements and assemblies under load conditions provide the engineer with a sharp analytical tool, it also offers the architect a new range of design freedoms.



## ADAPTIVE RE-USE

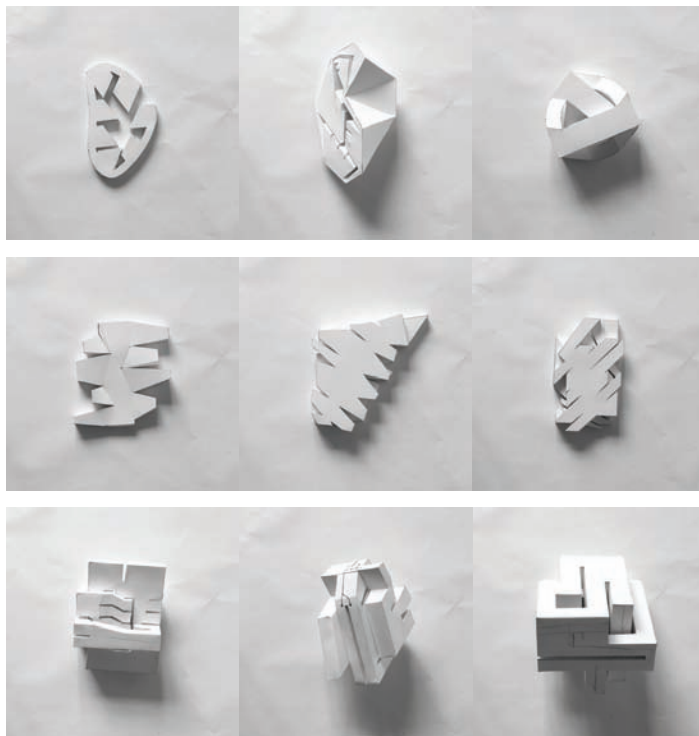
Linna Choi, Tarik Qualalou, John Casbarian: Architectural Cannibalism

Using an existing building as the 'site', this studio will explore this process of renewal through the lens of architectural cannibalism. The interventions, whether characterized as addition, subtraction, grafting, or parasitism, will attach themselves to an existing building in a specific manner, and will thus be structurally 'foundation-less,' since the existing structure itself will transfer the loads to the ground. Gravity redefines itself in this search for a dynamic structural equilibrium between the old and the new.

# TRIAL & ERROR

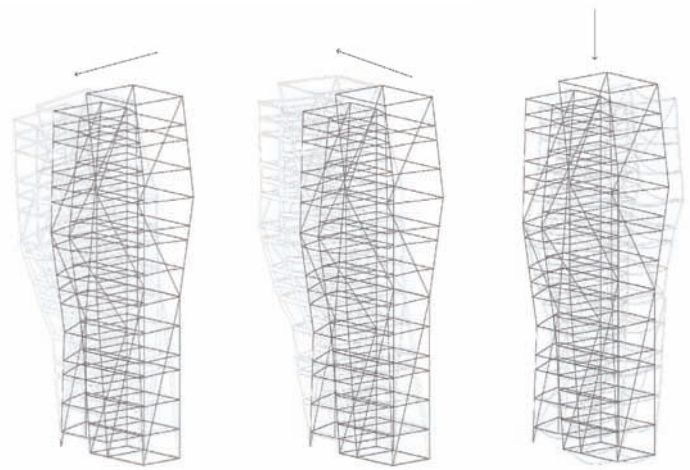
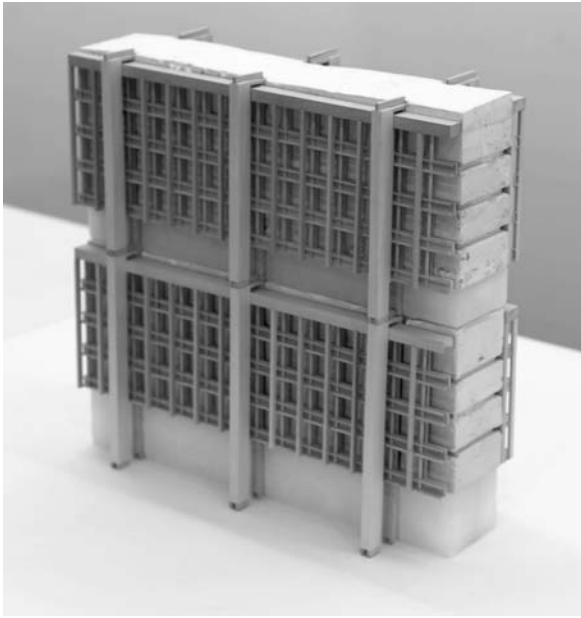


# TYOLOGICAL TESTING

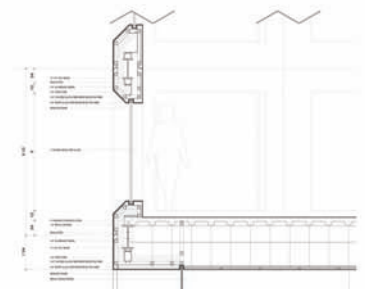
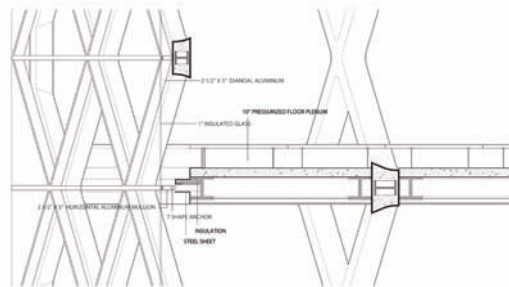
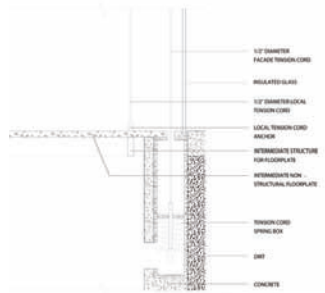
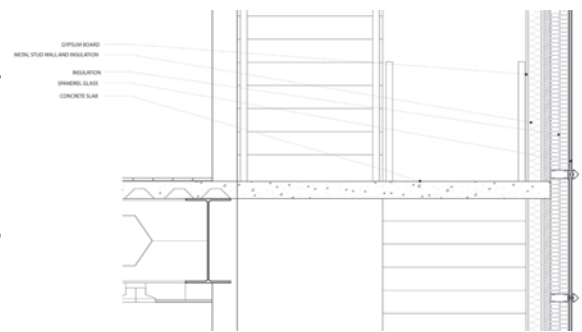
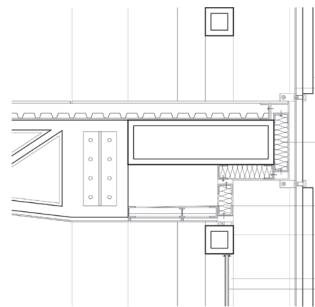
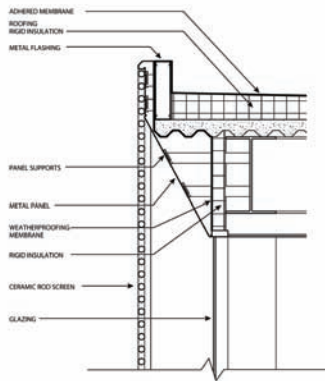


Axiality		Geometric Centers		
Directional Centers			Distributed Centers	

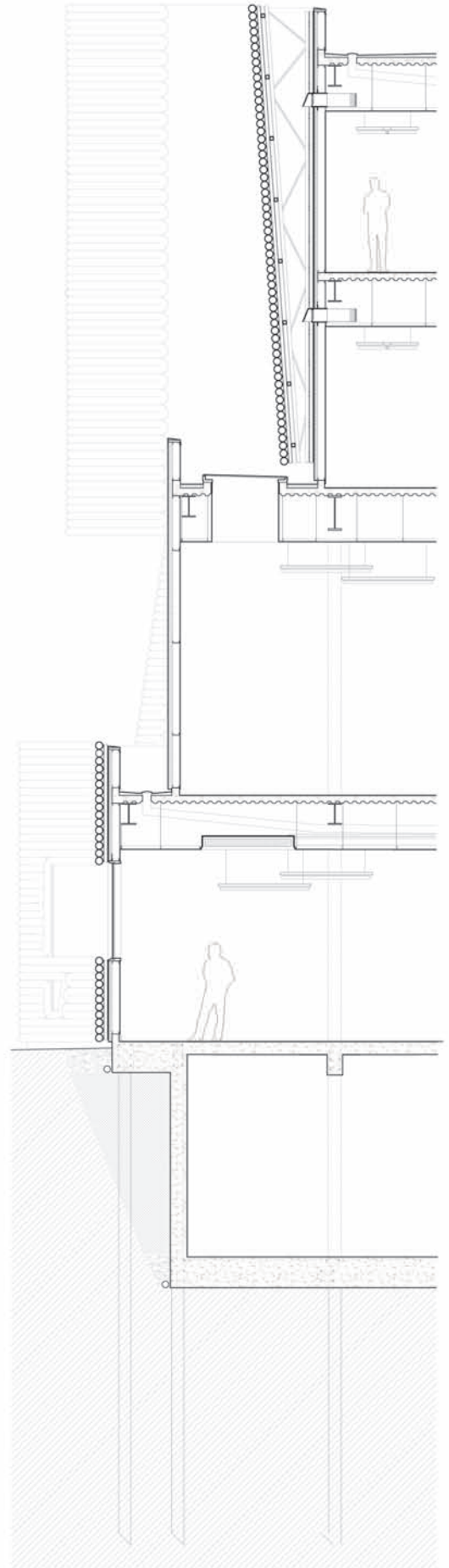
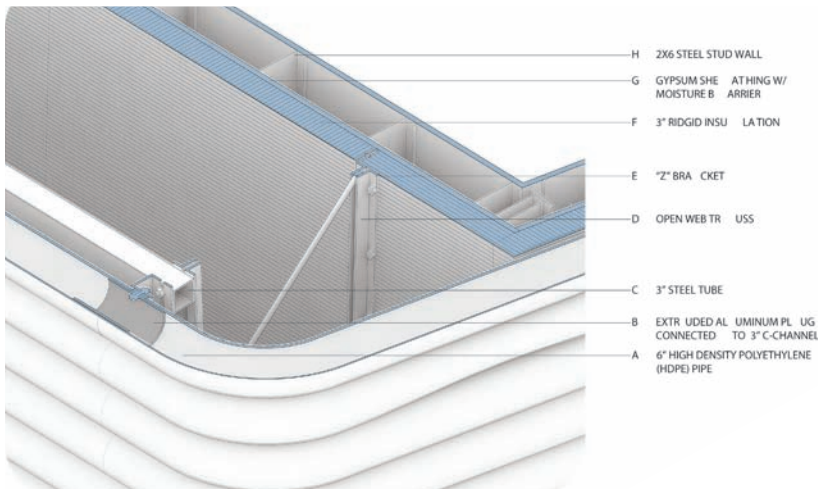
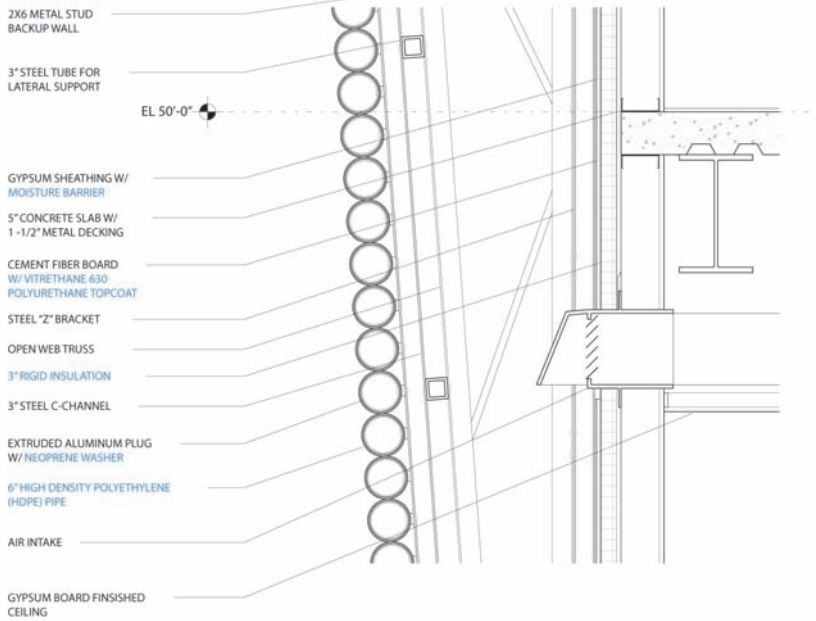
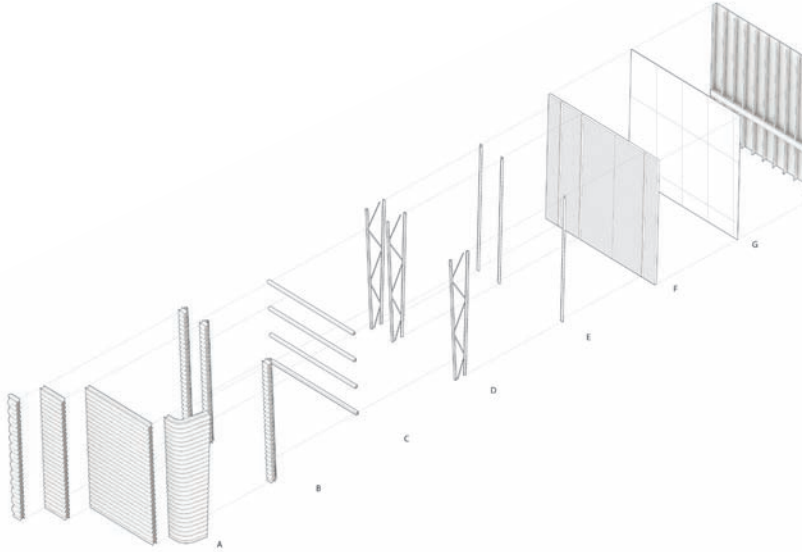
# PROJECTIVE ANALYSIS



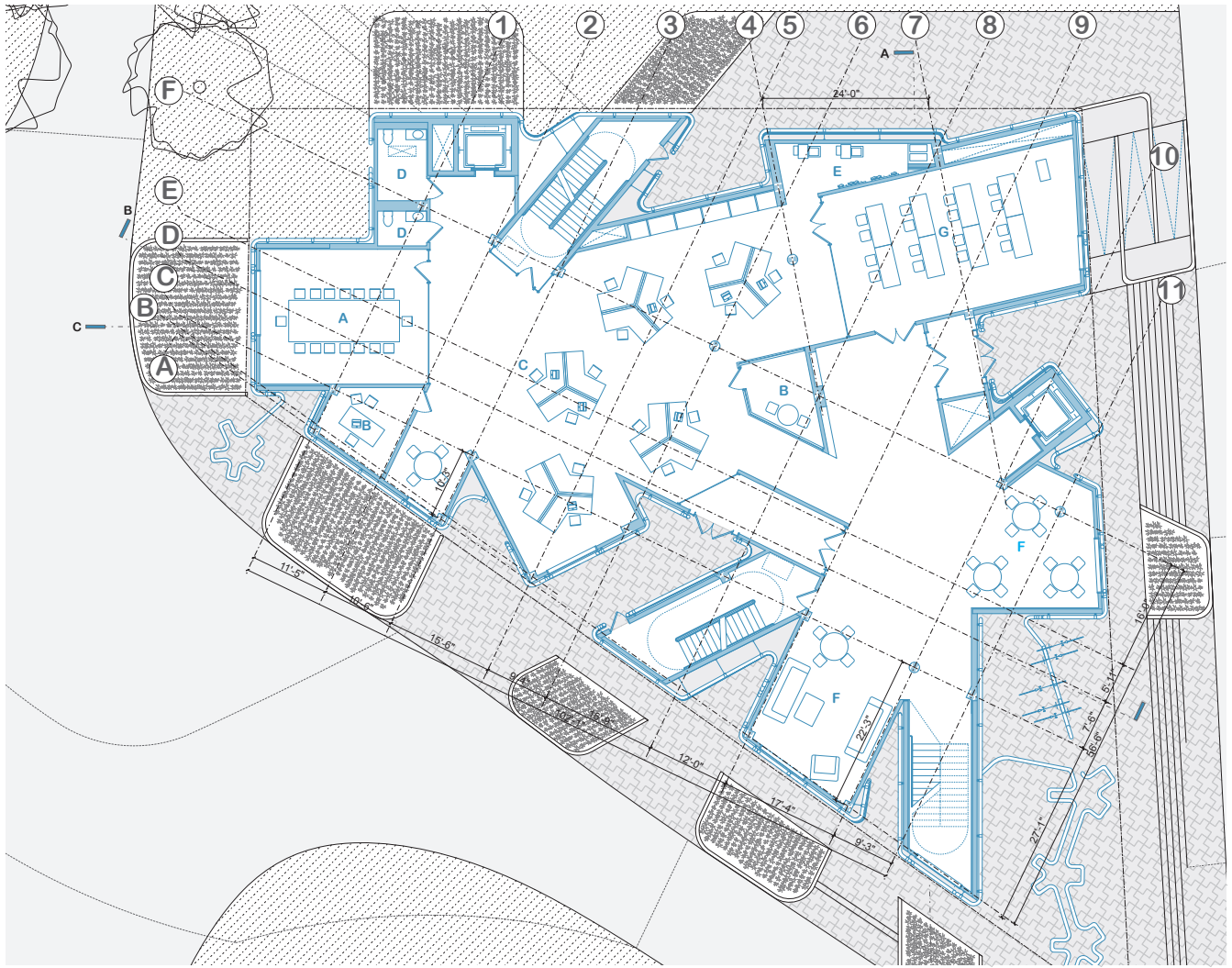
# DETAIL EXPLORATION



**ZACHARY MORRISON & MINKUN KIM**  
*NOT TO SCALE*







# DUNCAN WHITE

## GOVERNOR'S ISLAND SHOULD BE A MAZE



#16: DEN OF INIQUITY



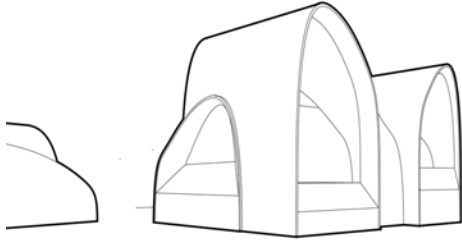
#17: BADMINTON ARENA



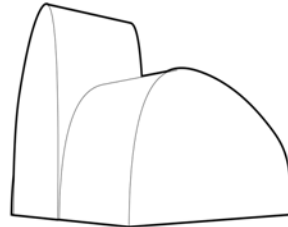
#18: KAYAK RENTAL



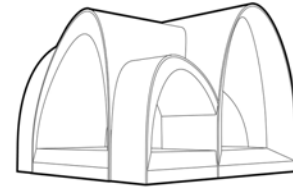
#19: PETTING ZI



#26: ORANGERIE



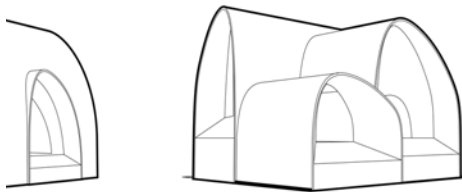
#27: CENTRAL CHILLER PLANT



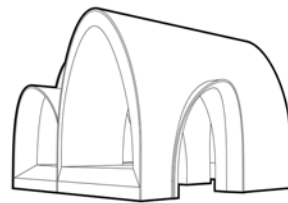
#28: COMBINATION PIZZA HUT + TACO BELL



#29: KABUKI TH



#36: MICROBREWERY



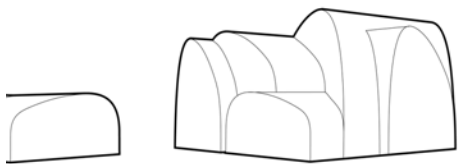
#37: ARTILLERY MUSEUM



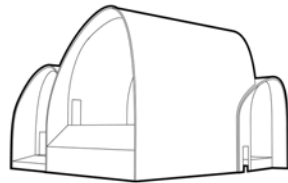
#38: GREENHOUSE



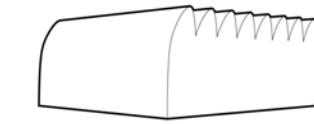
#39: AVIARY



#46: SKI LODGE



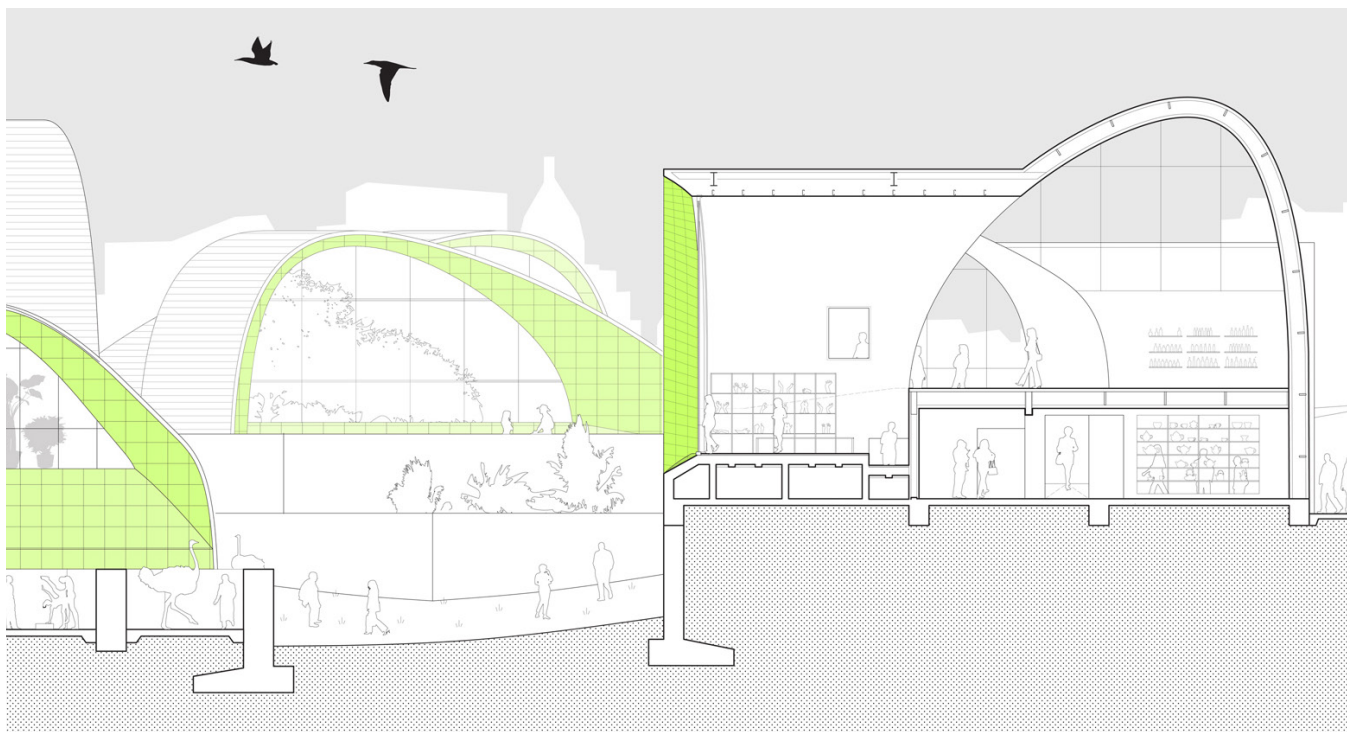
#47: DEPARTMENT STORE



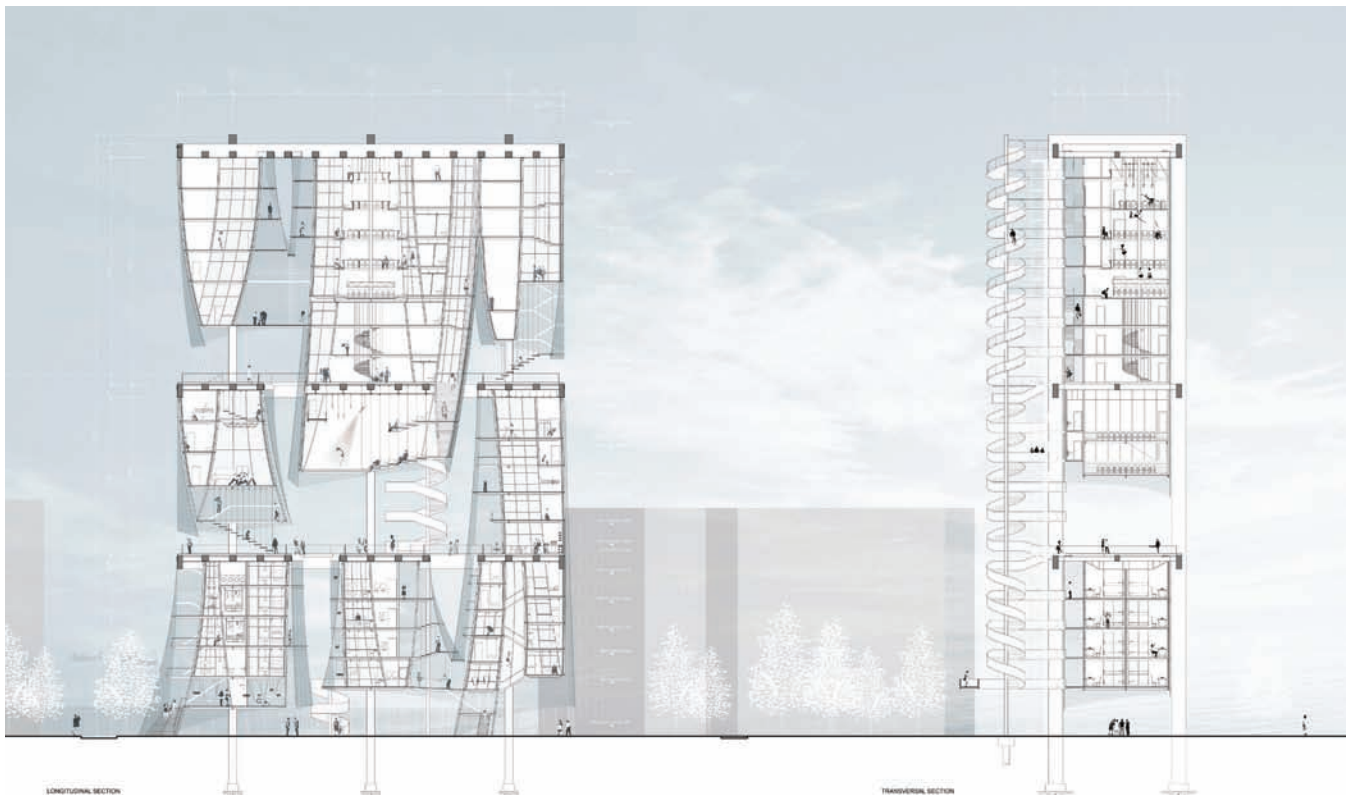
#48: EXHIBITIONS HALL



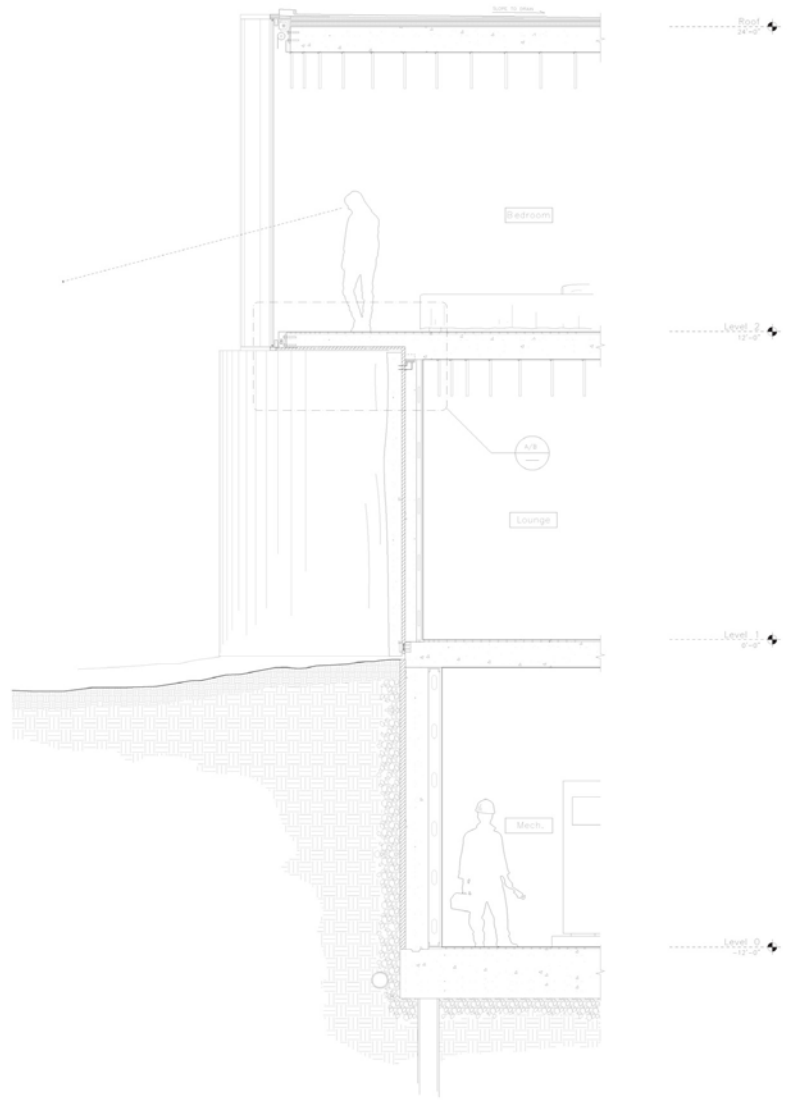
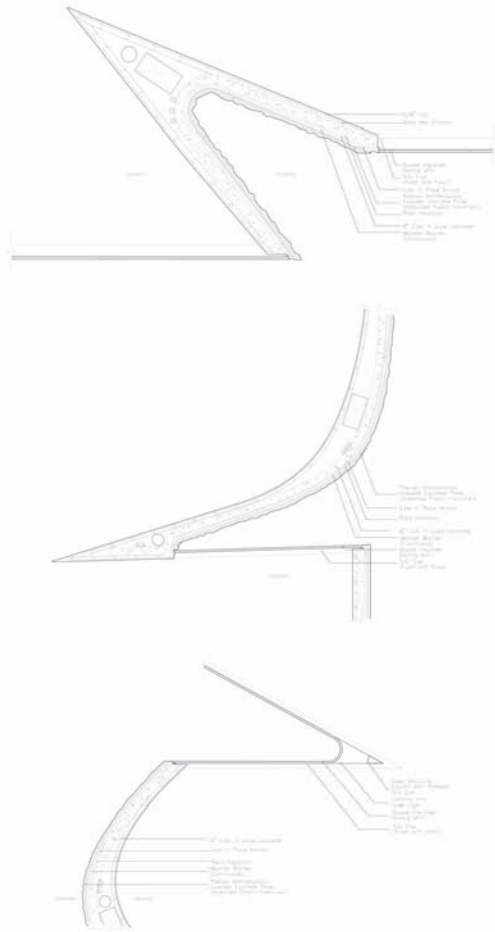
#49: INFIRMARY

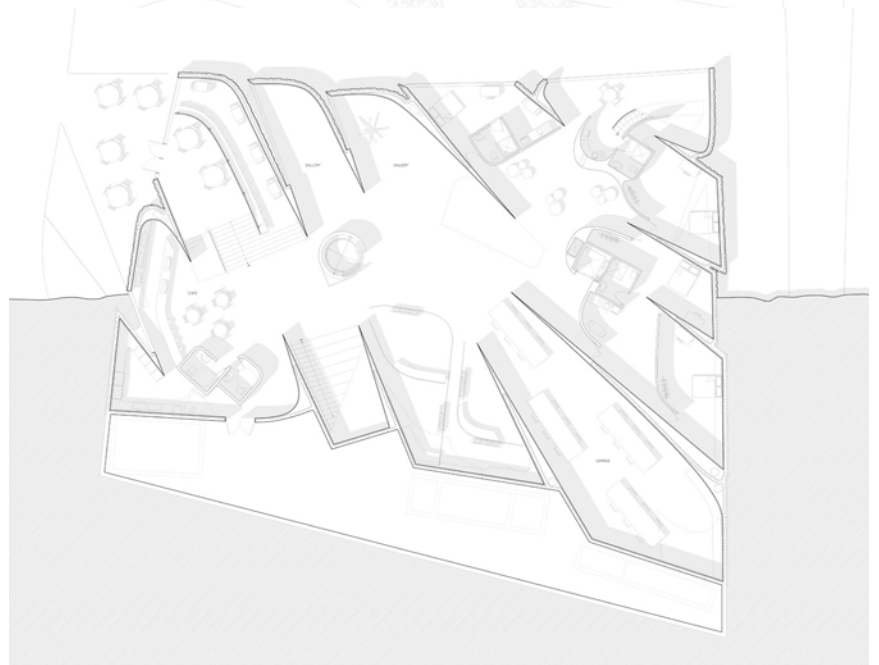
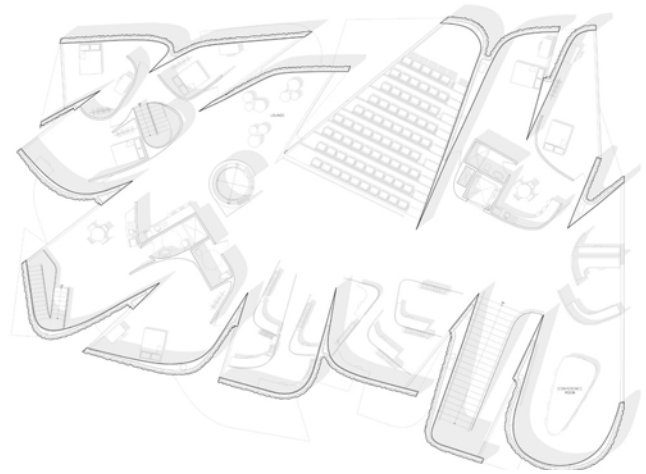
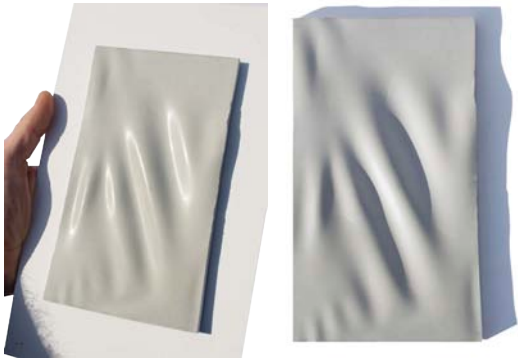


**BOMIN PARK & WHITNEY VOSS**  
*SUSPENDED ANIMATION*

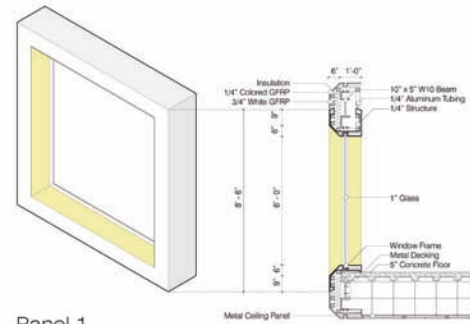
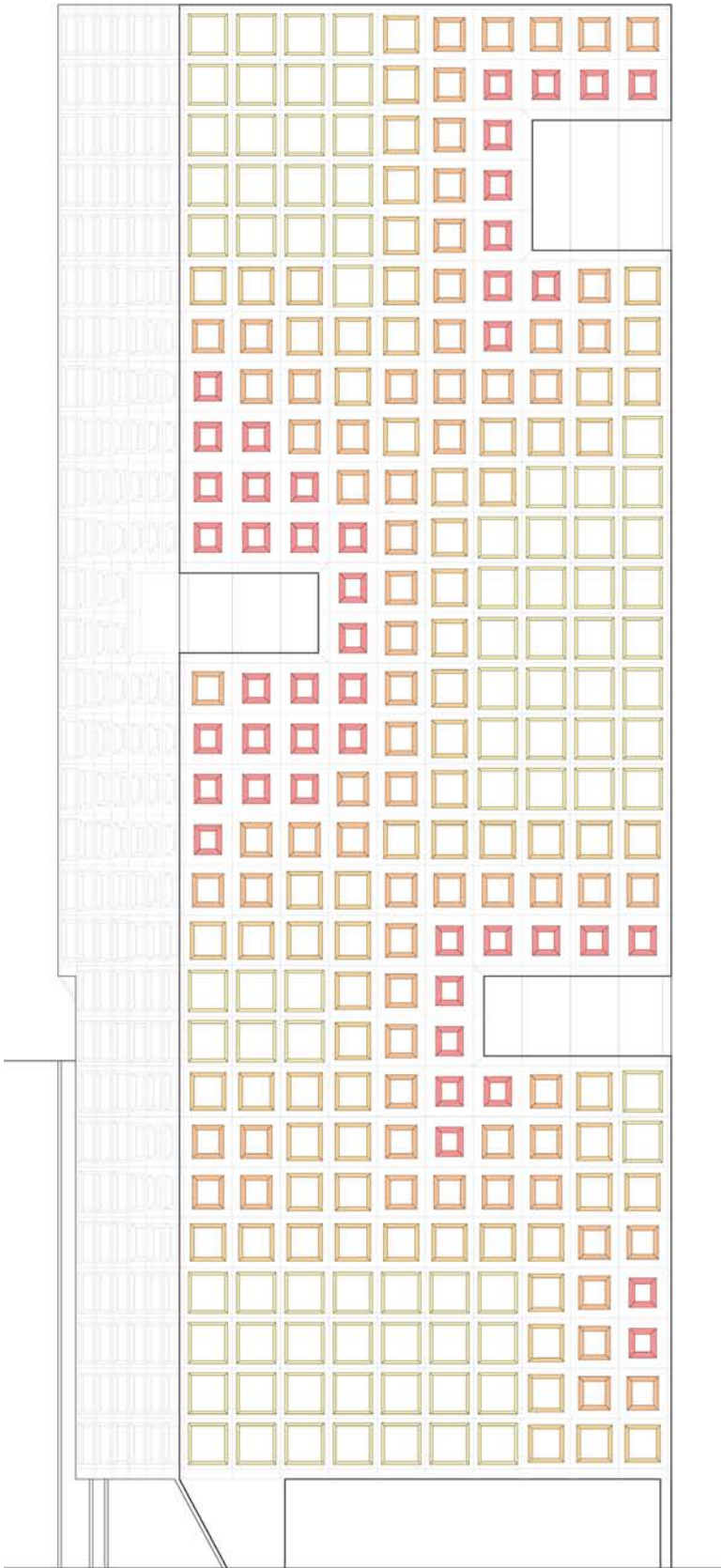


**KERRY JOYCE & DAVID RICHMOND**  
**TRANSVERSE GAINS**

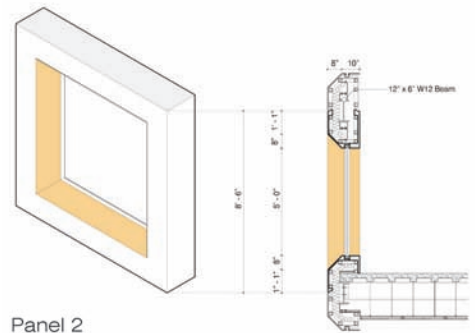




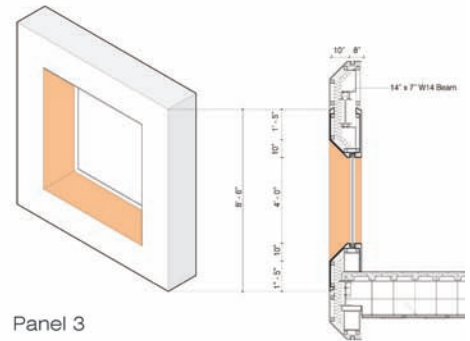
**GRANT NUNNELEE & AL DELIALLISI**  
**SYMBIOSIS UNIQL0**



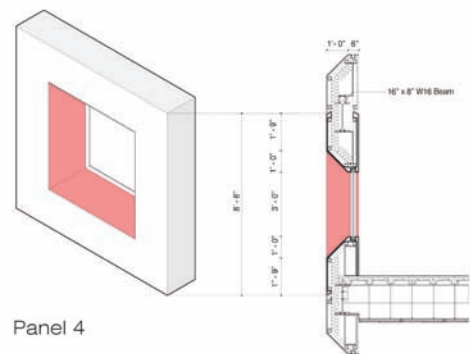
Panel 1



Panel 2

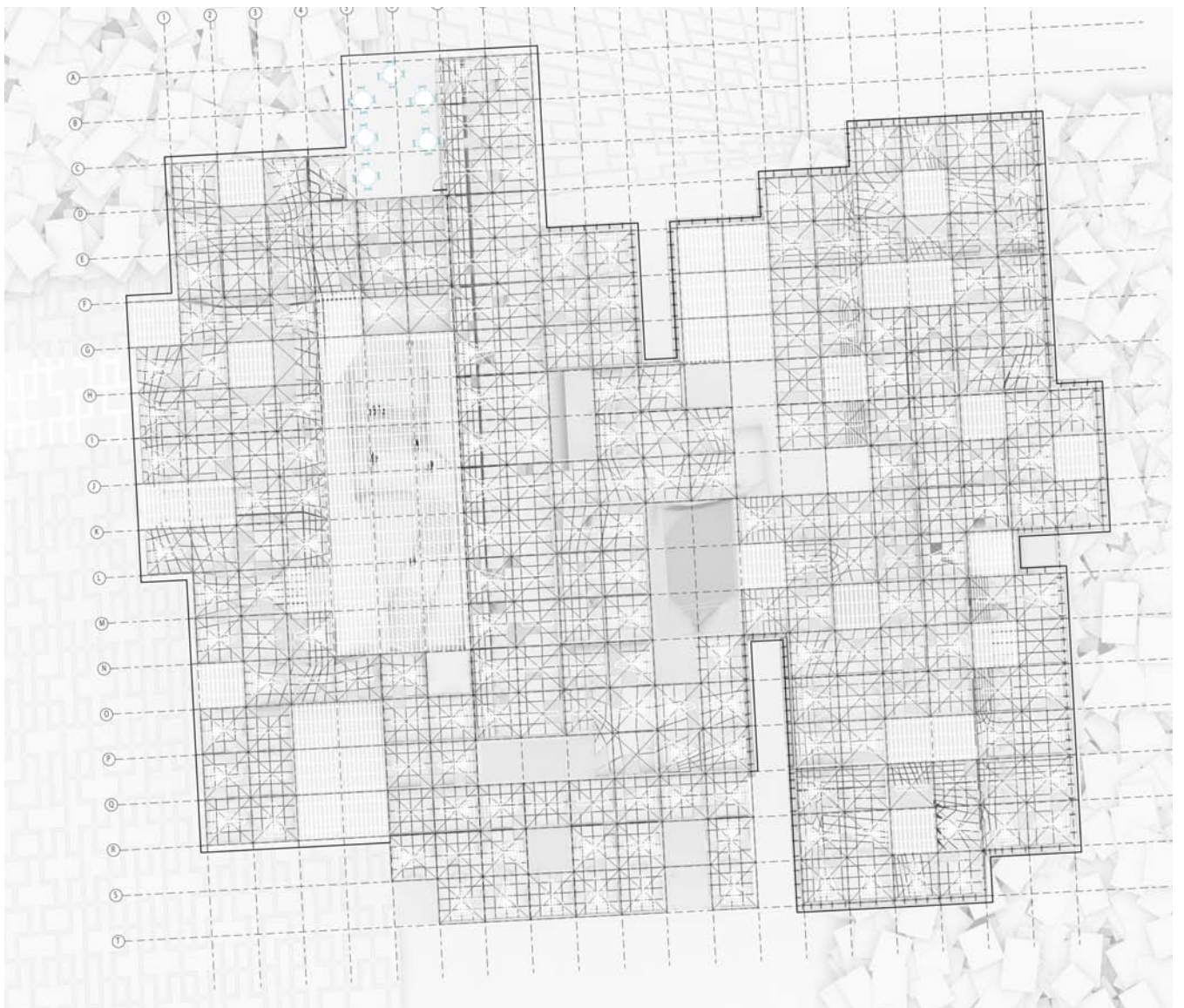
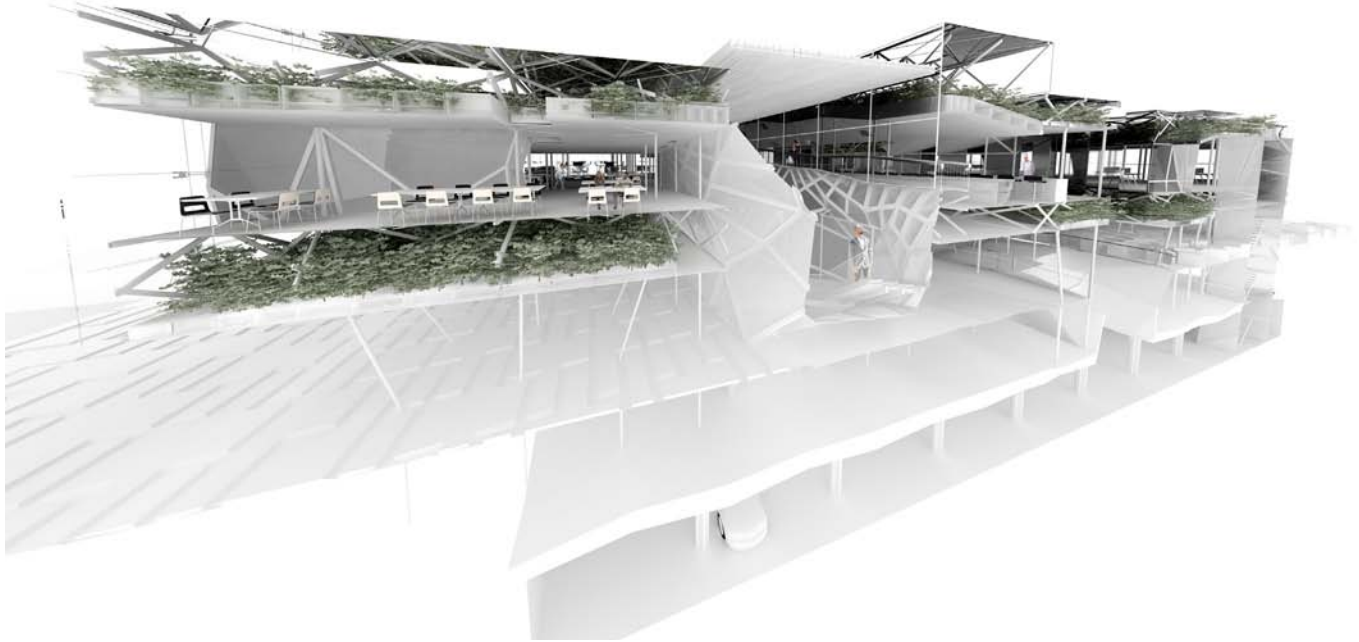


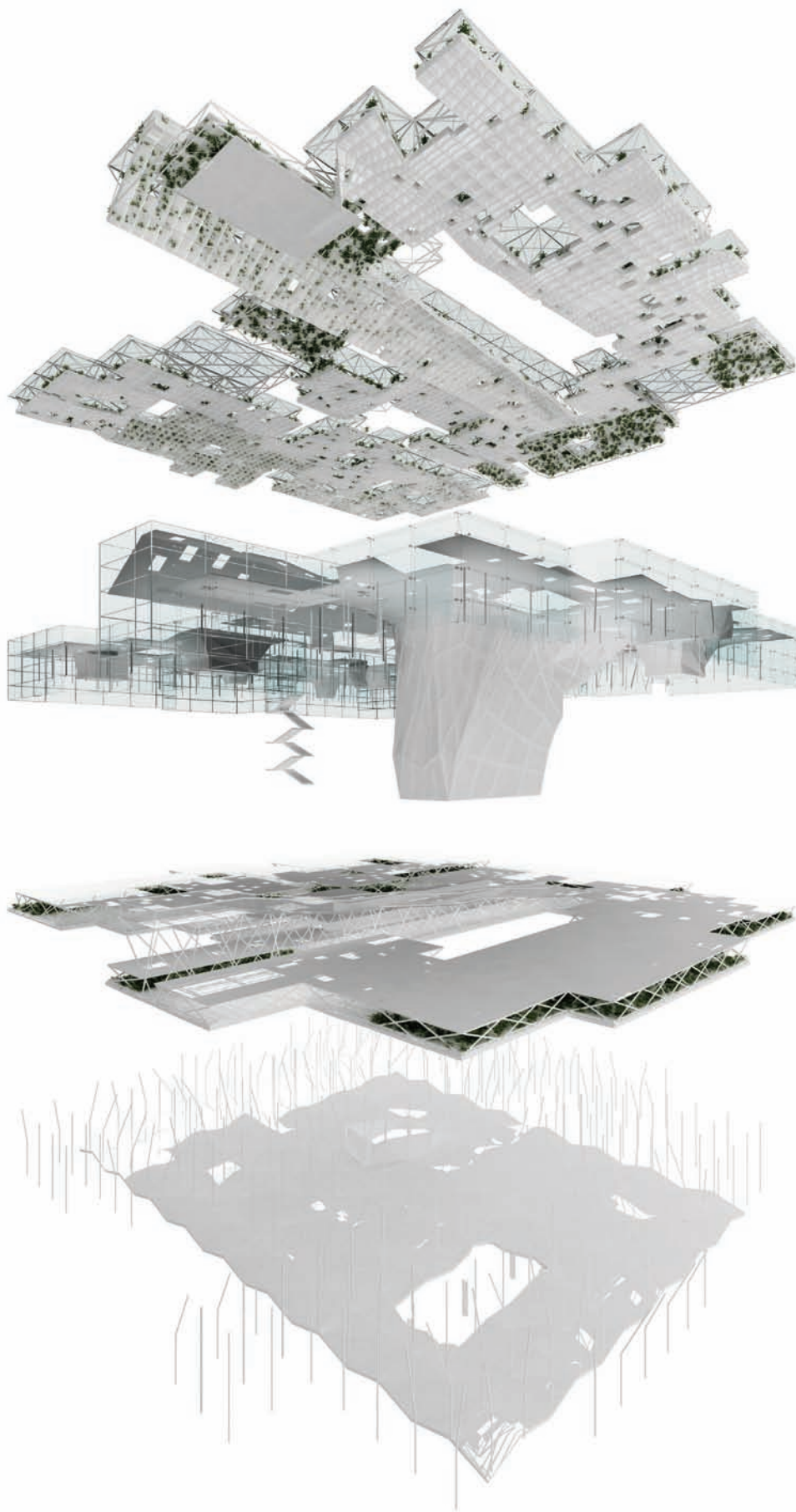
Panel 3



Panel 4

**[DIS]INTEGRATED SCAPES**  
JASON PIERCE

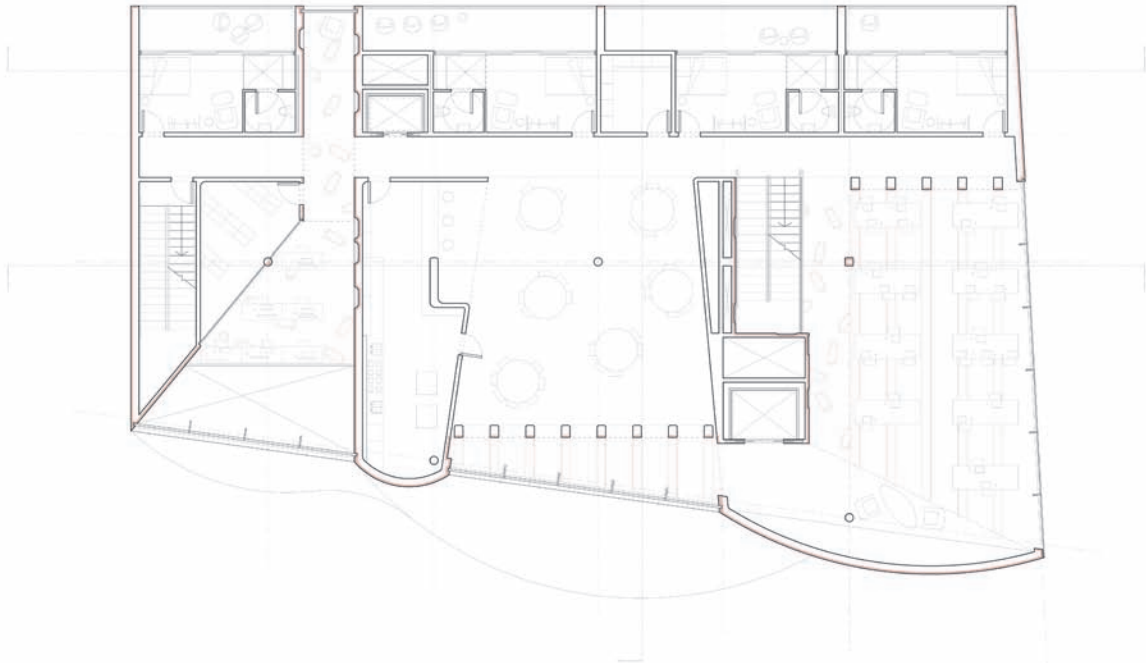


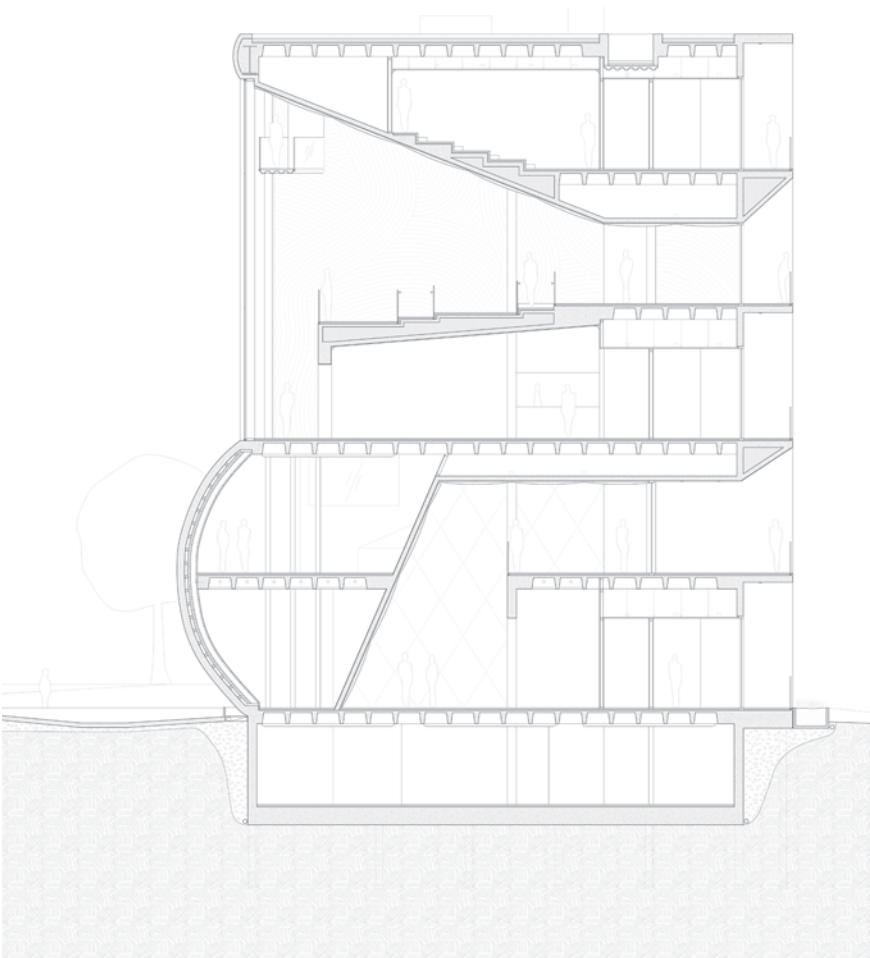
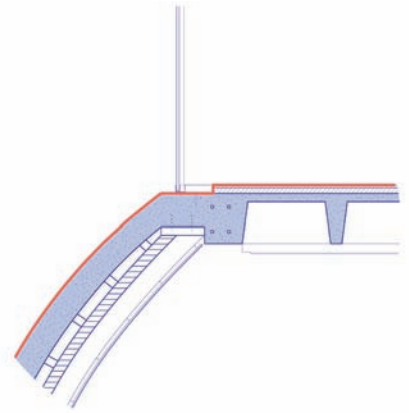
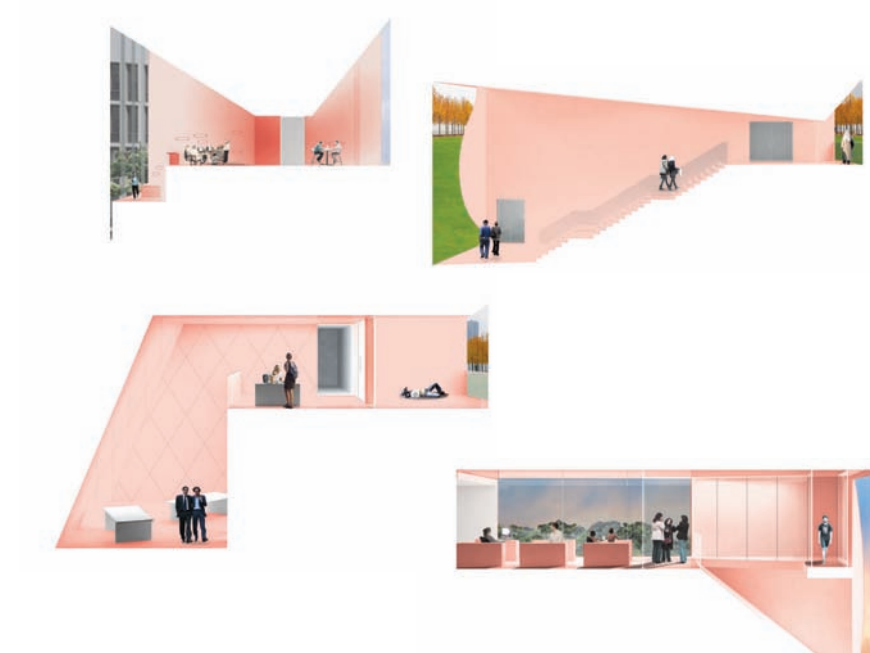




**FIGURED WORK, LIVED FIELD**

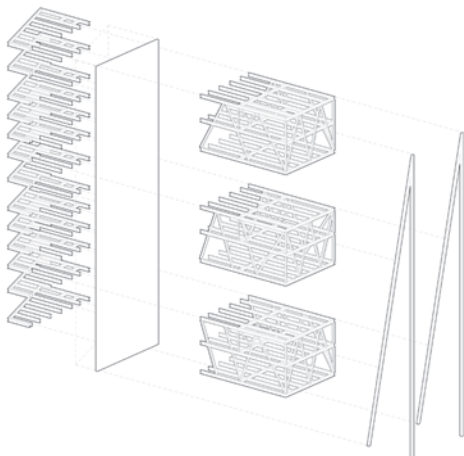
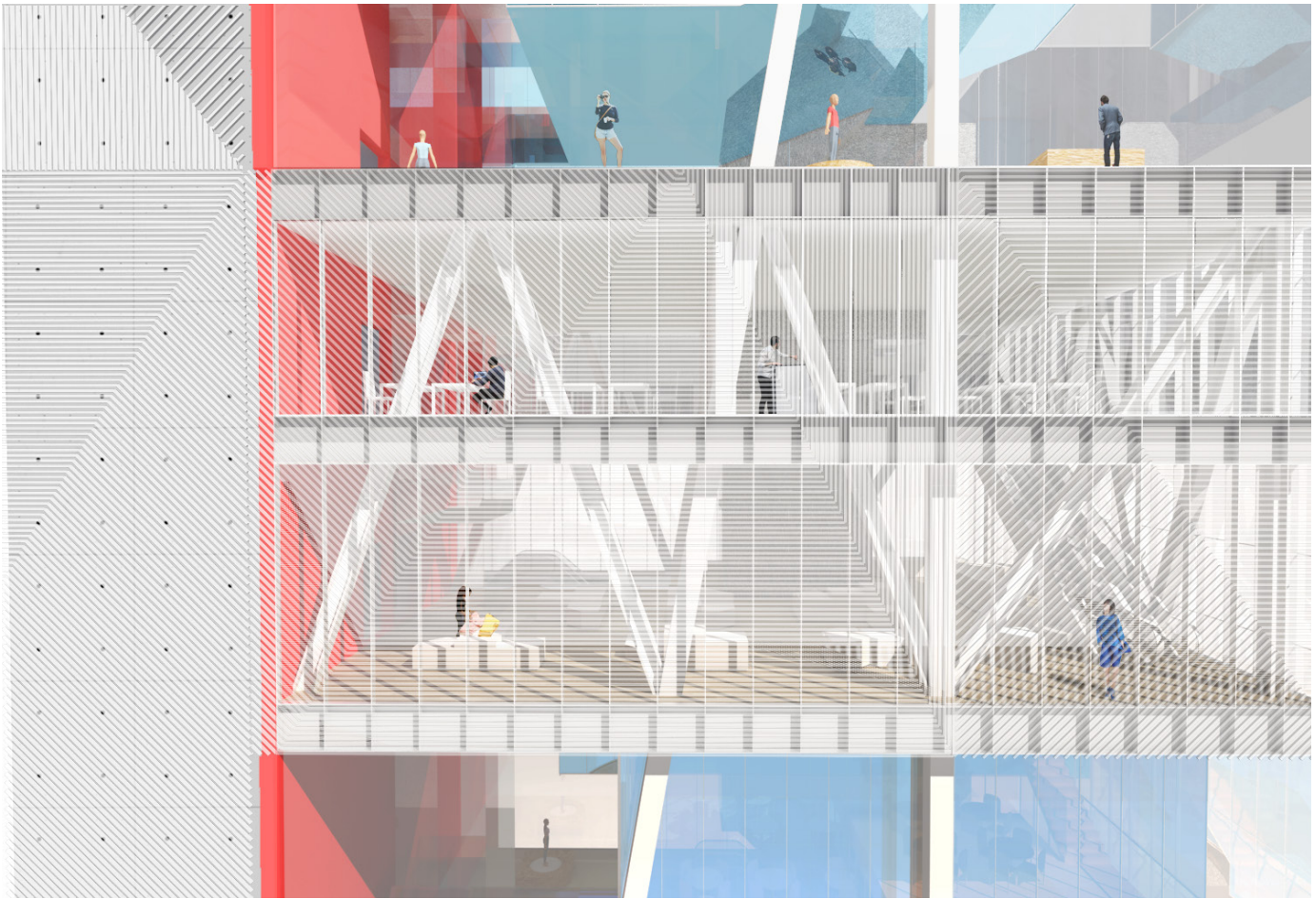
ΠΑΝ ΡΑΚΙ ΙΚ & ΣΑΧΑ ΔΙ ΟΤΝΙΚΩΝ





**BOUNDS**

ARIEL MUCASEY & GEOFFREY SORRELL



**SHEARED SEAM**  
JESSY YANG

