Following the conclusions of last year’s PEDAGOGIES discussions, there are changes gradually occurring to the structure of the B.Arch curriculum sequence. We are adding an early opportunity of studio options for the students in the Spring of their Second year, starting in S22. This will result in a new sequence for those students with three additional coordinated studios, entitled PRAXIS; in Fall and Spring of third year and the Fall of Fourth year. We will also be adding research based ASO studios to the offerings in F22 and S23.

Last year’s ASOS semester themes (F20 PROPINQUITY, S21 PRIVACY) engendered great cross studio conversations. We are continuing this thematic connection for the ASO studios with F21 CARE and S22 WORLD BUILDING. We plan discussions within the studios and a colloquy after final reviews to gather positions/findings/oppositions. In addition these themes will be reflected in the Public Programs and other workshops/lectures and symposium will support the discourse.

The descriptions for F21 ASOS studios are listed in the catalogue below. The S22 studios will be described in detail in the next issue of the catalogue. ASOS selection process happens before each semester (in July for Fall and in November for Spring). At these points the expanded and updated catalogue is published for the following semester. We send an invitation email to each student from B.Arch 4th+5th yr and M.Arch 2nd yr, who then complete a preference form.

F21 Studio Rosters will be published on Aug15th 2021

Mary-Lou Arscott AADip RIBA
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COVER IMAGE
March 24 2021 The roof of a structure is visible as floodwater covers large areas northwest of Sydney, Australia. Some 18,000 residents of Australia’s most populous state have fled their homes since March 17. (ASSOCIATED PRESS 3.26.21)
The overarching theme for the semester is that of \_CARE\_. Each studio will take a
different attitude to the intersection of related issues to their studio agenda.

**City as Film**
- Arscott+Torello
- Bill Bates
- Gerard Damiani
- Jeremy Ficca
- Stefan Gruber
- Hal Hayes
- Steve Lee
- Christine Mondor

**Reforming Architecture**
- Bill Bates
- Re-purposing harmful architecture of the past for a healthier future.
  An exploration in design for social justice.

**Post Occupied**
- Gerard Damiani
- Weathering and the Life Cycle of Building

**Cultivated**
- Jeremy Ficca
- From Farm to Building

**Commoning the City**
- Stefan Gruber
- Negotiating Top-Down and Bottom-Up Urbanism

**Terminal**
- Hal Hayes
- JFK Terminal 4 concourse expansion

**The Cut, the Beach + Beyond**
- Steve Lee
- Design-Build Installations for CMU

**HELIOStudio**
- Christine Mondor
- Designing urban solar transition
Further details and descriptions of the Spring 2022 ASO studios will be added to the catalogue in the Fall 2021.
CITY as FILM
Architectural thought and imagination for futures in a non-modern* world.
Mary-Lou Arscott + Francesca Torello

‘Historical ontology, after all, is not only an account of how things came into existence but also of how possibilities of being arise in history.’ Zeynep Celik Alexander, Neo-Naturalism, Log31 2014

*In the midst of our serene new world of images, a descriptive revaluation of the conditions of imaging...is a prerequisite for architecture to pose the question...how can we learn to live differently? So differently that we might soon become non-modern? John May, Signal Image Architecture p28

Background
This studio will move from a critical reconsideration of Pittsburgh’s versions of modernism to formulate novel responses by experimenting with non-linear narratives in moving image. The idealized image of the city’s rebirth hides a complex history that includes land seizure, mineral extraction, labor exploitation and brute force. All are poised to continue but could be diverted with a new set of operative interventions to the current systems. This studio will propose organizational principles for a city set in a global context. Our design methodology will consider Pittsburgh's specific histories and ecologies in order to invent devious playbooks in response to the contemporary condition. The studio's speculations will collect and construct alternative sequences of interaction and insidious influence. The film narratives produced by the studio will evolve from a close reading of three phases of Pittsburgh's expansion: 1910's, 1960's and 2020's. Architecture has been a discipline attached to machines, modernism and orthography. This studio will experiment with potentialities of data, digital media and moving imagery to develop a design process to challenge authoritarian problem solving mindsets.

Care
Ethical, political and ecological concerns will be central in the studio critique as we analyze the implications of various propositions. Care in response to precarity across cultures, codes and regions will form the prompt for the studio interventions. Consideration of scales of care will become evident in the developing scenarios. The final presentations will contain resulting insights.

Context
Reference will be built around the location of Pittsburgh Point, with use of historic photographs, films and maps. Particular reference will be made to the research by Grimley, Kubo and el Samahy in the book ‘Imagining the Modern’. Monticello Press 2019.
Three polemical texts will act as a theoretical scaffold for our analysis; Medium Design by Keller Easterling, Image Signal Architecture by John J May, and Class Matter by bell hooks.
We will study narrative film form in the innovative early C20th silent films by Vertov, Ruttmann, and Kinugasa, the 1970's experimental films by Maya Deren, Agnes Varda and Chris Marker, and the contemporary radical filmmakers John Akomfrah, Mati Diop, Im Heung Soon. The studio will acquire a broad vocabulary of strategies developed by artists working in the arena of expanded cinema.
Memoir holds revelatory insights from all three eras and we will make reference to Out of this Furnace Thomas Bell 1941, The Portraits of Duane Michaels 1958-88, Punch Me Up to the Gods by Brian Broome 2021.
Program
An historical and theoretical positioning will be presented by Arscott + Torello in weekly discussion format through the first half of semester. Site visits to the Point and to the relevant archives will be organized. Each person will take part in the preparation for presentation of different aspects of the material and the research will become a common resource. Separate lenses of analysis will be taken by each person and then together the themes will be developed as a set of cross currents. The element of time is embedded in the medium of film, you will become story tellers and use both still and moving images with words and sound to build an argument. The material is endlessly editable and you will become adept at the mnemonic, eidetic and prophetic mode of the medium. The sequence of assignments will lead you through skill acquisition, no previous familiarity with editing software will be necessary.

Learning Outcomes
On successful completion of this studio you should be able:
1. to demonstrate a critical understanding of the relationships between ideology and forms of representation.
2. to construct visual-verbal moving image narratives to describe ethical argument and ideas for societal speculation.
3. to use ideas of system interventions to pose multiple outcomes for radical 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 your own design propositions.
6. to demonstrate a critical understanding of the history of Pittsburgh’s versions of modernisms and its continued impact on our understanding of the city.

INCLUSIVITY
The studio is committed to drawing references from at least 50% BIPOC and female writers, artists, architects and thinkers.

Studio environment.
The material that we’re covering in this class can be difficult. 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. Critically examining and assessing our most basic assumptions and values is one of the tasks of the architect. 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.
REFORMING
Architecture

Re-purposing harmful architecture of the past for a healthier future. An exploration in design for social justice.

Bill Bates

“A building has no means of locomotion, it cannot hide itself, it cannot get away. There it is, and there it will stay - telling more truths about him who made it....” Louis Sullivan 1856-1924

Background

The events of 2020 have given our world a lot of time and reason to think about the value of architecture and the true meaning of its mission to serve society while doing no harm. The architect has been commissioned to design for the most critical needs of society from legislative chambers, courtrooms, prisons, hospitals to offices and homes. The challenges of that work have not always allowed us to weigh in on the policies and implications of each building’s purpose. On rare occasions we are afforded the opportunity to rethink the purpose of past structures.

Context

This studio will explore such an opportunity to revisit an abandoned state prison structure, the Pennsylvania Correctional Institution of Pittsburgh, designed almost two centuries ago. The class will explore the social, ethical,
cultural and humanitarian issues of the building’s past while examining the residual impact on the community that it has served and the broader communities that it was meant to protect. Using the psychological and architectural fossils of this structure this exploratory studio will be tasked to re-envision a new more humane and environmentally appropriate purpose for a healthier and more sustainable future that serves ALL demographics while undoing the harm caused by the building in its first incarnation. We will also discuss how jails and prisons have been used as a vehicle of protest and change for causes like civil rights.

As a research studio students will work collaboratively to understand the issues of architectural space as a tool of criminal reform as well as their residual effects on disenfranchised communities. We will also touch on the influences of trapped talents and caged creativity on the broader society’s culture of art, music, language, fashion, etc.

The class will be encouraged to develop new uses that take advantage of the building’s physical properties to help heal the surrounding communities and erase the stigma of its past. The embodied carbon of its massively resilient three foot thick walls and proximity to the Ohio River hint at opportunities for creative reinvention that might provide environmentally jobs and other types of support for the Pittsburgh region of tomorrow.

This social justice studio will be based on several books including:

- The New Jim Crow, Mass Incarceration in the Age of Colorblindness by Michelle Alexander
- The Color of Law, A Forgotten History of How our Government Segregated America by Richard Rothstein

Above: Wilfred Rembert, prison artist  
Left: Dr. Martin Luther King, Jr.: civil rights leader,  
Center: movie poster for ‘John Lewis : Good Trouble’ 2020 dir by Dawn Porter,  
Right: Rosa Parkes, civil rights activist.
Post Occupied

Weathering and the lifecycle of building.

GERARD DAMIANI, AIA

‘As the costs of building continue to rise at an alarming rate and material resources become more and more scarce, how can what you build leave no trace or last indefinitely?’

Background

In Sigfried Giedion’s *Space, Time and Architecture*, he made a comparison between modern science and the concept of space-time replacing Newton’s ideas of absolute time. However, what was missing was the subjective experience of time and its long-term effects on place, buildings and society. This ASO will go beyond how space and time affect the role of architectural sequence in real time to a question of how a building is understood throughout time. This studio is not a studio about the aesthetics of ruins, as ruins strip bare a building’s meaning. Instead, we will speculate how can weathering engage the imagination?

In architecture, finishes and equipment are an end to a building’s original construction, however, time and weathering affect and transform buildings leading to a double meaning. A building’s original aspirations are literally and physically transformed through time. This ASO looks toward a work of architecture that is inextricably linked to its long-term physicality asking how it might play a more central role in architectural theory and environmental sustainability.

Background

It’s the objective of this ASO to consider how societal change affects the role of care at various levels of architectural engagement. Each student will address this term through all aspects of the studio process including how each presentation will be positioned.
Methodology

Project one: Weathering of four materials of your choice that will be documented throughout the semester.

Project two: Case studies: artistic, architectural, technological, societal, and cultural

Project three: Speculations on site, materials, systems, and programs

Project four: Application through architectural development

Required 1st reading: On Weathering: The Life of Buildings in Time by Mohsen Mostafavi and David Leatherbarrow (reading will be provided via Hunt Library)

Learning Outcomes

The design project will be a piece of architecture not as a static conclusion but as a product of physical and cultural weathering. The project will be represented not only as a finished project but also how it might address the long-term effect of cultural and physical weathering.

Context

This ASO will look at how time affects our natural, societal and built environments. This studio will study the affects of weathering through a series of case studies. These studies will look at the variety of effects of weathering and the role of change. Each student will look at this term via art, architecture, technology, society, and culture looking for new formations and how the role of the built environment is representative of time and weathering.

Anne Lacaton

“We never see the existing as a problem. We look with positive eyes because there is an opportunity of doing more with what we already have,”

Jean-Philippe Vassal

“We went to places where buildings would have been demolished and we met people, families who were attached to their housing, even if the situation was not the best. They were most often opposed to the demolition because they wished to stay in their neighborhood. It’s a question of kindness.”

Above

FRAC Dunkerque

https://www.lacatonvassal.com/
CULTIVATED
From farm to building

JEREMY FICCA, RA

“Unless architects begin to describe buildings as terrestrial events, processes, and artifacts, architects will – to professional and collective peril – continue to operate outside the key environmental and political dynamics of this century.”

Background

In their elevation to pseudo art objects, the stone walls of Mies’ Barcelona Pavilion stand as one of modernism’s most iconic examples of material fetish. The surfaces of golden onyx, roman travertine and green alpine are objectified and polished to reveal the inner beauty of sliced earth. Fundamentally detached from their complicated origin story, the pavilion’s materials, like many of its modernist brethren, are severed from human and environmental entanglements. Mies’ masterpiece is perhaps the ultimate referent of an architecture of hidden side effects. Or to borrow a term from Joseph Grima, an architecture of extreme externality. For the pavilion, the production of affect is utterly reliant upon, yet renders fully opaque, extraction, labor, and environmental depletion. The fact that the building had such a consequential impact upon the discipline yet was known only through images for the 50 years between its demolition and reconstruction seems perfectly fitting for this treatise on abstraction. While it is unproductive to critique past work through the lens of our current climate crisis, this icon of modernism is an enticingly clear illustration of how abstraction tends to distance and obscure the external consequences of design decisions.

Architects have long relied upon extraction and labor. Buildings are after all made of materials and components, sourced directly or indirectly from the earth. For the better part of the past century this has operated under a take-make-waste industrial model. For decades, globalism’s long supply chains obscured the consequences of this model. Believing the ends justify the means is much easier when the means are invisible or largely unknown. As Michael Pollan’s groundbreaking book The Omnivore’s Dilemma directed attention to our most immediate form of consumption - eating, and in the process unraveled contemporary food supply chains, so must we confront questions related to how, what, and why we build. Our current ecological and political crises signal the limits and incompatibilities of a neoliberal consumption-based economy on a planet of finite resources.

“What if architecture were understood first and foremost as a form of stewardship of the built and natural environments?”

– Joseph Grima, Non-Extractive Architecture

Left 1: Mies Missing Materiality, Anna and Eugeni Bach
Left 2: Industrial hemp harvesting
Above 1: Timber Weaver’s Studio with hempcrete Infills, Practice Architecture
Above 2: Henry Ford demonstrating hemp
This studio presumes that a viable transition to a circular economy necessitates a recalibration of how one builds and ultimately, how design can better address a broader understanding of its processes and artifacts. The studio will explore the potential of regenerative material flows and harvested building materials in the context of Pennsylvania agriculture. It will focus specifically upon the ecologies of industrial hemp to consider the prospects of farming, processing, and building with hemp in the post-industrial landscape of southwestern Pennsylvania.

Context
Though only recently legalized for industrial cultivation in the United States, hemp has a long history in North America. With its origins of cultivation traced to central Asia, hemp has been used for a remarkably wide range of products from paper and rope to bio-resin automotive parts and hempcrete blocks. In addition to its numerous material properties, hemp is one of the fastest CO2 to biomass conversion tools available, far outperforming rates of carbon sequestration of forest land. Occasionally referred to as a mop crop, hemp is highly efficient at regenerating soil, requires limited maintenance and when compared to cotton, requires a fraction of the water. It is little wonder hemp was the world’s most traded commodity until the 1830s.

Care
Building upon Grima’s repositioning of architecture as a form of stewardship, this studio asks students to develop an expanded set of cares, accounting for the side effects of one’s decisions as much as the production of architectural affect.

Project
As a research studio, students will work collaboratively over the course of the semester. Initial research will be dedicated to developing a graphic manual of industrial hemp, from seedling to product and building. This will be followed by an evaluation of prospective sites for farming within the post industrial river landscapes of Pittsburgh and the surrounding communities. The culminating project, conducted with a partner, operates at two distinct scales, that of an urban farm and hemp processing/education facility and at the scale of the dwelling. Teams will develop proposals for an itinerant hemp processing and education facility to support transitory farming along with a prototypical, low density housing collective that uses hemp as its primary material system. Given the studio’s focus upon material flows, projects will be developed as open systems and methods that seek to illustrate a range of architectural permutations.

Further Reading
https://v-a-c.org/en/non-extractive-architecture
https://www.ellenmacarthurfoundation.org/
COMMONNING THE CITY

Negotiating Top-Down and Bottom-Up Urbanism

STEFAN GRUBER _F21
JONATHAN KLINE _S22

Who or what do you care for, care about and care with? What kind of infrastructures and spaces are necessary to create communities that care?

Background

Commoning the City is a yearlong research-based-design studio focused on social justice and community-led urban transformations. Here, we explore design as an agent of change and how to support citizens in claiming their Right to the City. The first semester, taught by Stefan Gruber provides a theoretical framing and uses case study research as stepping stone for developing individual thesis proposals. Building on the studio’s shared investigations and a commoning toolkit, students define a research question and begin testing their design hypothesis in an urban milieu of their choice. At the end of the semester each student has framed a design proposal and methodology that is theoretically grounded, geographically and culturally situated, and politically informed. Working empirically, throughout the semester students go back and forth between research and design. The second semester, taught by Jonathan Kline, then supports students in fully developing their individual projects culminating in an exhibition. This year-long studio is required for all second year Master of Urban Design students and open to 5th year BArch students and MArch students. For ASOS students the studio is an opportunity to pursue a yearlong thesis within a structured research context exploring urban commoning. Jonathan Kline’s seminar Urban Design Methods and Theories is a co-requisite.

Research

The commons are emerging as a key concept beyond the binaries of public and private space for tackling the challenges of the contemporary city: How to build community resilience in the face of systemic and growing inequity? How to design with finite resources in the face of accelerating environmental crisis? How to articulate common interests despite splintering social ties? And how to find agency as designers given the scope of these wicked problems? Here, commoning is understood as a set of social practices dealing with the production and self-governance of shared resources and spaces beyond contemporary forms of domination, such as class, gender or race. The studio’s research continues to feed into the long term traveling exhibition and publication project “An Atlas of Commoning” in collaboration with ifa (the German Institute for Foreign Relations) and ARCH+. This year, the studio will contribute to the development of a web platform making the research available to a general audience. Throughout the semester the studio will also engage in a series of exchanges with students from the University of Buenos Aires who will be working on the next station of the exhibition “An Atlas of Commoning.” Contingent on the Covid19 situation the studio will take a four day research trip to do field work and experience regional initiatives in person.

Care

In line with the Fall’s ASOS theme of care, we will investigate notions of stewardship, mutual support and solidarity in urban transformations and the social reproduction of shared
resources and common space. “What would happen if we were to put care at the very center of life?” asks the Care Collective in ‘The Care Manifesto’ while encouraging us to recognize and embrace our interdependencies across scales, from the interpersonal to the planetary. Addressing a world in which carelessness reigns, requires us to first and foremost analyze and understand the forces at play that shape systemic inequities. The thriving contemporary commons debate then offers an entry point for radical imaginings of other possible worlds beyond the binaries and confines of capitalist markets or the neoliberal state. Meanwhile, the case studies assembled in the Atlas of Commoning render visible that these alternatives are already in the making, they are all around us weaving a pluriverse of small, local but open and connected initiatives.

**Program**

**Fall: Design-based Research**

During the fall semester we will study selected spaces and practices of commoning through theoretical readings, interviews and field work, while drawing from the studio’s repository of 50 previous case studies. The collective research will be intertwined with the development of an individual thesis proposal on how commoning might transform a neighborhood community and site of student’s choosing. Throughout the semester the articulation of a thesis will evolve through research, verbal and visual modes of reflection and design structured around workshops on sociocracy, futuring and transition design amongst other methods.

**Spring: Research-based Design**

The spring studio will focus on developing the individual design proposals testing the spatial, material and governance implications of the student’s respective hypothesis on urban commoning. For the project students will be expected to take a personal position and formulate a thesis, expressed and explored through design. The site, program and general parameters of the project will be determined during the fall, allowing students to gather data and base materials over the winter break. Thesis projects will culminate with an exhibition and review in the Miller ICA Platform and the creation of a final thesis book.

**Learning Outcomes**

In this studio you will develop skills for documenting, analyzing and critically evaluating precedents that act as catalyst for the bottom-up transformation of cities. You will learn to contextualize these spatial practices, and ultimately your own design practice, within a broader social, political and economic discourse. As you begin to better understand the forces at play in shaping the built environment and in turn how buildings shape us, you will learn to both question and sharpen the agency of architecture and reflect on alternative more collaborative modes of design and radical imagination. You will further experience how what is often conceived as binary opposition between theory and practice, thinking and acting, can in fact be intricately linked and lead to invigorating synergies. The hypothesis here is that every reading of an urban milieu is also projective, every reflection on what is, entails a projection of what could be, in short a latent design project for an alternate possible future. Utopia is typically thought of as something that lies in the future. Meanwhile in our research on practices of commoning, we will see that everyday utopias are in fact all around us.
TERMINAL

JFK Terminal 4
concourse expansion

Hal Hayes

I am arguing that, this matrix space brings to our art a new relevance, and even new aesthetic pleasures and political capacities. Keller Easterling Metrolpolis, April 6, 2015

Background
This studio will help students develop a strong, comprehensive, holistic design process and learn to seek inspiration from the design components and socio-cultural issues involved in a large, complex building project. The key semester goal is for the student to create a unique individual design that is a civic gateway celebrating New York, is completely responsive to the needs of the users, elegantly balances the many interrelated and interdependent performative systems that are critical to the function, and is a compelling whole that is greater than the sum of its parts.

Site
Terminal Four Concourse A, John F. Kennedy International Airport, NY

Scope
The studio project requirements will closely parallel the real project currently being planned for the expansion of T4, a new structure of approximately 10 gates, 100ksf connected through the existing six-gate, 75ksf Concourse A to the main terminal.
Learning Goals
Students will test and expand their design and technical skills in all key areas, with particular focus in these three areas.
• Explore the rich and varied conceptual design opportunities arising from architectural, structural, infrastructural and mechanical systems at very large scale and with a high degree of complexity.
• Define and grasp the complete design challenge through research and analysis of the building typology; the exceptionally dynamic functional rhythms, complex programmatic spaces with distinct systems, and a widely diverse user group with varying needs and desires.
• Understand and embrace the duality of the design paradigm, as a principal anchor and integral component of a global transport and communication network, yet with a need to be responsive to local environment, materials & methods, and cultural traditions.

Studio Framing
Students will engage as teams in a robust pre-design exercise;• Analyze the existing building and site conditions
• Engage with the professional AE design team members working on the actual project
• Develop programmatic and performative goals and objectives. Students will then individually pursue a concept design for the project based on these complex design parameters;
• Learn design and planning methodologies to effectively address complex projects
• Balance the needs of these parameters as an interdependent network of autonomous systems
• Emphasize the use of hand sketching, physical models and iteration of design, research and analytical work will at varying scales and degrees of resolution
THE CUT, THE BEACH & BEYOND
Design-Build Installations for your Campus

STEVE LEE

“But if you consider the present to be merely an instant between the past and the future, just a passing moment, then to neglect the past and future for the present is bad quality indeed.”

Robert Pirsig, Zen and the Art of Motorcycle Maintenance

Eduard Sekler defined the tectonic as “…a certain expressivity arising from the statical resistance of constructional form in such a way that the resultant form could not be accounted for in terms of structure and construction alone.”

Background
The C,B & B will be a year-long, interdisciplinary, design-build studio working with Campus Design & Facility Development, the Department of Civil and Environmental Engineering and campus constituents to improve the quality of life through design intervention(s) on campus.

The fall semester will be focused on design - the spring semester will be focused on build.

During the fall, we will study the history of campus plans from the days of Hornbostel to the current days of the current Ayers St. Gross and Urban Design Associates plans, identify sites and opportunities for design interventions, develop a catalog of design proposals, review and select proposals with clients and develop design development drawing packages.

In the spring we will on-board Jon Holmes (SoA Shop Director), Brian Bellowich (CEE Shop Director), Sarah Christian (CEE Professor) and CEE students to complete construction documents, develop project management plans, build full scale prototypes, procure materials and construct/install the object(s) on their site(s).

The project is fully funded and the expectation is that the objects will be turned over to the campus by the last day of classes in the spring semester.

This page Community Forge projects, 2019
Top: The Red Ribbon: Yashwitha Reddy (M.Arch), Jacob Moskowitz + Alyssa Mayorga (B.Arch)
Middle: Below: Woodchenge: Kyle Bancroft (M.Arch), Jordan Takumi Davis (B.Arch)
Left: Component drawing, Gulwing Porch
Fall Studio Scope:

- Study the evolution of campus plans from Hornbostel’s plan for Carnegie Institute of Technology to today’s current efforts to be led by Librarian Emeritus Martin Aurand
- Meet regularly with Campus Design & Facility Development and constituent campus entities.
- Competition, yes or competition, no?? We have been invited to participate in Timber Fever 2021 on 23-26 September 2021 (https://www.timberfever.com/). The studio will openly debate the merits of participation.
- Working individually, develop a catalog of design proposals following a design process of Design – Evaluate – Iterate
- Present and refine design proposals with clients.
- Select design(s) to be built
- Create design teams by project and system
- Construct quarter-size prototypes on campus e.g. column-beam connections, eave details, rainwater system details, railing and stair details
- Critically analyze aesthetics and constructability of prototypes
- Develop design development drawing packages based on lessons learned from prototype analysis
- Present project proposals the prospective engineering student collaborators at Pre-Final and Final fall semester reviews.
- Prepare for the spring build component.
HELIOStudio

designing urban solar transition

Christine Mondor

‘Massive change is not about the world of design but the design of the world.’ Bruce Mau

Background

After two centuries of dependence on fossil fuels and “solidified sunshine,” there is broad convergence that we are on the cusp of an energy transition to carbon-free fuels. Energy transition and the adoption of new technologies will require new spatial patterns and practices, all of which are design opportunities. Carbon-free transition needs to occur globally to shift the trajectory of climate change. It will start at the scale of the site and the city where technical challenges and cultural practices will create alternative landscapes of energy generation. HELIOStudio will examine how the pivot between energy technologies will reshape our use space and will test how our landscape and urban form determine how we deploy technologies. HELIOStudio will examine the neighborhoods of Pittsburgh through the lens of solar power generation to find new spatial qualities, ways of using space, and ways we can use energy technologies to experience familiar spaces in new ways. The studio will explore the experiential and cultural connections to energy technologies to uncover the meanings behind what we make and how it shapes our understanding of the world.

Context

Western Pennsylvania is a place of energy firsts. Some of the nation’s earliest coal mines were found in Pittsburgh’s hillsides and the black rock heated homes, powered steamships, and anchored early industries, enabling the city to grow. Western PA was also home to the first commercial oil wells, the nation’s first nuclear power plant, and now the nation’s newest methane cracker plant that will process natural gas from the Marcellus Shale gas fields. This studio will speculate how Pittsburgh might continue the energy innovation and acquire the mantle of the first equitably integrated solar city.

Care

In the broadest sense, the transition to carbon-free energies is an act of planetary self-care that attempts to heal the tragedy of the commons. As a studio we will explore how designers can integrate new infrastructure and technologies into communities and the daily experience of individuals. We will explore direct benefits, such as energy performance, and we will identify issues of equity and how people may gain or lose in the transition to a new energy regime.
Each successive energy technology has reshaped our culture and sense of place and has resonated with design opportunity. HELIOSStudio will use design to explore the next transition through two reciprocal scales—a site scale design problem to introduce us to carbon-free technologies in an urban context and a city-wide examination of the potential for energy generation and exploration of public realm design. Our work will hybridize architecture and infrastructure through critical engagement of technology, culture, and urban systems, with a goal of identification of 30MW of generation.

Our studio will collaborate with Elizabeth Mononian (Art ’00) and Robert Ferry (Arch ’98), who founded the nonprofit Land Art Generator Initiative to create art installations that could inspire others to collective action on issues of climate change. Through a series of international competitions, LAGI has proposed “land art generators” that showcase renewable technologies. We will learn from them and add a new dimension by exploring how such projects can be implemented at a city-wide scale using Pittsburgh as a test case. We will explore energy performance and place while examining the cultural and economic systems that will enable or inhibit solarization. Our work will inform their next round of competitions that is aimed at actual implementation and we will develop on-the-ground strategies for working with neighborhoods.

Learning Outcomes
During this studio, students will gain technical, procedural, spatial, and experiential design skills, and will be able to:
>create provocative designs that integrate energy infrastructure and urban places
>identify and speculate on key drivers of urban energy design, including experience, materials, context, economy, and policy
>analyze and represent qualitative and quantitative data related to urban patterns, cultural practices, and energy infrastructure
>understand social models of change and how design and engagement can catalyze or contribute to cultural transitions

Resources:
Sjimons, Dirk. Landscape and Energy: Designing Transition (cameo)
LAGI, Regenerative Infrastructures: Fresh Kills Park, NYC (cameo)
LAGI, A Field Guide to Renewable Energy Technologies (online)
Kim and Carver, The Undedome Guide to Energy Reform. (cameo)
Mau, Massive Change (cameo)

Our studio will be structured as a semester-long query that results in documents that summarize our findings. We will explore through early individual projects and later group projects. Students will be expected to produce architectural and spatial designs, to write and create narrative arcs, and to illustrate key concepts and data.

We will have visiting experts in to contribute to our understanding of concepts such as:
• energy systems and technologies
• infrastructure and history of the city
• urban computational analysis
• community dynamics and engagement
• competitions and design as a change agents

I will be traveling to Rotterdam, NL the week of 26 September to present at the EcoCities conference. The Dutch have been leaders in designing energy transition and I would welcome any fellow travelers. Please contact me if you might be interested.