UCLA Architecture and Urban Design

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Towards Regenerative Urbanism

"Fire City" Research studio 2020-21 powered by xLAB @ Department of Architecture and Urban Design, UCLA

Instructor: Hitoshi Abe
xLAB Coordinator: Lena Pozdnyakova

Schedule / Location: Thursdays (2-5pm) @ZOOM

0. What is Regenerative Urbanism?

"*The planning of new cities, as well as the retrofit of existing cities, needs to undergo a profound paradigm shift. Mere 'sustainable development' is not enough. To be compatible with natural systems, cities need to move away from linear systems of resource use and learn to operate as closed-loop, circular systems. To ensure their long-term future, they need to develop an environmentally enhancing, restorative relationship between themselves and the natural systems on which they still depend.*"

Herbert Girardet, Creating Regenerative Cities 2014), accessed https://books.google.com/books/about/Creating_Regenerative_Cities.html?id=mpeQBAAAQBAJ

Regenerative Urbanism* is an aspirational term that encourages the reframing of conventional urban design and planning techniques through contemporary models more dynamic, more elastic, and more faceted than conventional static plan-based ones. A catalyst for a holistic, evolutionary approach to metropolitan development - in this instance one focused on risk

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management and resilience in the face of natural disasters like fire - it underlines an approach that synchronizes and synthesizes information flows through simulation and forecasting of multiplex forces within an ever-developing intelligence network.

Always learning, the targets and outcomes of Regenerative Urbanism resonate with the research concerns of developmental neuroscience. Analogous to the complex nervous systems of complex organisms and their pathologies, regenerative urban morphologies and behaviors are conceived with anticipatory views toward adaptability, flexibility, and mutation. Physiologically, the organizational components and systemic, structural interrelationships of Regenerative Urbanism aspire to operate with a similar attitude to martial arts, particularly those that mobilize soft and malleable techniques of absorption and redistribution as a response, or even as a preemptive avoidance, of the hard impact of external forces.
Soon to be tested at the fiery interfaces between nature and artifice, between ungovernable wilderness and governable constructs, the combinatory design and planning techniques of a Regenerative Urbanism will flicker between software and hardware. As information in formations, our applied research on Regenerative Urbanism will reinvigorate visionary ideas of and influences on urban design from cybernetics to Metabolism.

** See the global ArcDR3 Grand Syllabus for more on Evolutionary Regenerative Systems (ERS) definition and the lenses of ecology, science, and technology.*

1. Establishment of International Studio Platform to pursue Regenerative Urbanism: ArcDR3 Initiative (Architecture and Urban Design for Disaster Risk Reduction and Resilience)

Website: https://xlab.aud.ucla.edu/irides-tohoku-arcdr3/

ArcDR3 (Architecture and Urban Design for Disaster Risk Reduction and Resilience) Initiative is a 3-year global interdisciplinary architecture education project organized by xLAB at UCLA, IRIDes at Tohoku University in Sendai and Miraikan National Museum for Emerging Science and Innovation in Tokyo. It proposes the study and design for resilience and risk reduction in our contemporary environment. ArcDR3 Initiative is launched as a part of the Association of Pacific Rim Universities (APRU) Multi-hazard program and involves participation from 11 APRU Universities: UC Berkeley (USA), University of Hong Kong (Hong Kong), University of Melbourne (Australia), National Cheng Kung University (Taiwan), National University of Singapore (Singapore), Pontifical Catholic University of Chile (Chile), University of Tokyo (Japan), Tohoku University (Japan), Tsinghua University (China), University of Washington (USA) and UCLA (USA).

The purpose of the Initiative is to create a more effective integration of theory (research) and practice (design) by creating an international platform for producing and exchanging the knowledge that reduces the risk of recurring disasters and enhances resilience. With the key objective of addressing the theme of “Regenerative Urbanism” and its implications for architecture and urban design, 11 participating Universities have developed their context-specific design studios for the 2020-2021 academic year. With the urgency of establishing new strategies for designing buildings, cities and environments, ArcDR3 Initiative proposes an International Studio Platform, where research findings will be shared among all

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the participants. The 3-year long initiative includes a series of symposiums and exhibitions where the results of the research will be shared, as well as concluding publication, scheduled to be released at the end of the program.

02. "Fire" as Local context

"Our study will be situated in Los Angeles County, an area prone to wildfires naturally, but also experiencing dramatic increases in catastrophic wildfires likely due to a combination of climate change, increasing development at the urban-wildland interface, and a lack of preventive measures and public education."

Prof. Dr. Ali Mosleh, Excerpt from the Research Proposal on
Risk-Informed Integrated Approach to Assessment and Community Engagement

The Los Angeles Metropolitan Region is naturally predisposed for wildfire activity with its abundance of dry fuels in chaparral and woodland ecosystems, hot and dry Mediterranean climate, and rugged topography in and around the region's multiple mountain ranges. The Santa Ana Winds also contribute to the particularly explosive nature of fires in Los Angeles. These basic components of wildfire ecology are exacerbated by climate change, which has contributed to drought conditions and above-average temperatures in the entire state. The history of wildfires in Los Angeles has been dangerous since the beginning, starting with the Griffith Park Brush Fire in 1933 that was the deadliest in the state until the 2018 Camp Fire in Paradise. Since then there have been an estimated 70 large wildfire events in the Los Angeles Metropolitan Region. Their frequency has increased since the turn of this century, where three or more major wildfires occur every year. Wildfires cause damage to residences (typically single-family homes), commercial buildings, and infrastructures such as highways and power systems. Conversely, a majority of wildfires are caused by human activity. Recent significant wildfires in the Los Angeles Metropolitan Region, including the Woolsey, Saddle Ridge, and Getty Fires, were started by power lines or other electrical infrastructure. Wildfires cause social impacts including loss of life and disruption of social processes. They also expose existing social and economic inequities, such as when domestic workers still went to work in the evacuation zone of the Getty Fire.

In pursuit of Regenerative Urbanism as part of the ArcDR3 initiative, UCLA A.UD will lead simultaneous synergistic design research studios, focused on the twin topic of fire-risk-reduction and fire-resilience, at both Perloff Hall and the IDEAS campus. These synergies will also form and be informed by interdisciplinary collaborations both on campus with other UCLA departments including Engineering and Planning as well as with 11universities participating in the ArcDR3 initiative.
With a focus on the fire-risk-reduction and fire-resilience, both at Wildlife Urban Interfaces (WUIs) and within interstitial multi-hazard zones within the Metropolitan Los Angeles region, design research studios will contribute a vital array of design visions and knowledge to the ArcDR3 initiative and help to establish the conceptual framework of Regenerative Urbanism.

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In adopting and modifying the global ArcDR3 Grand Syllabus to the Los Angeles regional context, and engaging with relevant authorities and experts both within the UCLA community and beyond, the studios will operate as a combined think tank whose culminating projects will be shared and discussed at international conferences, displayed in international exhibitions, and disseminated through globally accessible publications.

3. Course Objectives

1. To contribute the knowledge above to a collaborative global network of designers focused on contemporary approaches to Regenerative Urbanism.

2. To produce informed inter- and multidisciplinary scholarship and related design proposals that expand creative approaches to systems and infrastructures for fire resilience in several Wildlife Urban Interfaces in the Los Angeles metropolitan area.

3. To lead the network above toward establishing new formats and protocols for international graduate-level educational models in resilience-focused architecture and urban design.

4. Studio Structure

In order to strengthen collaboration with authorities, experts and colleagues and to create an enhanced studio environment, the ArcDR3 Regenerative Urbanism Studio comprises three unique structural components.

Parallel Design Research Studio

The parallel design research studios will coordinate efforts to develop diverse proposals based on shared findings. Because architecture yields insights through both research and design, the studios are organized to take the best advantage of both modalities of exploration. The parallel structure is intended to share AUD's cross campus intelligence through a feedback loop of collaboration and dialogue. It will provide students with access to presentations by fire, city planning, and urban design experts in local regeneration efforts, architects and researchers working on regeneration across the 11 universities, as well as to the ongoing development, peer comments, and faculty directions of the studio projects.

Interdisciplinary Research and Collaboration

In order to address the question of fire-risk-reduction and fire-resilience in Los Angeles across a range of perspectives, the joint initiative draws from a diverse network of educational partners and researchers. Furthermore, to strengthen the research and to cover various angles of inquiry, the team of experts from UCLA's faculty will be joined by colleagues outside of the campus. With its twin focus on fire-risk-reduction and fire-resilience, the ArcDR3 Research Group at UCLA has invited Distinguished Professor and Evelyn Knight Chair in Engineering, Director of the B. John Garrick Institute for the Risk Sciences at UCLA, Dr. Ali Mosleh to be the advisor to the design research studios. Joining Dr. Mosleh is Dr. Saeed Nozhati, a postdoctoral scholar at the Institute. Expert advice from members of the B. John Garrick Institute for Risk

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Sciences will play a critical role in fire hazard assessment and development of designed network strategies to prevent, mitigate, prepare for and recover from fire-based disasters. Also joining the team in an expert advisory capacity is a faculty from the UCLA Department of Urban Planning, Kian Goh, Assistant Professor of Urban Planning, who will provide insights through which to address fire threats at a strategic metropolitan level. Additionally, the participation of Adjunct Assistant Professor Chandler McWilliams of UCLA Design Media Arts will provide expert direction in the visualization of research through the lens of advanced technology and cutting edge story framing and storytelling.

ArcDR3 Global Studio

The Regenerative Urbanism Studio aims to embrace the changes in learning and teaching processes, redefined by the recent global crisis, and take full advantage of the online format for its studio environments and the network of ArcDR3 initiative that will equip the next generation of practitioners with new forms of working.

As such, the studio will be in regular communication with many agencies involved in the ArcDR3 Initiative, inviting them to take part in studio seminars and reviews. Additionally, studios from other universities - founding partners the ArcDR3 Initiative - will work together as an international online research community. Because of the reach of these frameworks, the exchange of ideas, the development of research projects, and participation in studio reviews will become accessible to all ArcD3 participants Students. This unprecedented international studio format will ensure that students will become able to expand their research skills and networking by working online. Studios running this innovative model will serve as a testing ground for new studio environments that reinvent modes of work and workplace for the coming generations.

5. Studio Flow (Research / Simulation; Strategy / Scenario and Action / Design)

By responding to both the ArcDR3 Grand Syllabus and ‘Key Priorities for Action’ identified in the ‘Sendai Framework For Disaster Risk Reduction 2015-2030’, the research will expand on the theme proposed by the initiative through the production of new forms of contemporary knowledge and its applications for fire-risk and fire-resilience in architecture and urban design. The design studio program addresses Regenerative Urbanism-Driven fire-risk-reduction and fire-resilient design through a three-fold analytical and projective approach structured and distributed over three stages during the year:

Design Questions

- What is Regenerative Urbanism? How can we use it in the field of Architecture and Urban Design to create fire resilient environments in the Wildland Urban Interface (WUIs) of the Los Angeles metropolitan area?

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-How can we accept disaster as a condition of daily life and integrate it in the design of our everyday environment? How can this shift in attitude and design affect the formation of the community and impact the way we consider space use and ownership?

- How can the physical characteristics of Los Angeles (topological, infrastructural, architectural, sociological etc.) be incorporated into a fire risk reduction strategy and become the basis of fire resilient design?

-How we can develop multifaceted strategies of cooperation and integration between various stakeholders and participants in the ecosystem of the fire?

1st Quarter: Research / Simulation

Through the case studies of the fires in California, students will initiate an analysis of the fire within context-specific ecological, sociological, and technological dimensions. These include cultural challenges, layers of governance, economic impacts and opportunities, required expertise and specialization, and spatial relationships of exposure, infrastructure, settlement, and physical aspects. This research process will be initiated by student teams and will become the basis for generating the matrix of parameters/ecology diagram describing the mechanism of fire as a disaster in Los Angeles.

Additionally, by the end of the second quarter, students will be asked to form a statement and write a scholarly essay on “Regenerative Urbanism” by using keywords and phrases related to their research activities.

Research in Fall Quarter includes the following phases:

1. Case Study Research of the fire in CA
This includes the study of 3 major fires in California that will be the basis for developing the fire ecology diagram.

2. Design of Fire Ecology Diagram
Based on the previous research, students are asked to produce the diagram of parameters, such as weather, landscape, architecture, various stakeholders& participants etc. exploring the way to define and visualize the fire as complex phenomena involving many aspects of contemporary society.
These research components combined will lead to the ecology diagram describing the mechanism of fire as a disaster in Los Angeles.

3. Defining Regenerative Urbanism through a set of keywords
Students are invited to answer the central question: What does Regenerative Urbanism mean?

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Deliverables:

1. Ecology Diagram of Fire in LA
2. Definition of Regenerative Urbanism: Keywords that define it based on the precedent studies
3. Publication co-authored by MArch1 & MSAUD editorial team (2 MArch1 & 2 MSAUD students); draft for year-end book

Guest Lectures:

State Fire Marshall Representative: Introduction to the theme and processes behind, the progression of the fire as it happens and institutions involved in its mitigation (TBD)
UCLA Risk Sciences Institute: Prof. Ali Mosleh, Dr. Saeed Nozhati
Fire-adapted Community Learning Network: Greg Kochanowski
Former reserve manager of Sagehen Creek Field Station: Jeff Brown
Resilience Officer, Mayor's Office LA: Aaron Gross
IRIDeS Tohoku University: Prof. Dr. Fumihiko Imamura, Prof. Yasyaki Onoda, Prof. Liz Maly
School of Urban Planning at UCLA: Prof. Kian Goh
Pontifical Catholic University of Chile: Prof.Roberto Moris and Prof.Renato D'Alencon

2nd Quarter: Strategy / Scenario

In the second research phase, each team will develop a simulation of regional fires based on the previous quarter's research and matrix. Based on this simulation/scenario, the students will design a counter-disaster scenario that addresses fire from prevention and/or mitigation points of view. The goal of developing counter-disaster strategies is to test levels of resilience across a network of complex, interconnected relationships between stakeholders and conditions in affected contexts. Thus students will be able to track such connections and propose potential new approaches for addressing them at the level of a master plan, or in this case a fire-resilience plan. With this systemic strategy, they will proceed to the third phase – a prototypical design. A resilience plan will be based on the strategy to further the project by bringing in a specific systemic approach, design methodology, and technical specification(s).

Research in Winter Quarter includes the following phases:

1. Design of the fire scenario
Based on the Research and Fire ecology diagram from Fall, students are asked to create their own Fire Scenario/Simulation.
2.Design of the counter-disaster strategy and Master plan
Development of the fire-resilience plans to counter the fire scenario.
3. Design Brief of the Node to be designed in Spring.

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Deliverables:

1. Disaster simulation/Senario
2. Counter-disaster scenario & master plan leading to design brief of Final Project
3. Scholarly essay on "Regenerative Urbanism" by using keywords and precedents related to the students' research activities

Guest Lectures: (TBD)

3rd Quarter: Action / Design

By employing prior research, simulation studies and counter-disaster scenarios/fire-resilience plans, students will design a site-specific project that responds to fire-risks through strategies for fire-resilience. Students will identify the role that the proposed project typology adopts within the systemic node for the effective instrumentalization of fire-resilience. With this in mind, students will develop their projects to become a prototypical design proposal that takes a stance on fire-risk and fire-resilience under the framework of Regenerative Urbanism. This phase will incorporate the process of refining the ecological, sociological, and technological dimensions that connect the proposed prototype to a broader system. The proposal may address one of the following: civil engineering infrastructure, residential community or public, or cultural facility. Consequently, students will develop strategically-equipped designs that will underline the significance of their project as a node within the smart fire-risk and fire-resilient network. This will equip students with tools to clearly articulate anticipatory and evolutionary forms and forces that emerge in the face of the threat.

Deliverables: TBD

FALL QUARTER SCHEDULE

LOTTERY / 10.02

WEEK 1 / 10.08
Studio Intro + *Category for the Research about the Fire
Introduction of smaller group and larger group format.

Group Work:

- Smaller group (2 students): the group will develop key concept for Regenerative Urbanism
- Larger group (combining 2 small groups): the group will develop a fire ecology diagram and fire disaster simulation and counter-disaster scenario.

Infrastructure:

- Groups pick one of three ecosystems to groups: residential, public, infrastructure

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WEEK 2 / 10.15
Lecture: UCLA Risk Sciences Institute: Prof. Ali Mosleh, Dr. Saeed Nozhati
Fri, Oct 16, 8 am, IDEAS Lecture Jeff Brown Friday

WEEK 3 / 10.22
Presentation 01: Precedent Analysis
Presentation of the key concept of Regenerative Urbanism by using precedents as evidence
Fri, Oct 23, 6-9 pm ,IDEAS Lecture: IRIDeS Tohoku University: Prof.Fumihiko Imamura, Prof. Yasyaki Onoda, Prof.Liz Maly

WEEK 4 /10.29
Lecture: School of Urban Planning at UCLA: Prof. Kian Goh
Fri, Oct 30, 8 am, IDEAS Lecture: Greg Kochanowski

WEEK 5 /11.05
Presentation 02: Precedent Analysis
Presentation of the key concept of Regenerative Urbanism by using precedents as evidence
Fri, Nov 6, 8 am, IDEAS Lecture: Resilience Officer, Mayor's Office LA: Aaron Gross

WEEK 6 /11.12
NO CLASS (Mid Review Week)

WEEK 7 /11.19
Presentation 03: Fire-ecology Diagram

WEEK 8 /11. 26 (THANKSGIVING WEEK)
NO CLASS (Thanksgiving Week)

WEEK 9 /12.03
Presentation 04: Fire-ecology Diagram

WEEK 10 /12.10
Lecture: Pontifical Catholic University of Chile: Prof. Roberto Moris and Prof. Renato D'Alencon

WEEK 11 /12.17
FINAL PRESENTATIONS
Final presentations of key concepts of Regenerative Urbanism by using precedents as evidence and Fire-ecology Diagram

5. Course Requirements

+ All assignments must be completed by their stated deadlines.
+ Complete all readings before the correlated class meeting and be prepared to discuss them.
+ Students must attend all scheduled class meetings and trips, unless excused for department approved reasons.
+ Three or more absences during the quarter will result in automatic failure.

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+ Students will present proof of progress at all scheduled reviews.
+ Course materials must be submitted digitally by the end of the quarter per department procedure. All students are required to submit all final project boards, drawings, animations, photos, and videos. Drawings, boards, and photos should be provided at 300dpi. All animations and videos should be provided as an MP4 file. Students may also elect to take digital photographs of their models and submit these along with their final boards. It is a requirement of this course that all students submit course materials digitally by the end of the quarter. Failure to do so will result in the loss of one letter grade.
+ This program uses video recording or other personal information capture for the purpose of facilitating the course and/or test environment. Pursuant to the terms of the agreement with UCLA, the data is used solely for this purpose and any vendor is prohibited from disclosing this information. UCLA also does not use the data for any other purpose.
+ Students may not distribute recordings or other instructional materials provided as part of remote learning by faculty, teaching assistants, or invited guests.

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Shared Research Library: will be available on Google Drive

Bibliography

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Wang, David, and Linda Groat. Architectural Research Methods. 2013.

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