



F22/S23

**Advanced
Synthesis
Option
Studios**

Carnegie Mellon University
School of Architecture

■ The descriptions for F22 and S23 Advanced Synthesis Option Studios, (ASOS) are listed in this catalogue. The ASOS selection process happens before each semester (in July for Fall and in November for Spring). At these points an expanded and updated catalogue is published for the following two semesters. We send an invitation email to students from B.Arch, M.Arch and MAAD programs who complete a preference form.

■ In Fall semesters, 4th year B.Arch students will have a separate set of option studios focussed on Building Integration. This is the final coordinated Praxis studio. 4th yrs will have a BIOS preference process in F22 and then join the ASOS preference process in S23.

■ This year's ASOS studios are following the theme of the Public Programs workshops/lectures; F22 Materiality+Aesthetics, S23 Materiality+Extractivism. We plan discussions within the studios and a colloquy after final reviews to gather positions/findings/oppositions.

■ F22 Studio Rosters will be published on August 15th 2022

■ S23 Studio Rosters will be published on December 1st 2022

COVER IMAGE

*FLINT KNAPPED North elevation to
Cromer Church, North Norfolk, UK
The 15th century parish church was
restored in 1887-1889 by Sir Arthur
Bomfield.*

Photograph MLArscott

Mary-Lou Arscott AADip RIBA
*Associate Head of Design Fundamentals
School of Architecture
Carnegie Mellon University
mlarscott@cmu.edu*



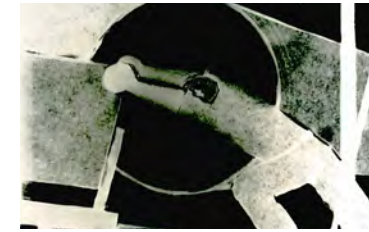
F22 Materiality + Aesthetics

The overarching theme for the semester is that of Materiality and Aesthetics. Each studio will take a different attitude to the intersection of these issues to their studio agenda.

<i>Construction Engendered</i>	Mary-Lou Arscott
<i>Materials + Aesthetics in Marginalized Communities</i>	Bill Bates
<i>Beside*Glitter</i>	Theo Issaias
<i>Degree Zero</i>	Jeremy Ficca
<i>XL-M-XS Design-Build</i>	Steve Lee
<i>Framing MAXO</i>	Christine Mondor

MARY-LOU ARSCOTT Construction Engendered

Construction labor practices disrupted and radicalized



BILL BATES Marginalized Communities

What is Architecture's role in bridging the divide between Design and Need?



THEO ISSAIAS Beside* Glitter

Spaces of queer solidarity and love



JEREMY FICCA Degree Zero

Unearthing stone materiality



STEVE LEE XL-M-XS

A Farmers' Market at Hazlewood Green, year-long design-build studio



CHRISTINE MONDOR Framing MAXO

Spatial narratives of social justice.



CONSTRUCTION_engendered*

***cause, induce, produce, incite, create, develop, breed, excite, generate, originate and procreate** *definition Merriam Webster*

Mary-Lou Arscott

QUESTIONS

- Concepts of gender are constructed and intertwined with injustices in racial, social and cultural space.
- How does construction labor become race/gender excluding and exclusive?
- Consider the building site and the race/gender stereotypes across contrasting economies and cultures.
- What is the connecting rationale in history of race and gender roles?
- How might a challenge to ideas of property/capital open up alternative economies, material use and design practices?

PROMPT

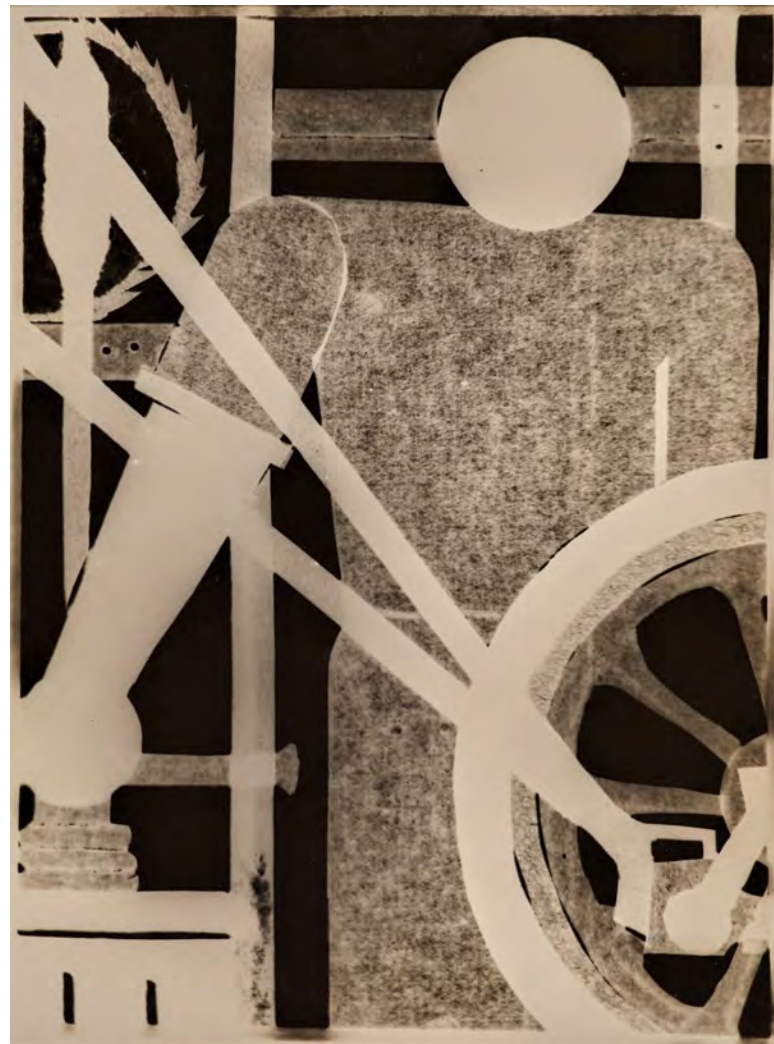
This studio will take conventional stereotypical construction scenarios and design a progressive series of upsets to it, using and creating disruptive contexts. Narratives will operate 'to make one think harder, feel more, and be turned inside out'.(Laura Cumming)
Reference will be made to artists including the mischievous, surprising and wildly ambiguous, imaginative work from;

- Paula Rego
- Jes Fan (see Paradox_Body in the Age of AI, Miller ICA)
- Carrie Mae Weems
- Louise Bourgeois
- Doris Salcedo
- Jonathan Lyndon Chase

CONTEXT

Studio readings and discussion will include;

- Sylvia Wynter_Unsettling the Coloniality of Being, 2003
- Judith Butler_The Force of NonViolence, 2020
- Swarnabh Ghosh_Criquet of Labor in Construction, 2021
- Charlotte Malterre-Barthes_The Devil is in the Details, 2021
- Who Builds Your Architecture? A Critical Field Guide. 2017
- Assymetric Labors 2016, architecturelobby.org
- Harun Farocki, In Comparison, film, 2009
- dapcollective_Design as Protest, blackwomenbuild.org



Alice Lex Nerlinger The Machinist 1929 photograph



Jes Fan Systems II, 2018

PROGRAM

The studio will overturn the contemporary principles of cheapest method, easiest path of exploitation and rewrite the script for a newly engendered construction sequence. It will be a 'what if' process of analysis. The studio will consider the impact of each part that could generate radical societal, spatial and material consequences for the built environment. Collectively the project will range across scales, from insitutional (e.g. imagining a new trade school) to cellular (e.g. what is a world without contestation of racialized or gendered identities), considering timescales from epochal + generational to daily + momentary, and encompass spatial registers from global to intimate.

The outcome of the studio will be an installation of individual or paired projects and a collaborative public discussion as final review. The studio will speculate using processes of drawing, modeling and animating to project both the potentials and development of the evolving ideas.

The theme of Materiality and Aesthetics will be the lens for questioning as the semester proceeds, where the SoA public programs will be key influences for the unfolding conversation.

The scope of the critical inquiry will be far ranging and challenging. The research will include dialogue with labor organizations and people who are currently engaged in activism in construction and trade training.

At the beginning of the semester we will together establish a community agreement for the studio. The material that we're covering in this class can be challenging. While we expect there to be rigorous class discussion and even disagreement, you should engage with care and empathy for the other members in the studio. Have the courage to face the uncomfortable and we will work together to establish a classroom environment that is supportive of taking these intellectual and emotional risks. The studio is committed to drawing at least 50% BIPOC and female writers, artists architects and thinkers.



Mary-Lou Arscott, AADip RIBA

LEARNING OUTCOMES

On successful completion of this studio you should be able;

1. to generate design propositions based on a critical understanding of the relationships between ideology and forms of representation.
2. to construct visual-verbal narratives to describe ethical argument and ideas for societal speculation.
3. to use ideas of systems intervention to pose multiple outcomes for change.
4. to understand and apply theoretical positions from studio readings as keys to generate discussion and new insight.
5. to describe the counter positions embedded in their own design propositions.
6. to demonstrate a familiarity with systems of material extraction+supply and reproduction of labor in contemporary construction industry.

Materiality and Aesthetics in the Marginalized Community

What is Architecture's role in bridging the divide between Design and Need?

Bill Bates



Worlds apart but visible to each other, who decides the future of each? photo by: Bill Bates



Abandoned hope photo by Bill Bates

QUESTIONS

How do we address the deeper needs of neighborhoods that have been historically marginalized by redlining, systemic segregation, gentrification and overly aggressive urban renewal projects? Architecture is the key element that anchors our sense of place. However it has often been used as a wedge to further divide the “haves” from the “have nots.”

CONTEXT

The research work of the students will be built upon the ideas embodied in the following books:
 “The Color of Law: a Forgotten History of How Our Government Segregated America” by Richard Rothstein
 “How to Kill a City: Gentrification, Inequity and the Fight for the Neighborhood” by P. E. Moskowitz
 “A Pattern Language: Towns, Buildings, Construction” by C. Alexander, S. Ishikawa, M. Silverstein
 “Root Shock: How Tearing up City Neighborhoods Hurt America, and What We Can Do About It” by Mindy Thompson Fullilove, MD

PROMPT

Absentee ownership of property weakens a neighborhood’s cohesiveness, sense of power and self-respect in a society that disproportionately values wealth. The Oxford Dictionary defines Materiality as “the quality of being material or composed of matter.” Obviously architecture has always been a key element of that definition. More interesting is the second definition offered in the dictionary which is the word’s legal meaning: “the quality of being relevant or significant.” This studio will examine the limited privileges and rights of marginalized communities to occupy and own shelter and the impacts on their quality of life as well as the broader societal implications. It will pose challenges to understand how different communities define their relevance and empowerment to shape their own definitions of materiality and aesthetics in spite of the systemic covert and overt biases of outside bureaucracies and design trends. The class will examine how the social equity and justice movement challenges our preconceptions of the designer’s role in dictating materiality and aesthetics. Students will be engaged in seeking evidence of effective design solutions that are not only aesthetically pleasing but address the foundational needs of the disenfranchised. The course will include reading that will prompt discussion about what key architectural elements of a neighborhood are socially foundational and whether or not they should be considered essential human rights.

PROGRAM

Exploration of different facets of design beyond its physical aspects will be encouraged. The reading material is intended to help the student recognize political and financial systems and policies that underlie all decisions around the built environment. Students will be challenged to contemplate potential attitudinal shifts to change community perceptions of powerlessness. The studio product will seek to design sustainable change strategies that might serve as a catalyst for social good and justice and enable previously disenfranchised citizens to thoughtfully address materiality and aesthetic deficits within their neighborhood without surrendering to tax driven gentrification.

LEARNING OUTCOMES

- The students will hone their listening skills to better understand clients’ needs.
- Emphasis will be placed on analysis of the political and social framework that dictates decision making in the built environment.
- The studio will encourage students to think about their design solutions in the context of fundamental community needs.
- Focus will be placed upon empathetic listening and problem solving.



Bill Bates, FAIA, NOMA

“Without an architecture of our own we have no soul of our own....”

-Frank Lloyd Wright

Beside* Glitter

Spaces of Queer Solidarity and Love

Theodossis Issaias (he/him)

QUESTIONS

Reflecting on the state of architecture, Paul Preciado writes that architects have been ignoring the epistemological transformations and the critical turn taking place in queer and transgender movements. And then, Preciado asks; What is the relationship between gender and sexual politics and architectural practices and discourses today? Can we think of our discipline as a practice of gender and sexual resistance within contemporary global capitalism? The indexical *our* and *we* connote both our positionality as makers/architects and the contingent and fragile alliances we form to help us endure the grinding down of life's possible genres and imagine a forward-dawning future.

PROMPT

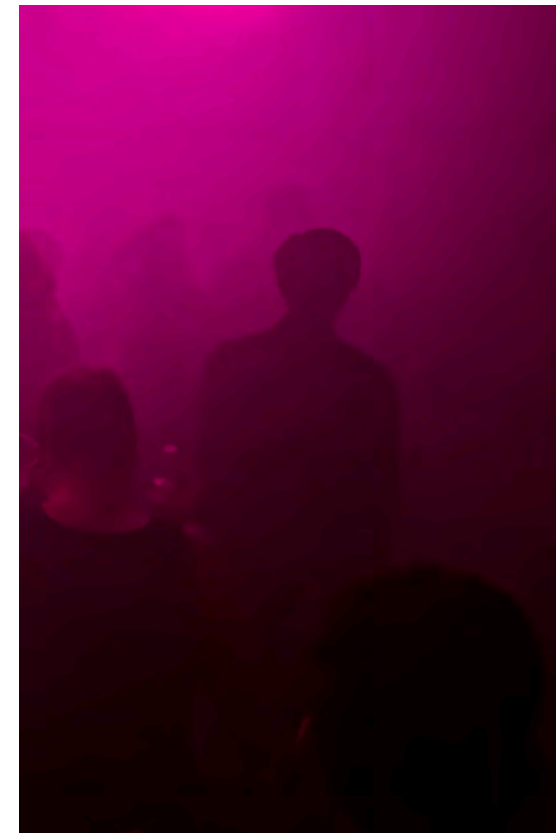
Space is a formation that is co-constituted through sexualities and genders. While the discipline of architecture has disregarded this very fact, queer communities have been creating spaces to enact desire, to find joy and pleasure, to protect, support and uplift one another, and ultimately, to live life in its fullness. For this studio, we will turn to these queer practices that have carved possibility not where repression has inscribed it. We will explore stories, archives, and everyday rituals, that challenge the normative and normalizing habits of architecture. From the bedroom to the darkroom, from the bathhouse to the cruising spot, from the dance floor to the floor of the health clinic, we will revisit practices, locate spaces of solidarity, and reflect on the inner workings and contradictions of our queer coalitions.

CONTEXT

The physical context of the studio will be the city of Pittsburgh and its contemporary politics –our here and now. However, we take heed of what José Esteban Muñoz writes: “Queerness is that thing that let us feel that this world is not enough, something is missing.” To escape “the negative and toiling in the present,” Muñoz proposes to look at the realm queer aesthetics of the past because they contain blueprints and schemata of a possible future. Thus, queer aesthetics, from the quotidian to the spectacular, are also our context.



somewhere, sometime #1, photo by Theodossis Issaias



somewhere, sometime #2, photo by Theodossis Issaias

PROGRAM

Throughout the semester we will collaborate with and learn from friends, colleagues, and mentors. Joseph Hall (Executive Director of Kelly Strayhorn Theater) will introduce us to the theater as a space for Queer & Trans Artists of Color; Harrison Apple (Associate Director of the STUDIO for Creative Inquiry) to their work on the Pittsburgh Queer History Project; Dana Bishop-Root and Ginger Brooks-Takahashi (General Sisters) to their collaborative artistic practice; Jacob Gordon (School of Social Work at UPitt) to his research on dating apps among LGBT+ populations; Stephanie Tsong to their work as founder of the DJ queer collective Jellyfish. Sharing in this knowledge, the studio will develop a typological method of recording and understanding these spaces including the theater, the -room (bedroom, restroom, darkroom), the dance floor, and the grid and the territory of dating platforms.

We will put additional pressure to established expectations of programmatic and typological inquiry by rethinking spaces through affect, relations, and tactility. To do so we will focus on texture, borrowing from Eve Kosofsky Sedgwick. Even more immediately than other perceptual systems, Sedgwick argues, the sense of touch makes nonsense out of dualistic understanding of agency and passivity; “to touch is always already to reach out, to fondle, to heft, to tap, or to enfold, and always also to understand other people or natural forces as having effectually done so before oneself, if only in the making of the textured object.”

LEARNING OUTCOMES

In the lineage of queer agit-prop, the outcome will be a fanzine and an installation of individual or paired up students, presenting, pursuing, and capturing the research and design process. On successful completion of this studio you should be able:

to articulate spatial propositions based on a critical understanding of the relationship between the politics of genders, sexualities, and forms of representation

to work collaboratively with members of grassroots and non-profit organizations and groups

to navigate the complex field of queer and gender studies, including scholars such as Eve Kosofsky Sedgwick, Lee Edelman, Lucas Crawford, Jack Judith Halberstam, José Esteban Muñoz, Susan Sontag, among others.

to appreciate the wealth of architectural queer speculation and activism by familiarizing ourselves with the work of Joel Sanders and Susan Stryker, Adam Nathaniel Furman, Pol Esteve, Leah Wulfman Andrés Jaque, Hal Hayes, Paul Preciado, A.L.Hu, among others.

*“Beside is an interesting preposition because there’s nothing very dualistic about it; a number of elements may lie alongside one another [...] Beside permits a spacious agnosticism about several of the linear logics that enforce a dualistic thinking. [...] The irreducibly spatial positionality of beside also seems to offer some useful resistance to ease with which beneath and beyond turn from spatial descriptions into implicit narratives of, respectively, origin and telos.”

Eve Kosofsky Sedgwick, *Touching Feeling*, 8.



Theodossis Issaias

DEGREE ZERO

Unearthing Stone Materiality

Jeremy Ficca

QUESTION

How might a reconsideration of stone extraction, processing, and material performance yield a different form of architecture?

How might stone be elevated beyond a decorative role in architecture?

PROMPT

Formed over millennia or in mere minutes, the earth's geological features and the stones collected or extracted displaces our perception of time made visible through material. Stone is one of our most archaic materials, but for many cultures also one of the most revered. It is a material that intersects a remarkably rich history of building across cultures and time, where it has been used equally for its significance and utility.

This studio seeks to explore the contemporary potential of stone as a primary building material. It will research the evolution of the material's use and the current circumstances of its global extraction and processing to understand how this plentiful natural resource may open new types of architectural expression while coming to terms with the environmental and human impact of its extraction. Guided by an ecological ethos and situated within the year's focus upon materiality, aesthetics, and extraction, the studio aspires to produce work that addresses the timescales of architecture and its materials. Furthermore, the studio will develop design proposals that consider the aesthetics of architectural refinement, labor, and extraction. Working heavily through models and across scales, students will explore architectural conditions to ultimately develop an architectural project that demonstrates their interpretation and utilization of the material.

The studio will operate in a 'mini-thesis' model in which students, in dialogue with the instructor, will be expected to define the scope of their their investigations within the subject of the studio.



Badami Temple Caves, Karnataka, India
Quarry Stone Scraps, Vals, Switzerland

CONTEXT/PREDICAMENTS

This studio is structured around a collection of predicaments that illustrate the contradictions, challenges, and opportunities of the subject. This is illustrated well through recent work related to the Parthenon statuary housed in the British Museum and often referred to as the Elgin Marbles.

This past June, robotic reproduction of an Athenian horse head commenced in Carrara, Italy to demonstrate the viability of reproducing the Parthenon's Elgin Marbles. The 3D model used to generate the robotic toolpaths was generated by members of Oxford's Institute of Digital Archaeology with the use of Lidar equipped iPhones and iPads and scanned surreptitiously under the watchful eyes of British Museum docents. The robotic carving, conducted in the shadows of a quarry frequented by Michelangelo, reveals the confusing intersections of ancient and modern material practices and our material and immaterial worlds. While the original statuary was hand carved over many months by highly skilled stone masons, robotic carving occurs over days, largely absent the mason's hand. Whereas stone carving historically relied upon stereotomic drawing to translate design intent to stone masons, digital workflows forge direct connections between the model and production equipment, circumventing drawing altogether.

Stone is a widely available natural building material and offers the potential to reduce distances between material sourcing and building. The strongest stones outperform concrete while offering unmatched durability and aesthetic potential. While contemporary use of stone in building is largely relegated to veneer might there be untapped potential for this material?

LEARNING OUTCOMES

Over the course of the semester students will have:

- researched the evolution of stone construction techniques as practiced globally
- understood and applied the affordances and constraints of architectural stone
- developed a robust knowledge of the cultural, ecological, and performative dimensions of an architectural material
- articulated, through a design proposal, a position toward contemporary application of a naturally sourced material
- explored how material informs spatial and structural conditions
- utilized physical models as instruments of design imagination

Note: the studio may travel to Madison, Wisconsin to visit Quarra Stone, one of North-America's leading stone processors.



Quarry Cave, Carrara, Italy, Edward Burtynsky
Robotic Marble Milling Process, NYTimes

In the mountains of Carrara, you see what you can no longer actually see: millions of tons of mined marble that have found a form and a location somewhere in the world, or have been wasted, reduced to rubble. You see the remains of mountains, their insides that would otherwise be invisible; you see incisions, streets, serpentines, and bridges, and when you get closer, you hear the noise of the saws, the excavators, and the trucks.

Presence and absence become equally important; aesthetics and overexploitation two sides to the monumentality of marble. Am I looking at mountains, or am I looking at the missing parts of mountains, at no longer existing mountains that no eye can possibly reconstruct.
- Angekika Stephen



Jeremy Ficca, AIA

XL - M - XS

A Farmer's Market Building at Hazelwood Green Semester 1 of a Yearlong Design/ Build Studio

S.Lee

QUESTIONS

According to the USDA National Farmers Market Directory, “the number of markets in the U.S. has grown dramatically between 1994 and 2019, from roughly 1,755 to over 8,700 markets, an astounding 397 percent increase.”¹ Farmer’s markets have the potential to positively re-configure national, local and regional food eco-systems, to mitigate the effects of food deserts and to improve social and economic justice. A well integrated facility can create community identity and become a much needed social gathering place for a neighborhood.

_How would a new farmer’s market facility impact the proposed development at Hazelwood Green (HG) and the Greater Hazelwood neighborhood?

_Can a well integrated building advance the sustainability, resilience and innovation goals of HG?

PROMPT

Farmer’s Market buildings have a long tradition around the world and today present a unique challenge for architects. Their design spans the domains of urban design, public space making, neighborhood revitalization, social planning and the food eco-system, in addition to the critical issues of sustainability and resilience. The fall semester of the 4th year in the B.Arch program is focused on issues of building integration. This studio will consider the broader community and urban questions but be laser focused on the issues of building integration. The current generation of market buildings tend to provide greater spatial flexibility than in previous eras to not only support the basic marketing functions but also to support the community - from to performance to gardening. Minimizing internal vertical supports is a good strategy for spatial flexibility, so our form finding concepts will be developed as vector-active or form-active structural concepts to create clear spans integrating efficiency, elegance and economy. Further, our environmental concepts will be focused on maximizing passive conditioning and our constructability concepts will be based on Design for Disassembly (DfD).

The “XS” pavilion will form the basis of the campus Design/ Build Studio in Spring 2023

CONTEXT

The project site is a 178 acre former industrial site known as Hazelwood Green situated along the Monongahela River. In the early 2000’s, Almono LP assembled multiple abandoned industrial properties in the Greater Hazelwood neighborhood to have greater control in creating and implementing a comprehensive redevelopment strategy for the site. According to their website, “Hazelwood Green is envisioned as a model for the transformative redevelopment of an urban brown field into a center of innovation that fuels Pittsburgh’s new economy while remaining grounded in the principles of sustainability, equity, and inclusive economic opportunity.” To the greatest extent possible, we will follow the 30 August 2018 Hazelwood Green Preliminary Land Development Plan.



Hazelwood Green Preliminary Land Development Plan
Image Copyright: Depiction LLC 2018

(1) Albright, Kathryn Clarke. *Exploring the Architecture of Place in America's Farmers Markets*. Cincinnati, Ohio: University of Cincinnati Press, 2020.



Akademie Mt. Cenis, Herne, DE



Team Structure

Assuming twelve students, we will divide into four three-person teams. The suggested team responsibilities are one person each as project manager for XL, M and XS and one person each as project manager for structure, enclosure and MEP. The project managers are ultimately responsible making team assignments and producing the deliverables.

Field Trips

_East Liberty Farmers Market, Pittsburgh, PA (Saturdays 600-am-1200pm)

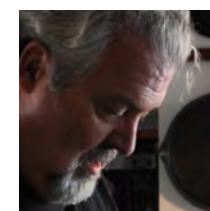
_Main Street Farmers Market, Washington PA (Thursday's 300-600pm)

_West Side Market (43,560 ft²), Ohio City, Cleveland, OH

_Lancaster Central Market (87,120 ft²), Lancaster, PA

And maybe the:

_Reading Terminal Market (78,000 ft²), Philadelphia, PA



S.Lee

PROGRAM

The specific project for this studio is the design of a 50,000 sf farmer’s market on Block 48 (1.81 acres, 78,847 sf) at Hazelwood Green. We will consider the German concept of “Haus in Haus” by designing the “XL” market building as the outer “Haus” and the “M” services building and the “XS” pavilions as the inner “Häuser”.

Program:

XL - 30,000 sf enclosed farmers market with clear span structure (“Haus”)

M - 3,000 sf enclosed services building (toilets, mechanical, office, cold storage) (“Haus in Haus”)

XS - 300 sf open-air, pavilion-like prototypes for seating, eating, conversation, etc (“Object in Haus”)

Work Products:

ArchiCAD BIM, multiple form finding models, environmental testing models and einz-zu-einz prototypes of important details.

LEARNING OUTCOMES

The following criteria will be used to evaluate student work in this studio:

_Aesthetics: The degree to which the proposed building responds to formal issues as articulated in this and prior design studios.

_Experience: The degree to which the design uses a thoughtful narrative and carefully articulated spaces to create meaningful experiences for the user.

_Structure, Enclosure & Materials: The degree to which the set of selected building materials, components and systems and their proposed implementation are appropriate to the intended occupancy, articulate the desired architectural order, and satisfy the physical design requirements.

_Environment: The degree to which the design integrates passive and active strategies to achieve triple bottom line performance.

_Constructability: The degree to which the proposed building is informed and developed in response to an understanding of the processes of construction.

_Presentation: The clarity, craft and completeness of the presentation(s).

Upon successful completion of this studio, you should be able to accomplish the following learning objectives:

_translate a program into a building design that responds to user requirements

_demonstrate the form making implications of structural systems

_demonstrate the energetic implications of materials selection, enclosure systems and building form

_integrate multiple systems to achieve elegance, efficiency and economy in design

_ability to determine the best way to test and measure performance of systems

_develop criteria for evaluating multiple design alternatives

_draw technical documentation for the project using the conventions of architectural representation

FRAMING MAXO

SPATIAL NARRATIVES OF SOCIAL JUSTICE

Christine Mondor

QUESTIONS

This studio will examine the legacy of social justice advocacy of artist Maxo Vanka through the design of a visitors' center campus to complement the artist's murals in Millvale, PA. Vanka's murals, painted between 1937 and 1941, depict the social striving of an immigrant community dislocated by economic crisis and global warfare as modernization scribed a new social order. It was a time of great flux and inspired visual narratives that are relevant to today's dialogues. Our design will pay deference to the mural artifacts and speculate on how design might embody and enable spatial narratives of social justice.

PROMPT

Through reading, writing, mapping, and designing, we will explore multiple themes, including politicized space of capital, global identity and citizenship, and the construction of social order in periods of great flux. Our exploration process will include a personal reflection on the intersection of geographic territory, power, and agency and the evolution of discursive practices. In our first exercise, MICROsettings, we will document spaces of social discourse to become familiar with their functioning. In MACROsettings, we will use mapping as an interpretive tool to understand alternative geographies connected by shared narratives. These exercises will inform the semester-long design of a 3-acre campus and structures that will enable the expanded program envisioned by our M3V client.

CONTEXT

The Society to Preserve the Millvale Murals of Maxo Vanka (referred to here as M3V) is actively preserving the murals and extending their themes to invite a broader, contemporary audience. Our studio will propose material and ideological spaces for M3V's physical and virtual engagements as they foster dialogue on social justice issues and welcome a global community to participate. We will engage the M3V organization, community members, interpretive design experts, artists, and CMU SoA alum to build our knowledge.



AUDITORIO EN EL CONVENTO DE SANT FRANCESC,
Spain, David Closas



INJUSTICE (100 sf), Maxo Vanka

RESOURCES (links available upon request)

Save Maxo Vanka, website.
<https://vankamurals.org/>

McKee, Andrew. "Kolosalno!...Power, Energy, Future..." Master Thesis on Maxo Vanka's murals. University of Missouri-Columbia. 2013.

Ryden, Kent. *Mapping the Invisible Landscape*. 1993.

van der Veer, Gerrit et al. "One Museum, Multiple Doors: Design for Experience of Living Cultural Heritage." Chapter from *Museum Experience Design*, 2018.

Hutton, Jane. "Rivers of Steel: Steel from Pittsburgh to Riverside Park." Chapter from the book, *Reciprocal Landscapes*. 2019.



Christine Mondor

PROGRAM

Architecturally, we will anchor ourselves in the field of interpretive design, most commonly used in the design of museum environments, and will examine how museums function as catalytic social settings. In museum design, the visitor's stay unfolds in time and space with spatial organization and artifacts to engage the body and orchestrate the experience. While we have much to learn from this approach, we will be conscious that the embeddedness of the campus in the community and the desire for serendipity and self-determination in the public realm will inspire moments of creative tension.

In addition to our design sprint preludes, we will design a campus of spaces that augment the visitor experience while seeing the murals. This may include the repurposing of existing structures on site and the weaving of the experience into Millvale, as well as the connection to programs and sites well beyond the immediate vicinity. Functions will include gallery spaces, visiting artist spaces, spaces to gather, spaces to learn, as well as the service spaces required for full functioning. Students will be encouraged to consider the materiality of the campus as a tool for structuring experience.

Note: This studio will require students to consider social, religious, and environmental justice material that some might find difficult or disturbing.

LEARNING OUTCOMES

During this studio, students will gain technical, procedural, spatial, and experiential design skills, and will be able to:

- articulate historical threads and develop a narrative around the evolution and continuity of social justice issues
- understand social models of change and how design, art, and engagement can catalyze or contribute to cultural transitions
- identify and speculate on key drivers of urban design, including experience, materials, context, cultural practices, political space, capital, and administration
- define and apply design theory describing behavior settings and micro-scale spatial practices
- define and apply design theory describing mapping spatial and geographic contexts that describe macro-scale spatial practices
- analyze museum and exhibit design and understand and apply the fundamentals of interpretive design principles

S23

Materiality +

Extractivism

The overarching ASOS and Public Programs theme for the semester is that of Materiality and Extractivism. Each studio will take a different attitude to the intersection of these issues to their studio agenda.

- | | |
|--|--|
| Obsolence | Sarosh Anklesaria |
| Past Futures: The American Rust Belt | Heather Bizon |
| Empathy, Architecture + the Anthropocene | Priyanka Bista (visiting prof) |
| Image Deep: / Imagine | Dana Cupkova |
| Terra:Forming | Laura Garofalo |
| Ephemeral, Enduring | Hal Hayes |
| Domesticating Bigness | Zaid Kashef Alghata (visiting prof) |
| Commoning the City - Thesis | Jonathan Kline |
| XL-M-XS | Steve Lee |
| Independent Thesis_Collective Studio | Sarah Rafson |



SAROSH ANKLESARIA

Obsolescence

Exploring Praxis,
Material Cultures,
and Labor in South Asia



HEATHER BIZON

Past Futures: The American Rust Belt

Architecture,
Environment and
Aesthetics through
Speculative Fictions



PRIYANKA BISTA

Empathy, Architecture + the Anthropocene

Designing spaces that
cultivate empathy
between humans
and the nonhuman
other



DANA CUPKOVA

Image Deep: / Imagine

Exploring Design
Prompts in AI:
Variations on Social
Housing and Material
Ecologies in the era of
Climate Change.



LAURA GAROFALO

Terra:Forming

Molding life-support
for resilient
socio-ecology



HAL HAYES

Ephemeral, enduring

Performance Architecture
for a New Permanent and
Seasonal Theater for the
Festival d'Avignon



ZAID KASHEF ALGHATA

Domesticating Bigness

Speculating on a future
for ecological social
housing infrastructures



JONATHAN KLINE

Commoning the City - Thesis

Second semester of
yearlong studio,
(started in F22)



STEVE LEE

XL-M-XS

Semester 2 of a
yearlong experience



SARAH RAFSON

Independent Thesis

Enquiries
Observations
Provocations
Architecture



OBSOLESCENCE

Exploring Praxis, Material Cultures, and Labor in South Asia

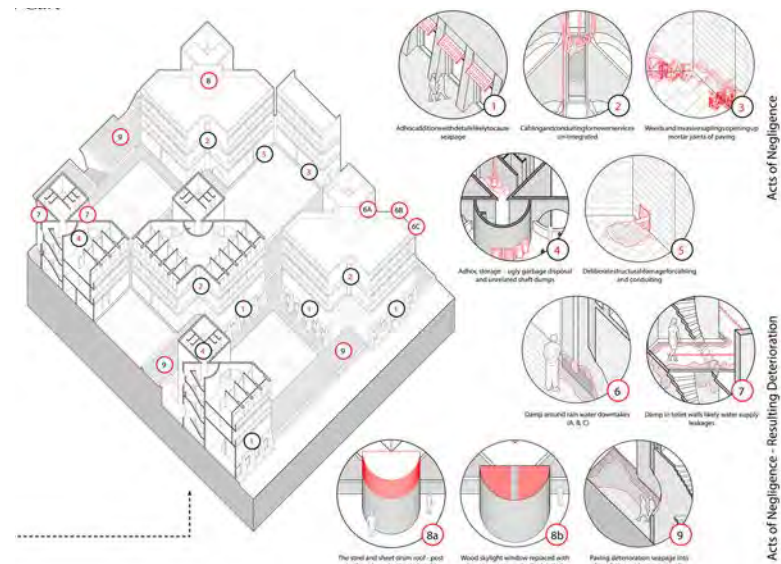
Sarosh Anklesaria

QUESTIONS

Obsolescence is a world-wide phenomenon, woven into the very DNA of capitalist production. The vast amounts of resources consumed by buildings, including the extraction of material and labor, makes the systemic planned obsolescence and demolition of buildings particularly wasteful. Demolitions often represent not only the destruction of material edifices but also ideological ones, of histories being rewritten and memories erased. How can architecture offer tools of resistance against this planned obsolescence? What architectural tools can the designer be equipped with to make buildings that counter obsolescence, that consider questions of longevity and time? How can the relationship between form and function be upended to include the unprecedented rates of social and technological change that buildings cope with during an extended period of time?

PROMPT

If the promise of modernism was to bring design to a vast multitude of people, it has been asserted across various disciplines, that European modernity was aided and abetted through extractivism in the colonies. Conversely, modernity—and modernism as its cultural articulation—was also embraced as a powerful tool in the process of decolonization by local architects working across the Global South, particularly in South Asia. This is manifest in the ways in which it embodied and expressed the collective social aspirations of the region's newly independent nations. Acts of institution building were intrinsic to architecture practices in the decades following Indian Independence, and reinforced the values of democratic socialism. Today, as neoliberalism and laissez-faire capitalism continue to erode the values of syncretic socialism, we see an overwhelming distrust in public institutions across the globe. This corresponds to a worldwide decline of the legacy of the modern movement, its structures and the concomitant ideologies of its time. The buildings of the modern movement in India are now 40-70 years old. This is the most vulnerable age for almost any building in almost any culture. They are too new to be considered historic and old enough to require extensive maintenance.



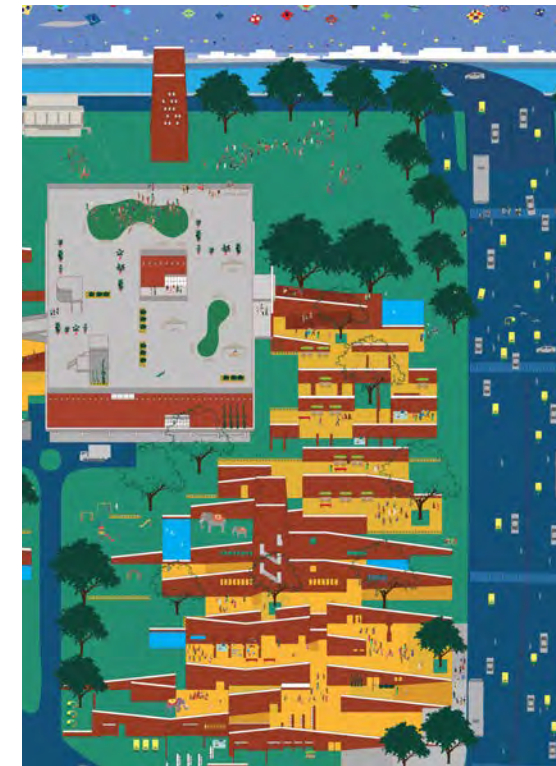
Shariq Shah, Part Detail, IIMA The call for Maintenance and Care, 2021



Demolition of the Hall of Nations by Raj Rewal, April 2017



Edward Burtynsky, Shipbreaking #11, Chittagong, Bangladesh, 2000, from the series Shipbreaking



Chris Yi & Iris Ma, Arsenal of Operative Practices, Ahmedabad Expanded Practices Studio with Lily Chi, 2018

"Everything that bourgeois society builds is built to be torn down. All that is solid—from the clothes on our backs to the looms and mills that weave them, to the men and women who work the machines, to the houses and neighborhoods the workers live in, to the firms and corporations that exploit the workers, to the towns and cities and whole regions and even nations that embrace them all—all these are made to be broken tomorrow, smashed or shredded or pulverized or dissolved, so they can be recycled or replaced next week, and the whole process can go on again and again, hopefully forever, in ever more profitable forms."

- Marshall Berman, *All that is Solid Melts into Air* — *The Experience of Modernity*.



Sarosh Anklesaria

CONTEXT

The term conservation implies a certain restoration of the formal registers of the building, a freezing in time and history. Acts of care, maintenance, adaptation, and repair can, on the contrary, generate new visual and material cultures and in doing so renew collective memory. The temporal architectures of the subcontinent will also serve as an inspiration for rituals of building, that while transient, engage with various publics and practices of the Indian city.

PROGRAM

The studio will consider aging modernisms of the Global South, particularly in the context of western India as a site for intervention and study. Projects will address questions of loose-fit program and the notion of everyday praxis and material cultures to consider additions, alternations and new construction. Concurrently the studio will relate to the ongoing CMU SoA Public Programs theme for the semester — Materiality and Extraction. We will also follow and partake in the ongoing collaborative project, "Conservation in a Shifting Landscape: The future of Modern Architecture in South Asia" at the Harvard Graduate School of Design.

READINGS/ REFERENCES

- Daniel Abrahamson, *Obsolescence*, 2016.
- Shannon Mattern, *Maintenance and Care*, 2018.
- Charles Correa, *A Place in the Shade*, 2010.
- Rahul Mehrotra, Martino Stierli, Kathleen James-Chakraborty, *Conservation in a Shifting Landscape: The future of Modern Architecture in South Asia*, 2022.
- Martino Stierli, Anoma Pieris, and Sean Anderson, *The Project of Independence: Architectures of Decolonization in South Asia, 1947–1985*, 2022.
- Sarosh Anklesaria, Shubhra Raje, Riyaz Tayyibji, *Thoughts on Ecology, Empathy and Re-membering*, 2021.

LEARNING OUTCOMES

On successful completion of this studio you should be able;

1. to apply design thinking that actively engages with questions of time, extraction and obsolescence of buildings.
2. to understand the role of ideology in the shaping of architecture, its materiality and forms of representation.
3. to understand architecture as a non-extractive practice engaging, engaged in material cultures that consider labor as a form of social empowerment, and also consider, circular thinking and decarbonization.
4. to demonstrate familiarity with architectures and building practices of the Global South particularly the Indian subcontinent.

Empathy, Architecture, and the Anthropocene

Designing spaces that cultivate empathy between humans and the nonhuman other

Priyanka Bista QUESTIONS

The history of architecture is deeply rooted in anthropocentrism and speciesism, resulting in an ongoing exclusion of nonhumans. The biodiversity crisis inherent in the Anthropocene also stems from this superiority complex that views humans as separate and superior to other species. So, how do we disrupt this anthropocentric narrative and bridge this disconnect by designing spaces that enable humans to learn, engage, and cultivate empathy towards the “nonhuman other?”

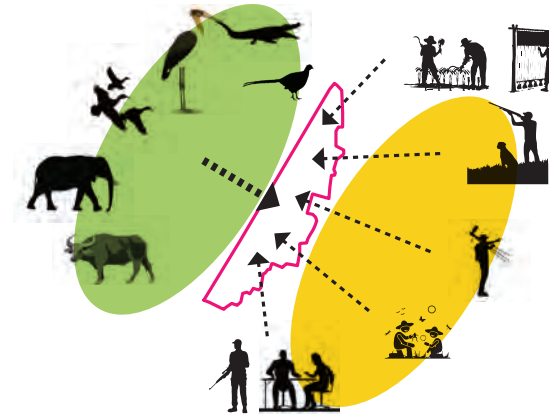
PROMPT

Although humans are only one species within an estimated 10-13 million species inhabiting this planet, we continue to occupy and design our landscapes with a predominantly anthropocentric frame of reference. The current dialogue on sustainability or sustainable design is also fundamentally anthropocentric and, therefore, doesn't integrate species beyond humans. In the article, “Biodiversity: the new challenge for architecture,” Dr. Brian Edwards acknowledges this critical problem. The Green Building movement that started in the 1970s has evolved extensively with numerous certifications. Still, today, the criteria for biodiversity conservation have been marginally addressed.

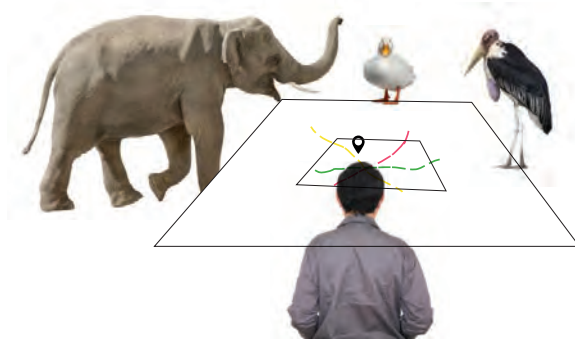
Within this context, it is essential to understand the role of architecture and design in assisting biodiversity conservation and rethinking a new form of architecture that considers all living beings equal stakeholders or users of the spaces.

CONTEXT

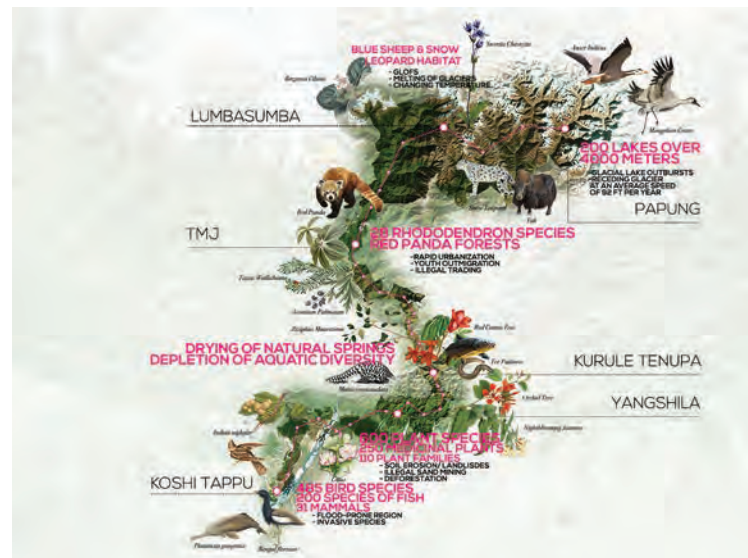
The studio will be situated within the context of a project initiated by the instructor, the “Vertical University,” based in the Eastern Region of Nepal. The project emerged from an interest in working with local communities and activating the learning potential inherent in biodiversity-rich landscapes found in the vertical gradient of Eastern Nepal. The project begins from the lowland Terai region to the high Himalayas. The studio will focus on the lowest node in Koshi Tappu adjacent to the Koshi Tappu Wildlife Reserve (KTWR), the first RAMSAR wetland site of 173sq km of Nepal situated on the Sapta Koshi River floodplains.



Koshi Tappu site concept (Source: instructor)



Multispecies design concept (Source: instructor)



The Vertical university concept (Source: KTK-BELT studio)

The Koshi region is also considered an Important Bird Area (IBA), providing a vital habitat for 526 bird species, 670 vascular plants, 32 mammal species, 45 herpetofauna species, 127 fish species, and 77 butterfly species. Currently, the region is undergoing many social and ecological problems with increasing urbanization pressures, the proliferation of invasive species, and human-wildlife conflicts, leading to the destruction of bird habitats.

In collaboration with the local community organization, we've acquired a parcel of land to turn into a living biodiversity classroom for the community. The studio will focus on designing a series of biodiversity portals or interventions connecting the local communities to the multiple species within site, whether a bird, a bee, or an elephant. As a part of a live project, students will be able to contribute to an ongoing dialogue on how to support biodiversity conservation through architectural interventions.

PROGRAM

The studio will aim to rethink the traditional design process that takes a checklist approach to work with species to find ways to integrate species requirements from the initial stages to detailing. From selecting species to understanding species requirements, a lengthy process needs to be undertaken to understand the nonhuman stakeholder. The design methodology will merge methods, tools, and representation techniques from various fields. The research and design process will include dialogue with multiple experts, ornithologists, landscape architects, and community leaders. The studio's output will generate a multispecies design intervention that will help connect the local communities with their nonhuman neighbors.

LEARNING OUTCOMES

On successful completion of this studio, you should be able;

- to identify, and understand biodiversity crisis, utilize key terms related to the course topic- e.g., biodiversity, multispecies design, empathy, experiential design, nonhuman, umwelt.
- to understand and utilize multispecies design methodologies and tools to develop designs that integrate human and nonhuman species.
- to understand and explore the role of architecture in mitigating biodiversity crisis, drawing upon case studies.
- to identify target nonhuman species through a species selection method and to understand and map the spatial requirements of the selected species.
- to understand and design drawing on experiential architecture case studies and phenomenological theories.

The material that will be covered in class can be challenging. Therefore, as empathetic as we need to be towards the various species we'll encounter in the studio, we must also direct that empathy towards ourselves.

The class will also incorporate views, feedback, and voices from the community members living and working in Nepal.

We'll establish an inclusive classroom environment that is respectful and supportive of engaging many voices.



Priyanka Bista

Past Futures: The American Rust Belt

Aesthetics, Environment & Architecture through Speculative Fictions

Heather Bizon

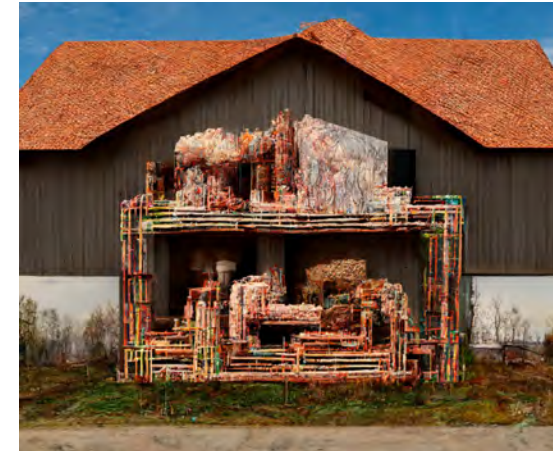


PROMPT

The American Rust Belt presents a unique setting for the issues of speculation and accelerationism. Where East meets West, in the overlooked regions, and its neighboring geographies present uniquely American scenarios – testing beds for issues of politics, social conditions, infrastructure, and identity. The primary questions that the studio will ask for this situation are: How will the aesthetics of the background reality in the Rust Belt be altered in the next two decades? How do the variables in the past affect future conditions: social, political, ecological? How do these conditions affect typology, scale, and tectonics? We will consider these relationships as potential moments for discovery and innovation.

We will investigate the Past Futures of the American Rust Belt. For over four decades, the term, “Rust Belt” has been deplored, praised, and parsed. There are no natural borders, as there are with the East and West Coasts, or topographic features. Michigan, Ohio, and Pennsylvania are central to the region, as well as parts of Illinois, Wisconsin, and New York. And while the term may lack geographical strata, it has historical layers, and they are thick and evocative. The phrase is born of loss, but has acquired texture, depth, and decades’ worth of meaning. What is extractivism in relation to the Rust Belt’s stories: the people and the environment?

S23 Advanced Synthesis Option Studios



“To assess and manipulate the medium, you may have to cultivate a capacity to perceive in a split screen—to straddle mental partitions that separate the nominative from the active and dispositional. You must develop something like a canine mind; you see things with names and hear humans speaking words but those things cannot be comprehended in the absence of a thousand other affective cues and relative positions between things in context.”
-Keeler Eastling, *Medium Design*

AESTHETICS

It is necessary for a cultural practice such as architecture to deeply investigate questions of aesthetics. Architecture is a cultural project that contributes to a developing understanding of how tradition, environment, and identity affect our built reality: past, present and future. We will explore, and investigate through multiple mediums; both 2D and 3D.

To fully appreciate a representation, the viewer or listener must understand this ‘worlding’ aspect: an image does not simply present an object or a moment, but represents a world. Exchange is inherently essential when considering the mashup and interrogating the culture machine. The building designs will be fully represented through sets of architectural representations, based out of the initial representational exercises from the start of the semester. All forms of media are available for these speculations. The two key questions pertain to: plausibility as established through representation, and the aesthetics of realism.



PROCESS

We will take up the tactic of the Mashup and expand upon the American “melting pot”. What does combining cultural and spatial traditions and typologies do to affect and transform our built reality?

The mashup methodology has seamlessly assumed a defining position with global cultural production. The complexity and variety of technique embedded in the mashup presents the architectural operation mixing, blending and reconfiguration of existing inputs (political, cultural, typological, social) to produce new outcomes - past, present & future. Students will work in collaboration, as well as individual project studies to develop a semester long design project, in high resolution.

CONTEXT

Many Rust Belt cities have minority populations that statistically outpace those in other parts of the country. The largest per capita Muslim population in the United States is in Dearborn, Michigan. For much of the “Rust Belt”, emphasis is placed on the manufacturing sector, overlooking many of the largest employers in the region: retailers, hospitals, and institutions of higher education, as well as the local typologies and infrastructure of the people. Of the handful of cities in the United States that support an Orthodox Jewish population, many are in the Rust Belt. A century ago, the region’s cities were often populated primarily by non-native English speakers. For example, in 1900, over 75 percent of the residents of Cleveland, Ohio, were foreign-born or first-generation immigrants.

Who are the children of the settlers in the Rust Belt? It’s time we create a much-needed space for the deep, various, complex, sad, wonderful, and pressing stories of the Rust Belt, which perhaps has the potential to heal a country overrun by division.

OPERATIONS

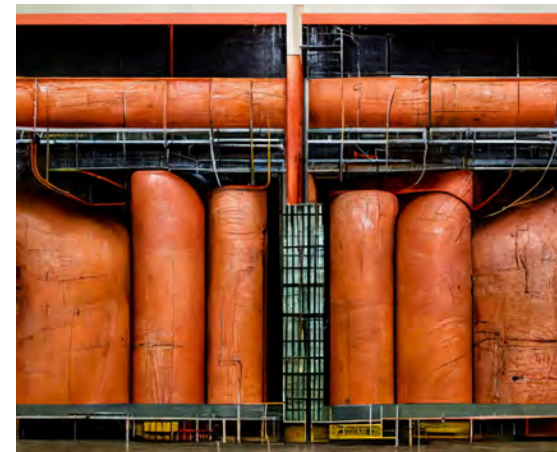
In principle, we’re going to think critically about how we construct the identity of a place through its cultural, social, political, and ecological systems and develop procedures for doing so. What are the effects and consequences upon our operation design thinking? Who are the constinquencies and social traditions; how do these challenge new typologies; what are the tectonic details as a result?

This studio is focused, in part, on the problem of how we construct facts and our understanding about the built environment. What is our understanding of history, and whose history have we been given through the “facts”? We will explore operational speculations through the lens of plausibility. Where do the scopes of future imaginaries and innovation lie in the stories of the past?

We will think ethically about the modes of communication and translation we develop and use in our projects. How does AI understand and interpret our environments; what is our agency and relationship to machine learning in our design processes and cultural speculations?



Images (2,3,4,7) via NYTimes



EXTRACTIVISM

Projections into the future can often become mere fantasy escape. But an aesthetics of a speculative realism can produce scenarios that directly comment on our own moment in time through advancing a particular crisis into the near future. These scenarios are often great lenses for a critical engagement with contemporary problems.

We will consider the contemporary issues of climate change, resources, labor and social-political relations in the Rust Belt. What is the role of architecture? “The old idea of infrastructure as “grey buildings behind a chain-link fence” gives way to a different social and political imaginary for how planetary metabolism of energy, food, information and so on are produced, refined, and distributed. In the future of architectural history, I think there’s going to be a re-appreciation of what we’ve generally dismissed as “industrial architecture.” - Benjamin Bratton, *The Terraforming is Not Optional*



LEARNING OUTCOMES

On successful completion of this studio you should be able; The course is designed for students to produce a semester long, studio based project. The course will hinge around the articulation of the architectural argument into a design proposition culminating in the exhibition of work.

- Leverage verbal, written, and visual forms of communication to describe complex ideas.
- Transition research based design to projective design processes.
- Understand how the choice of design media, method and representations affects the understanding of the built environment.
- Development and execution of design methodology.
- Production of final materials for exhibition and publication of work.

SELECT REFERENCES:
 Groys, Boris, *In the Flow*; Ranciere, Jacques, *The Politics of Aesthetics*; Easterling, Keller, *Extrastatecraft*; Lambert-Beatty, Carrie, “Make-Believe: Parafiction and Plausibility”; Young, Michael, “Reality Modeled After Images: Architecture & Aesthetics after the Digital Image.”; Steyerl, Hito, “In Defense of the Poor Image”; Latour, Bruno, “Visualisation & Cognition: Drawing Things Together”



Heather Bizon

Image Deep: /Imagine

Exploring Design Prompts in AI: Variations on Social Housing and Material Ecologies in the era of Climate Change

Dana Cupkova

QUESTIONS

Advances in Artificial Intelligence (AI) and Deep Learning (DL) provide new frameworks for the future of design discipline, while simultaneously questioning the form of authorship and the use of architectural precedent. Offering almost instant resolution of a seemingly complete architectural proposal - the architectural image / sketch can be generated without any design process, prompted solely through natural language in reference to the vast digital archives.

PROMPTS / Design sketches generated from natural language prompts:



/imagine: Social Housing Architecture on gloomy London street, based on Giovanni Battista Piranesi [generated with #midjourney]



/imagine: Social Housing Architecture in plan, made with earthen walls, based on Leonardo Da Vinci [generated with #midjourney]



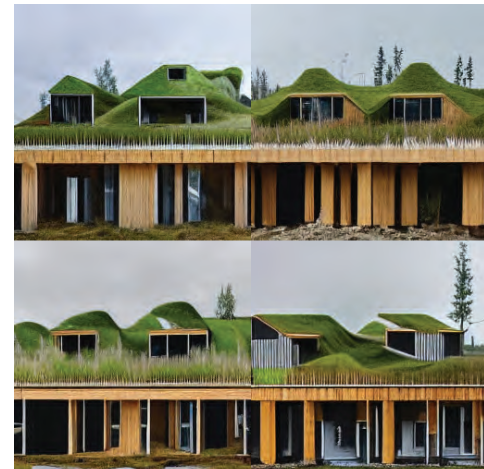
/imagine: Social Housing Architecture facade based on Leonardo Da Vinci [generated with #midjourney]



/imagine: Social Housing Architecture constructed from recycled plastic, based on Giovanni Michelucci [generated with #midjourney]



/imagine: Social Housing facade, robotically constructed from tree roots and recycled bricks [generated with #midjourney]



/imagine: Ecologically aware Social Housing Architecture with green roofs, robotically constructed from mass timber [generated with #midjourney]

Language of architecture typically considers spatial development of architectural forms based on architectural types, elements, programs and ideologies, while resourcing the historical knowledge of a precedent.

However, here the use of architectural reference - especially in context of its ethical implication - might be obscured. This studio will ask how we can expand the design process using AI. What are the consequences of jumping from a narrative into the generation of an instant image, and how does this way of working change design intent, socio-ecological framework, ideological implications and a spatialization process of an architectural proposal?



Lithopic House Studio (2021): Physical prototype of facade system, model developed from image texture into computational model and 3-d printed from sand (Student: Juhi Dhanesha)



Dana Cupkova

PROGRAM

The ambition of this studio will be to examine architecture that inquires into embodied energy as a primary inspiration for formation of matter. The goal is to re-situate design within a hyper-local framework of material resources and life-cycle that positions architecture as a vehicle for ecological and communal restoration. Promoting a shift away from purely data driven rationales, the desire is to engage in the design framed by environmental ethics and sensory subjectivities as part of our collective aesthetic and ecological experience.

Environmental aesthetics and aesthetics of nature are branches of philosophy that study appreciation of the world at large as it is constituted not simply by particular objects but by environments themselves. Environmental empathy is rooted in the concepts of otherness and difference. Design grounded in environmental empathy leads to more diverse paradigms in the redistribution of resources, new forms of co-shared domesticity, as well as social equity within our collective urban space, while being closely entangled within its ecological functions. In this studio, visualizing and understanding larger set of multidimensional relationships within design process would enable a projective design imagination tightly linked to creation of bio-synthetic and natural, multi-species environments.



/imagine: Chair, discretized organization, robotically fabricated from construction rubble [generated with #midjourney]



/imagine: Chair, material piles, robotically fabricated from recycled balloons [generated with #midjourney]

LEARNING OUTCOMES

On successful completion of this studio you should be able to:

- /imagine: with Machine Learning bots
- Formulate deep learning instruction for design
- Research precedent based on its ideological and ethical framework
- Formulate ecological narratives based on aesthetic associations
- Design sketch with words and researched references
- Transform images into spatial models
- Use advanced modeling workflows and texture modeling to develop architectural models
- Translate digital models into physical prototypes
- Think for yourself and be excited about what's next

EPHEMERAL_enduring

Performance Architecture for a New Permanent and Seasonal Theater for the Festival d'Avignon

Hal Hayes

QUESTIONS

ASOS students will collaborate with Drama and Masters of Arts Management (MAM) students to study & design a new seasonal and permanent theater for the Festival d'Avignon. We will meet with festival directors, the professional design team working on the real project and work directly with famed French theater designer Jean-Guy Lecat.

During the first third of the semester inter-disciplinary teams of Architecture, Drama & MAM students will conceptualize & design the seasonal summer venue, further development of which will be done by professional architecture & engineering partners in France. During the remainder of the semester Architecture students will conceive individual designs for the permanent theater in collaboration with the Drama and MAM students.

PROMPT

Provence was one of the earliest provinces of the Roman Empire, and as such, was the site of extractive industries of the classical era. These sites, which we will visit, are now home to arts and cultural organizations that transcend their original purpose, to become enduringly meaningful in a post-industrial context. This studio will explore ways that this and other similar sites can transition from an industrial past to a sustainable future.

CONTEXT

This is a developer-driven project to create a marina with a theatre that supports and catalyzes the performing arts festival. The site is at the end of an island in the Rhone River in Avignon. A temporary theatre will precede the permanent venue.

- Winter 2023: Develop a preliminary concept for the project to briefly explore the possibilities and market the project to potential investors.
- Spring 2023: Detailed project design concept.
- Summer 2023: Construction of the temporary theatre with the project architect.
- 2024: Detailed design of the permanent theater
- 2025: Construction of the permanent theater

The main issues for the students to solve are the type of structure, choice of the materials, acoustic treatments, thermal comfort and sustainability. Cost will also be a key factor

S23 Advanced Synthesis Option Studios



Festival d'Avignon - La FabricA, "Orlando ou l'Impatience" by Olivier Py ©Christophe Raynaud de Lage



Modern Architectural Masterpieces of Provence



The Festival d'Avignon is the largest and one of the most important contemporary performing arts events in the world, transforming the city's architectural patrimony into a wide variety of historic, surprising and awe-inspiring performance venues for tens of thousands of patrons. This project envisions two purpose-built performance venues occupying the same site: a temporary venue for dance performance for 2023 and a permanent flexible venue for a variety of performance types.



Hal Hayes, AIA

PROGRAM

HAYES

This site is the tip of an island in the Rhone River south of the Pont de l'Europe bridge. Noise from these bridge is a critical design issue to address, as is the "Mistral", the south of France's strong seasonal wind which can reach speeds of 130km/hour. Other issues are:

- **Seasonal Venue Design:** An outdoor waterfront theater primarily for dance (Weeks 1-4)
- **Permanent Theater Design:** A fully enclosed flexible venue to host a variety of different performances during the annual festival and year-round (Weeks 5-14) Seating capacity of 450-500. The seats may be on stage level and must be flexible to have different forms.
 - The space must be naturally ventilated,
 - River water may be utilized for air cooling.
 - Acoustic damping to 25/30dB.
 - Exterior wall surfaces for projections or light shows.
 - Net-Zero performance with onsite electricity generation.
 - Appropriate theatre technology to allow flexibility of performance
 - Consider a campus environment of multiple smaller buildings for separate activities
 - Performance production facilities
 - Audience amenities

Optional Field Trip+ Funding

London, Paris, Avignon & the south of France, March 3rd-12th. Cost estimate is \$2,500. A stipend of the CFA Theater Architecture fund of approximately \$2,000 will be available to all students (covering all transportation, accommodation and admissions). Those with unmet financial need are also eligible for Altenhof Scholarships. Proactive students may also apply for CMU Crowdfunding, which Professor Hayes will advise and support.

Additional Faculty

- Dick Block (Associate Head, CMU School of Drama)
- Cindy Limauro (Professor of Lighting, CMU Schools of Drama & Architecture)
- Jessica Bowser Acric (Director, Heinz College Master of Arts)

LEARNING OUTCOMES

This studio will emphasize the use of hand sketching, physical models and iteration of design at varying scales and degrees of resolution. Students must also expand their mastery of digital and parametric tools for both analysis and conceptual/morphological design development.

This studio is part of the Theater Architecture concentration, and is the result of a direct invitation to participate in this real project from M. Lecat & the Festival d'Avignon.

Co-Requisites; (co-taught by Hal Hayes & Dick Block, Drama Assoc. Head & Scenic Design Prof.)

62:408 - Mini 3, (6 units), Theater Architecture I

62:418 - Mini 4 (3 units), Theater Architecture II

Selective; 48:587 (9 units), Architectural Lighting (Cindy Limauro)

DOMESTICATING BIGNESS

Speculating on a future for ecological social housing infrastructures

Zaid Kashef Alghata

“As a microcosm organized according to the same oppositions which govern all the universe, the house maintains a relation with the rest of the universe which is that of a homology: but from another point of view, the world of the house taken as a whole is in a relation with the rest of the world which is one of opposition, and the principles of which are none other than those which govern the organization of the internal space of the house as much as they do the rest of the world and, more generally, all the areas of existence.”

– Pierre Bourdieu, *The Berber House or the World Reversed*, 1970



La Vedette with Mountain Scenes [colorized], Viollet-le-Duc, 1880



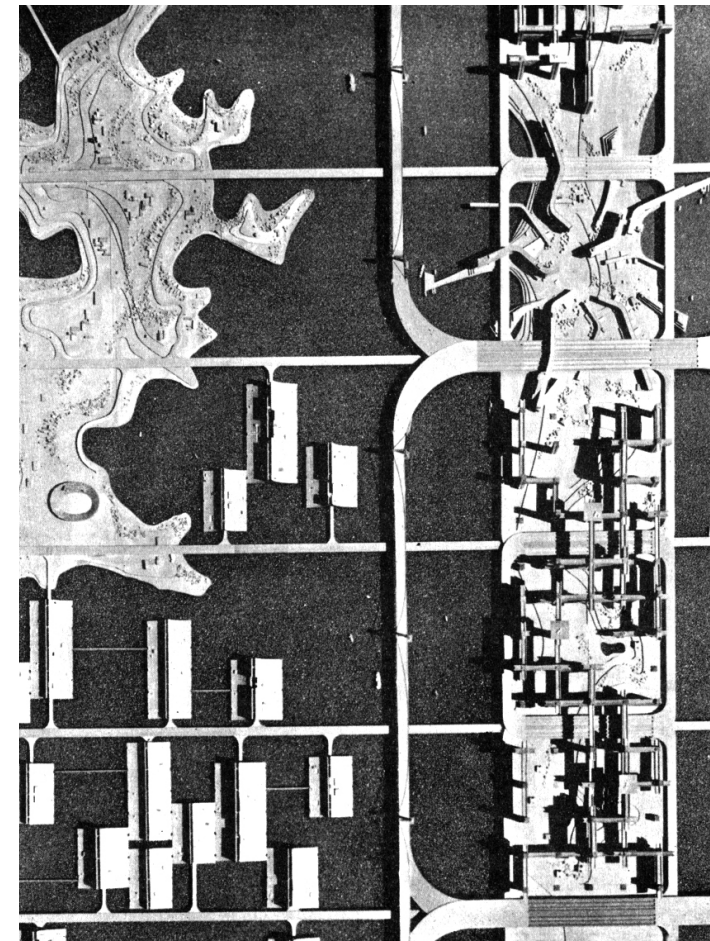
Supersurface: Happy Island, Cristiano Toraldo di Francia, 1972

ABSTRACT

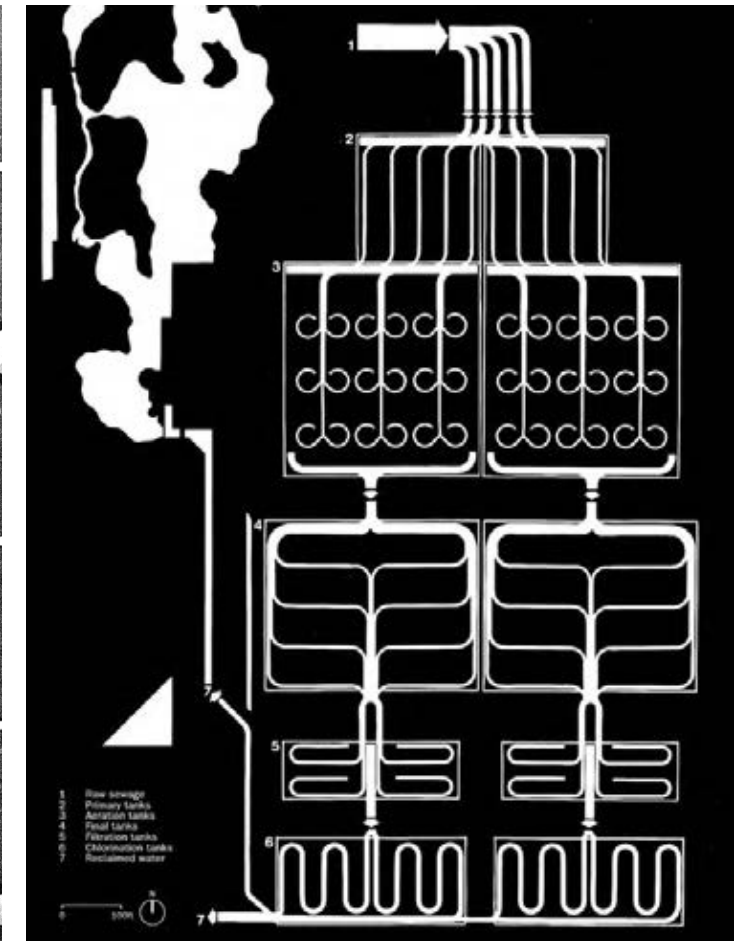
Historically, the architectural discipline has struggled to formalize the relationship between nature and our inherently unnatural domestic environment. From bringing potted plants into the home for the first time to frescos depicting nature, the 19th-century estate owners used various methods of interiorizing nature, estranging it from its “natural” setting. However, mid-20th century speculative architects produce a new kind of home, a new domestic landscape, by taking domestic space outside. A phenomenon that can only occur with the precondition that work had already been done in considering nature as domesticated.

The 21st century has seen a comparable take on the relationship between artificialized nature and domestic space but at an infrastructural scale. Today, landforms rise out of the oceans entirely for housing, massive flood control infrastructures in coastal cities make dangerous land habitable, and enormous water supply systems bring water hundreds of miles to waterfront lawns in dry cities. Like the 19th-century estate owners, our society domesticates nature at an entirely different hyperobject scale, a term coined by Timothy Morton that refers to an object or event whose dimensions in space and time are massive in relation to human life, for example, a forest, or an oilfield.

Typically, the notion of a home is associated with settlement and reconciliation, where radical ideas become domesticated. Pittsburgh is one of the hundreds of cities nationwide facing aging water systems that can no longer provide reliable and safe service. How can new infrastructural prototypes for water and housing improve the severely impacted ecological systems of the Rust Belt? Today, domesticating the ecological rejuvenation of infrastructure might not be considered radical, but it can't be overlooked as a potentially potent remedy for a growing crisis.



A Plan for Tokyo Bay, Kenzo Tange, 1970



Tillman Water Reclamation Plant: water processing diagram, A.J. Lumsden, 1997

PROGRAM

The project program will include social housing, a wastewater treatment plant, amenities/facilities, and an accessible park irrigated with reclaimed water from the plant. The studio will research typically non-architecturally designed structures and social housing projects to design a multi-use infrastructural typology that produces an alternative understanding of domestic spaces, organizations, and scales and to speculate on new ecological living forms.

In 2021, President Biden signed a trillion-dollar bipartisan infrastructure bill into law. The legislation will support the creation of infrastructure that “will reduce climate change, increase equity, and redress infrastructure gaps in disadvantaged communities,” however, social housing, an essential remedy for inequities, is not included in the bill. Social housing is any rental that may be owned and managed by the state, non-profit organizations, or a combination of the two. Adrienne Walnoha, CEO of Community Human Services, states, “the income you need to afford a moderately priced two-bedroom apartment is \$15.90 per hour. The minimum wage, on the other hand, is \$7.25 an hour.”

The studio asks that you imagine a novel infrastructure that coexists between its services and those to whom it provides services in hopes of producing a new ecological development model. Some questions that will drive internal conversations will be: What does it mean to have a multi-use infrastructure? What are its aesthetic and spatial qualities? How does the overlap create new types of land use? How does it tackle environmental injustice? While looking closely at the overall studio criteria: What is in/outside? What is/isn't accessible? What is natural/synthetic? Who or what gets prioritized? How do you resolve modular repetition with an overall system?



Studio Site, Allegheny River, PA, 2021

SITE

Located on the Allegheny River, the I-shaped site is approximately 55-acres. The studio will combine the north strip, the Aspinwall Riverfront Park, the south strip, located in Pittsburgh's East End, and the Brilliant Branch Railroad Bridge, which links the two riverfronts.

The North Strip

In 2011, the Aspinwall Marina was slated for commercial development; however, the local community dreamt up the idea of a public park and came together to raise the \$2.3 million required to buy the property. Work will soon begin on a plan to create a space to enhance the community's quality of life with a commitment to riverfront revitalization and inclusive community engagement through recreational, educational, cultural, and social activities.

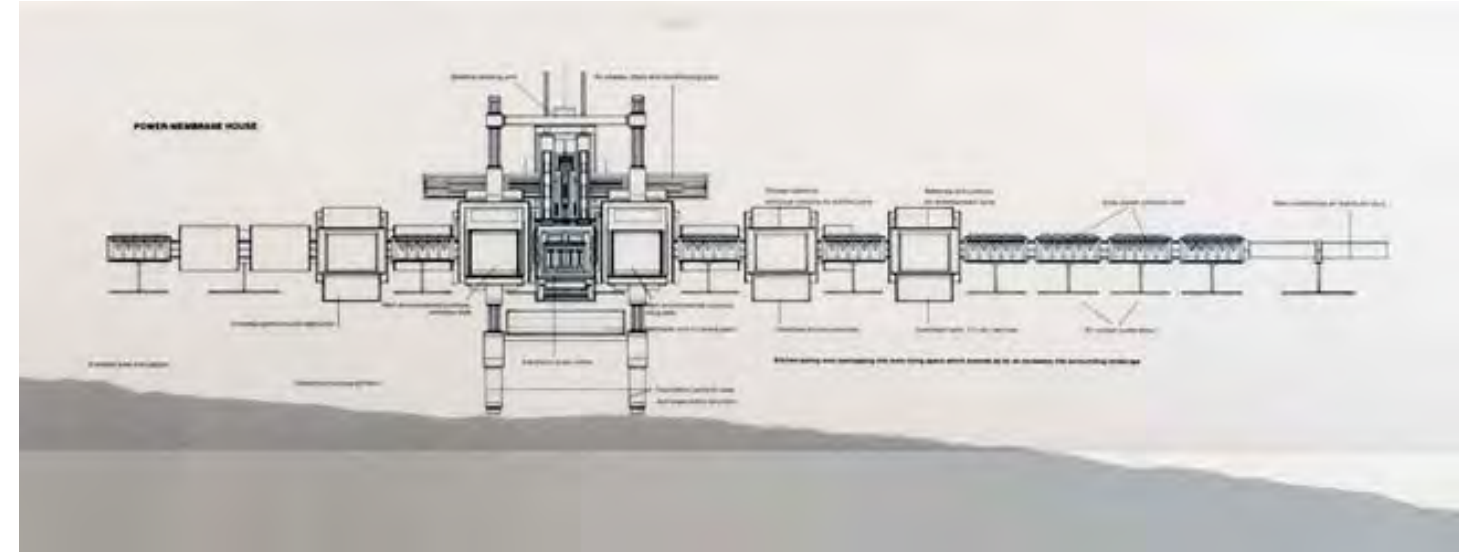
Adjacent to the site, the Pittsburgh Water and Sewer Authority are currently developing a \$300 million blueprint for a reliable water infrastructure to strengthen and add redundancy to its water system. The studio will absorb plans for the existing Water Treatment Plant, assuming the conversion of the current site into a public green space.

The Bridge

Opened in 1904, the Brilliant Branch Railroad Bridge is a 1,100-foot-long truss bridge that carries Allegheny Valley Railroad's Brilliant Branch across the Allegheny River. Allegheny Valley Railroad has agreed to sell the railroad with plans to convert it into a trail for bicyclists and pedestrians. The corridor would be the largest bike/pedestrian-only access across the Allegheny River and help 300,000 people who live within a 10-minute drive of the Brilliant Line to reduce their carbon footprint by biking to jobs, shopping, and more.

The South Strip

The smaller 12-acre strip currently houses a site owned by the Public Works Departments, a PWSA admin building, and the Bruecken Pump Station, built in the 1930s it will soon be decommissioned and replaced with a new facility on the premises. The new proposal, part of the Water Reliability Plan, will have to meet the Art Commission requirements, which works to improve the aesthetic quality of the City's public spaces.



Power-Membrane house, François Dallegret for Reyner Banham's article, entitled "A Home Is Not a House," 1965

PROCEDURE

The semester will be split into four exercises towards developing a new infrastructural model of ecological-based social housing.

Exercise 1: Research

Select and study two structures, a social housing project, and a wastewater treatment plant that will be drafted into the local community. The initial research will require the collection of literature and visuals, including, but not limited to, advertisements, images, drawings, diagrams, and articles. You will use the gathered materials to present your findings, and the studio will collectively brainstorm.

Exercise 2: Prototype

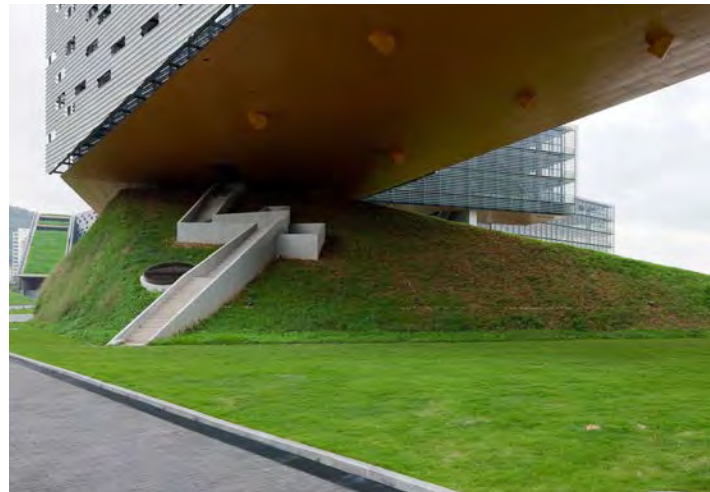
Rather than designing a project from scratch, you will leverage existing structures to generate a kit of parts which you will then deploy at the project scale. By interrogating and mutating the precedent's qualities, you will produce a housing module that questions what it means to domesticate nature at the scale of a unit. Your proposal must present evidence of improved living conditions that co-exists and engages with community needs.

Exercise 3: Site Strategy

Imagine new forms of ecological social housing infrastructure hybrids through machine-learning techniques. Rather than focusing on the historical context surrounding the chosen precedents, you are encouraged to creatively misinterpret the source materials and speculate on new forms of understanding. In tandem, select a plug-in program to benefit and support the inhabitants in and around the site.

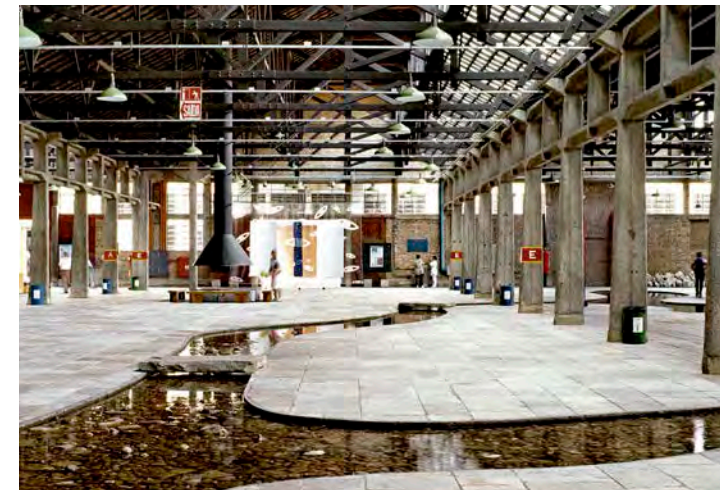
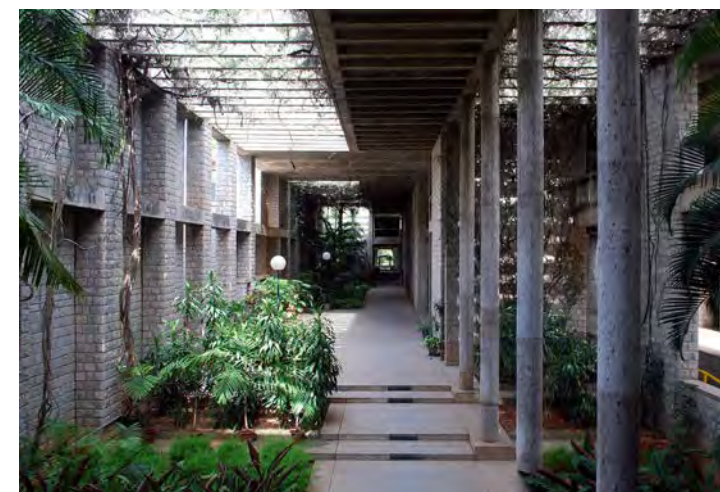
Exercise 4: Production

Finally, the semester will culminate in individual projects to persuade local authorities and developers of the urgency of new forms of infrastructure that tackle Pittsburgh's need for ecological social housing. Knowledge, expertise, and skills developed in the previous three exercises must be evident and incorporated into the presentation.



(Top) The High Line, Diller Scofidio + Renfro, 2004-09
 (Middle) Vanke Center Shenzhen, Steven Holl Architects, 2006-09
 (Bottom) Yokohama Terminal, Foreign Office Architects, 2002

(Top) The Ford Foundation, Kevin Roche John Dinkeloo & Associates, 1968
 (Middle) Fallingwater, Frank Lloyd Wright, 1935
 (Bottom) Alexandra Road Estate, Neave Brown, 1968-78



(Top) Louvre Abu Dhabi, Ateliers Jean Nouvel, 2017
 (Middle) Indian Institute of Management, Balkrishna Doshi, 1972-76
 (Bottom) SESC Pompéia Factory, Lina Bo Bardi, 1977-86

COURSE OBJECTIVES

The studio aims to develop and integrate research skills, technical expertise, and design strategies into a cohesive project. On successful completion of this studio, you should be able to; Identify key social and environmental issues that benefit from architectural intervention. Examine references in and out of the discipline to assemble individual project criteria. Survey the site and devise methods of constructing artificial nature. Critique traditional limits of the discourse and propose equitable alternatives. Demonstrate advanced digital skills in computation, modeling, and fabrication. Develop a comprehensive project that directly responds to the studio brief.

ORGANIZATION

The course will be organized around desk critiques and weekly pinups with the instructor. Internal lectures and workshops will be held throughout the semester to bolster assignments and introduce required skills. You will be developing individual projects, however, collective discussions and brainstorming will play a pivotal role in our studio culture. You may be asked to attend lectures at different departments if a topic overlaps with the studio's interests. Additionally, attending all programs organized by the SoA is strongly encouraged and essential to building an overall discourse around this year's theme of "Materiality."

READINGS/REFERENCES

- Reyner Banham, "A Home is Not a House," 1965
- Alison Smithson, "Mat-Building," 1974
- Stan Allen, "Field Conditions" in Points + Lines," 1985
- Anthony Vidler, "Architecture's Expanded Field," 2004
- Elizabeth Diller, "Agri-tecture," 2014
- Charles Rosenblum, "Deconstructing the Housing Dilemma," 2017
- Mabel O. Wilson, "Mine Not Yours," 2018
- Sylvia Lavin, "Plant Architecture," 2019
- Holly Jean Buck, "After Geoengineering," 2019
- Marco Vanucci, "Paolo Portoghesi: The Field Theory," 2020
- Jane Hutton, "Reciprocal Landscapes," 2021



Zaid Kashef Alghata

XS – Design/ Build ASO Studio

Semester 2 of a Yearlong Experience

S.Lee

“you can’t hammer a nail over the Internet.”

– Matthew B. Crawford, Shop Class as Soulcraft: An Inquiry Into the Value of Work

BACKGROUND:

– the Design/ Build ASO Studio is part of a year-long, interdisciplinary, design-build project to provide a diverse group of students with the opportunity to work with their eyes, hands and brains to transform an idea from a virtual world into the physical world. In this semester, we will again work with Campus Design & Facility Development (CDFD), Facilities Management & Campus Services (FMCS) and campus constituents to improve the quality of life on campus through engaging design intervention(s). The project is fully funded and the expectation is that the project will be turned over to the campus community by the last day of classes in the spring semester.

DESIGN:

– during the fall, the Building Integration Option Studio (BIOS) [<http://www.andrew.cmu.edu/course/48-400/>] students envisioned a farmer’s market for Hazelwood Green creating design proposals and developing a language of material, joining, enclosure and structural systems for objects at three scales–XL-M-XS (30,000 sf, 3,000 sf and 300 sf).

BUILD:

– during the spring we will on-board Jon Holmes and be joined by interested students from across campus to construct/ install the object(s) on their site(s). Fabrication and assembly will be done in the Shop and on site.

PROGRAM:

– the fall BIOS students produced awesome design proposals for “XS” components that will be a potential launching point for the spring build experience. These designs are just that–launching points–they have not been considered in the context of the Carnegie Mellon campus, so design will be a critical component of the early spring.

– we will start the semester by reviewing the work from the fall, forming three “competition” teams, conducting a 2 week design competition and determining–through a collaborative process–the project that we will build in terms of aesthetics, budget and workforce.

– the tasks include but are not limited to:

- forming teams & collaborating in a design competition
- developing & completing construction documents and project management plans
- fabricating and testing full scale prototypes
- revising construction documents based on evaluation of prototype(s)
- specifying and procuring materials
- constructing/ installing the object(s) on their site(s)



Images from 枯山水–Spring 2022

Top:

GeoGrid–S.Wang/ K.Cho (B.Arch ‘22)

(Photo Credit: M.Henninger)

Middle:

SHOP– M.Chen (B.Arch ‘23)/ J.Chui (B.Arch ‘22)

Site–K.Cho (B.Arch ‘22)/ Slee (B.Arch ‘75, M.Arch ‘77)

(Photo Credit: M.Henninger)

Bottom:

Final Review–10 May 2022

(Photo Credit: J.Kappelt)

PROJECT STRUCTURE

Assuming twelve students, we will divide into four three-person teams for the design competition. Once the design(s) is selected, we will recompose the teams based on a breakdown by system.

Jan 23: Kick off semester, Design Competition

Feb 23: Refine design proposal(s), Present to Design Review Committee (DRC), Finalize design proposal(s), Start construction documents, Start cost estimating

Mar 23 Pre-Spring Break: Present final design to DRC, Fabricate full size prototypes, Finalize construction documents, Begin ordering materials

Spring Break

Mar 23 Post-Spring Break: Begin fabricating components in the Shop, Prepare site

Apr 23: Continue fabricating components, Assemble components on site

Early half of May 23: Punchlist, Complete the project

Commencement Week: Final review, Graduation

VERTICAL INTEGRATION:

– an explicit intention of this studio is to integrate students at different points in their degree programs and students from other degree programs to maximize self-learning and to learn how to work in multi-year and multi-discipline teams.

EVALUATION CRITERIA:

– the following criteria will be used to evaluate student work in the studio:

– collaboration: the situation of two or more people working together to create or achieve the same thing

[<https://dictionary.cambridge.org/us/dictionary/english/collaboration>]

– structure, enclosure & materials: the degree to which the set of selected building materials, components and systems and their proposed implementation are appropriate to the intended occupancy, articulate the desired architectural order, and satisfy the physical design requirements

– sustainability: the degree to which the design(s) integrates sustainable principles including passive and active strategies, rainwater management, upstream/ downstream material recycling issues and life cycle assessment.

– [de-] constructability: the degree to which the proposed design is informed and developed in response to an understanding of the processes of construction and the concept of Design for Disassembly (DfD)

– construction documentation: the degree to which the construction documents effectively depict the constructed artifact and enable a successful build

– project management: the degree to which construction activities are planned, resources are allocated, and materials are procured to effectively complete the project within the budget by the end of the semester

– sweat: the effort and time devoted to constructing the artifact and to developing the design throughout the construction process

LEARNING OUTCOMES:

– as a result of this course, a student should be able to:

- collaborate with others - both inside and outside the discipline of architecture
- integrate systems - structural, material, enclosure and formal
- develop criteria and evaluate multiple design alternatives
- draw technical documentation using the conventions of architectural representation
- translate design proposals into built form
- learn basic construction techniques–layout, assembly, hand tools, power tools, improvisation

INDEPENDENT THESIS / COLLECTIVE STUDIO

Inquiries, Observations, and Provocations through Architecture

Sarah Rafson + Laura Garófalo

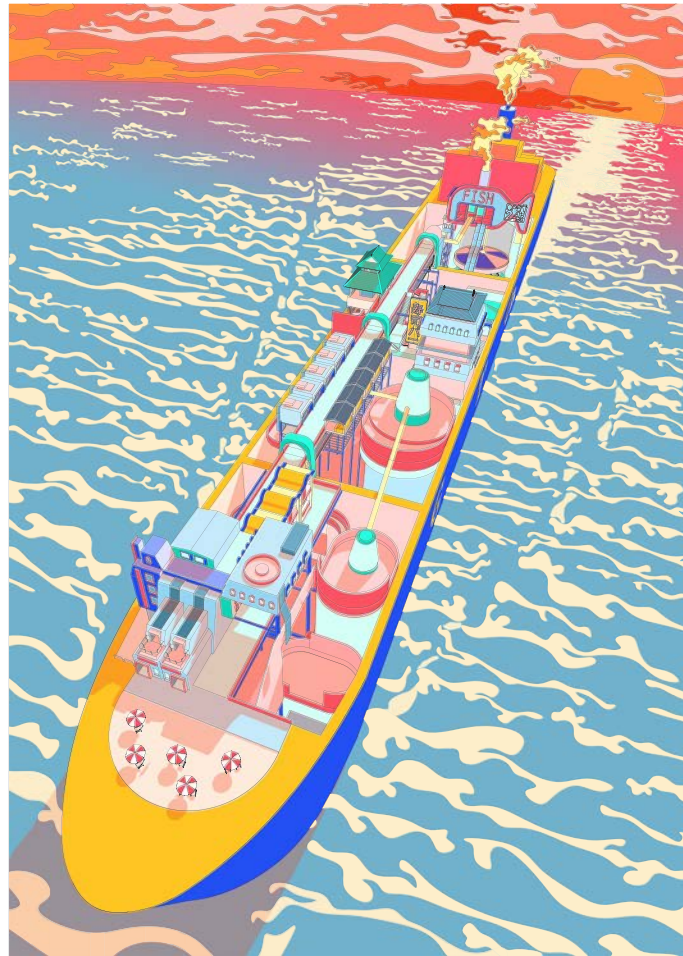
An architectural thesis is a proposition that results from a critique and reexamination of the role of architecture as a critical participant in the conditioning of (public) space. Marking the transition between academic and professional practices, the thesis project is an exciting opportunity for students to define their unique positionality and modes of practice relative to the discipline of architecture. Thesis topics reflect the diversity of student experiences and interests, ranging from building construction, design research, emerging technologies and materiality, social issues, landscape, urbanism, spatial perception and methods of conceptual thinking. Together, the studio will create a public exhibition and symposium to discuss the ideas and projects students propose.

PROMPT

In relation to this semester's theme—Materiality: Extractivism—students will be challenged to find tangible, material ways to convey the abstract and conceptual underpinnings of their projects. The focus on extractivism in the spring will also require students to confront the political and planetary implications of the projects they propose.

CONTEXT

A thesis project is thrilling to develop; students are defining a space for themselves ideologically and artistically in the landscape of architecture practice. As a studio, students push each other to test ways of working, thereby making an impact in the discipline and reflecting critically on their own creative processes. To that end, students will be working under the guidance of carefully selected, trusted advisors, but the project is ultimately their own. Throughout the process of designing a thesis, students exercise strategies for writing, research, time management, organization, and communication that will be invaluable throughout their careers. At the end of the year, they will have completed a personally, intellectually, and creatively satisfying project that will reap dividends after graduation.



Adam He (B.Arch 2022), Perspective,
A Fisher Ensemble: An Age of Discovery of the Urban Shoreline



Juhi Dhanesha (B.Arch 2022), Installation View,
A Glossary of the Unvertical.
Platform Gallery, Pittsburgh, Pennsylvania. April–May 2022



Olivia Werner (B.Arch 2022), Collage Detail,
Mediated Worlds: Transformable Bodily Interfaces



Sarah Rafson



Laura Garófalo

PROGRAM

This studio will be devoted to:

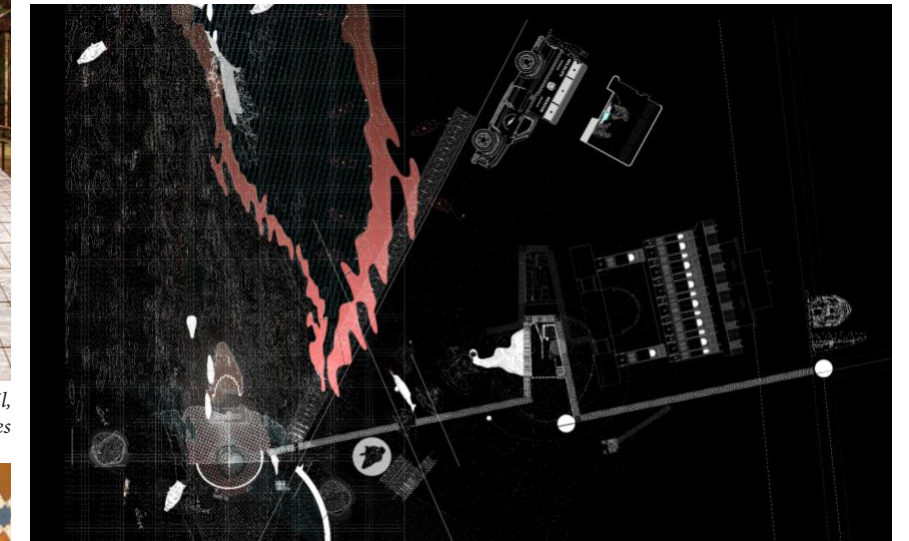
- Group discussions to review project milestones, requirements, and ideas
- Desk critiques to track the development of independent work
- Conceptualizing and developing a thesis exhibition and publication
- Reviews with advisors and invited critics to refine design projects and exhibition strategies
- Independent design, research, and writing

In addition to group discussions, desk critiques, and independent work sessions, a series of “thesis talks” throughout the semester offer students an opportunity to engage with faculty, scholars, and practitioners working in related topics. These regular presentations help foster critical thinking and reflection on the projects’ relevance beyond the academy.

LEARNING OUTCOMES

On successful completion of this studio, you should be able to:

- Conduct independent, original research related to architecture & design
- Express a critical outlook and perspective on architecture practice
- Work with an advisory team to develop a unique research-based project
- Provide critical feedback, support, and encouragement to your peers as they navigate their independent work.
- Design and install an exhibition that reflects the ethos of your cohort
- Write, edit, and design a thesis book that compiles the outcomes of your research and design process
- Sustain and manage a long-term independent project
- Practice polishing verbal and visual presentation of your creative work



Shariq M. Shah (B.Arch 2022), Diagram,
Entangled Territories: Weaving Memory, Local Practice, and Ecology from
Mohenjo Daro to Sukkur