

INDEPENDENT STUDY

A Community-Centered, Sustainable Systems Approach to Adaptive Reuse

FALL 2021

I. What

The purpose of this independent study is not only to learn about the process of adaptive reuse, but also the system(s) within which it exists, and how we can use adaptive reuse to create a “Living Building.” We hope to understand how an adaptive reuse project fits within the systems of the local community, the environment, and the health and wellbeing of its residents. Through research, we hope to answer the following questions and incorporate the learnings from this research into an adaptive reuse conversion of a local building.

1. What goes into selecting a site for adaptive reuse?
2. How is the site and structure analyzed?
3. How can we design for a specific community, with their needs, wants, and values in mind?
4. How can we incorporate elements of sustainable design, urban agriculture, composting, and biophilic design into an adaptive reuse project in a way that benefits the residents, aligns with the community, and has a low impact on the planet?

There is not one specific scholarly context for our proposed project, as the idea of the course is to think about an adaptive reuse project from many different perspectives. However, one common thread running through the project will be the courses put together by the International Living Futures Institute, which we will complete throughout the semester. While doing so, we will also learn about the history of adaptive reuse, from the origins of restorative architecture by those like Eugène Emmanuel Viollet-le-Duc and conservative architecture by John Ruskin and his peers to the pivotal work of Sherban Cantacuzino in the 1970s, starting the modern “adaptive reuse” movement. Beyond the history and details of the adaptive reuse process, we will also explore work in the community-centered design field, such as the publications of the DESIS Network for Social Innovation and Sustainability. We will focus on their strategies for and examples of codesign, community-centered design, and social innovation, thinking about how we can apply these strategies to architectural design. We will also research the more technical side of designing for sustainability not only through the ILFI courses, but also in the form of supplemental articles on green retrofitting. Additionally, we will take advantage of the RISD Materials Library for inspiration around sustainable building materials and complete Parsons’ Healthier Materials and Sustainable Building Certificate to inform us in this field as well. We will also use the Nature Lab and their recommended resources, such as Terrapin Bright Green’s *14 Patterns of Biophilic Design*, to gain inspiration for the forms we design within and around the building to create more natural and biophilic spaces. Finally, if the outcome of our community engagement suggests that they would be

open to the incorporation of urban agriculture into the building, we will delve into current methods for urban agriculture, including vertical farming, hydroponics, and aquaponics.

The course will consist of 12 hours/week of independent reading, research, and/or design time on the topics discussed above, with each student focusing on different areas of research. Students will meet independent of an advisor for 2 hours/week to share their findings, discuss their learnings in the context of the project, and strategize about the following week's research. We will meet with a faculty member, either our primary advisor or a guest subject-matter expert for the equivalent of at least one hour every week to learn from their expertise and share our progress. Progress will be tracked throughout through the completion of the International Living Building Institute course. Additionally, the midterm assessment will take the form of a 10-15-page paper for each student on the areas of research that we focused on, due on November 15th concluding the intensive research phase of the project. Our final deliverable will be a CAD design and physical scale model incorporating appropriate elements from our research, developed in the final month of the semester, as well as a project summary explaining design choices that we made.

Learning Goals:

1. **Develop an understanding** of adaptive reuse as a real-world process, from the acquisition of a site to final design.
2. **Research, understand and apply** concepts of community-centered design, sustainable materials, green retrofitting, biophilic design, and urban agriculture into a cohesive, real-world-based design project.
3. **Incorporate** concepts in affordable housing design to design for this target market, learning strategies to mitigate future gentrification.
4. **Create** an accurate scale model of this design based on site measurements and CAD drawings.

II. Why

Climate change is affecting the world in an ever-increasingly urgent and alarming way. The combined operational carbon emissions and embodied carbon of buildings accounts for about 39% of global emissions. That is an enormous opportunity for improvement. With adaptive reuse, the embodied carbon of a building can be greatly reduced, as material waste from demolition is minimal and new material use is mitigated. With biomaterials and other sustainable materials, we can limit this embodied carbon value even further. On the operational carbon emissions side of the equation, green retrofitting and closed-systems design can move the needle further toward net-zero, or even net-positive, operational energy. However, the climate is not the only important stakeholder to consider. The people in the community living in and around the building are pivotal to include in the design process as well. Without understanding the needs, wants, and values of the people that will be living in the building, one cannot provide the features, environment, or services that future residents require to feel that their home serves them, increasing adoption and sustainability of the community.

While INTAR at RISD has a strong adaptive reuse program, there is not a course that by itself looks at adaptive reuse in the context of community-centered design and sustainable design

concurrently. We may pull in elements from Kurt Teichert's Applied Building Systems class, which focuses on sustainability through energy use, as well as the INTAR Adaptive Reuse Design Studio which allows students to work on an adaptive reuse project using a real-world structure. However, with an independent study project, we have the freedom to research a wider variety of sustainable design practices in different fields, from biomaterials to biophilic design to urban agriculture to net-zero energy design strategies. Furthermore, we can research and put to practice the community engagement strategies that we have begun to develop in our summer MADE studio, applying them to a new context.

III. How

A. Evaluation

Midterm Paper: 25%

Final Design Deliverable: 30%

Final Design Write-up: 10%

In-Class Participation: 10%

Weekly Certification Progress Quizzes: 25%

This course will be graded on participation, weekly International Living Futures Institute (and Parsons) course completion, a midterm research paper, and a final design deliverable. Attendance at all scheduled meetings with faculty advisors is required, and any scheduling changes should be communicated to advisors as far in advance as possible. Students should be prepared for fruitful conversations, which means having done thorough research on the topic at hand, preparing any questions that came up through research, and preparing updates on the progress of research to share with faculty. Prepared participation accounts for 10% of the student's grade. Students will complete at least one ILFI course per week towards the Living Future Accreditation and Living Affordable Housing certification at ILFI OR one half of a Parsons Healthy Materials & Sustainable Building course per week towards the Parsons Healthy Materials & Sustainable Building certificate. A 10-15 page midterm research paper, due November 15th, will account for 25% of the student's grade and should demonstrate the focus of the student's research around community-centered design and sustainability in the context of adaptive reuse. A final CAD design and physical scale model of the student's adaptive reuse project will account for 30% of the student's grade, with an additional 10% given for a thoughtful 3+ page write-up detailing design choices and justification for these choices based on research and learnings throughout the semester. Both are due on the last day of Finals period. Grading will be done by Professor Christopher Bull.

B. Meeting Times

Wednesday 10:00-12:00 [2 hours/week] - Student Meeting: Students will use this time to share their findings, discuss their learnings in the context of the project, and strategize about the following week's research. Students should be prepared with notes and shareable resources to teach their fellow student(s) about their research. In later weeks, this time will be dedicated to brainstorming and design sessions, and will likely be extended to 4-6 hour sessions..

Monday/Wednesday/Friday 3:00-4:00 [1 hours/week] - Advisor Meeting: We will meet with a faculty member, our primary advisor and/or a guest subject-matter expert, for at least one hour every week to learn from their expertise and share our progress.

C. Syllabus

Summary

Week	Dates	Subject		Readings	Courses	Faculty Meetings
1	9/9-9/15	History of Adaptive Reuse		Link to Readings	Link to Courses	9/8 - Chris Bull
2	9/16-9/22	Theories of Adaptive Reuse		Link to Readings	Link to Courses	9/22 - Elizabeth Debs
3	9/23-9/29	Site Selection and Analysis - Research		Link to Readings	Link to Courses	9/29 - Elizabeth Debs
4	9/30-10/6	Site Selection and Analysis - Practice		Link to Readings	Link to Courses	10/5 - Elizabeth Debs and Kurt Teichert
5	10/7-10/13	Comm-unity-Centered Design - Research & Planning		Link to Readings	Link to Courses	10/13 - Chris Bull
6	10/14-10/20	Community-centered design - Practice	Biophilic Design	Link to Readings	Link to Courses	10/19 - Jennifer Bissonnette
7	10/21-10/27		Approachin g Net-Zero through Green Retro- fitting	Link to Readings	Link to Courses	10/27 - Kurt Teichert
8	10/28-11/3		Sustain- able Materials	None →	Link to Courses	11/3 - Jennifer Bissonnette
9	11/4-11/10					
ASSIGNMENT DUE 11/10: COMMUNITY ENGAGEMENT TOOLS COMPLETED, COMMUNITY ENGAGEMENT & DATA INSIGHTS COMPLETE						

10	11/11-11/17	Design Week 1	Optional: Urban Agri-culture	Link to Readings Link to Urban Agriculture Optional Readings	Link to Optional Courses	11/17 - Chris Bull 11/17 - Jonathan Knowles
ASSIGNMENT DUE 11/15: MID-SEMESTER RESEARCH PAPER						
11	11/18-11/24	Design Week 2	Optional: Co-Living	Link to Readings Link to Co-Living Optional Readings	Link to Courses Link Optional Courses	11/24 - Jennifer Bissonnette Meeting
12	11/25-12/1	Design Week 3		No Readings, Final weeks of design	Link to Courses	12/1 - Kurt Teichert
13	12/2-12/8	Design Week 4		No Readings, Final weeks of design	Link to Courses	12/8 - Jennifer Bissonnette
ASSIGNMENT DUE 12/8: FINAL CAD DESIGN						
14	12/9-12/15	Final Design: Scale-Model & Write-Up		Link to Readings	No Courses, final weeks of design	12/14 - Chris Bull
15	12/16-12/22					12/14 - Elizabeth Debs
ASSIGNMENT DUE 12/21: FINAL SCALE MODEL AND WRITE-UP						

Week 1: The History of Adaptive Reuse [9/9 – 9/15]

We will begin our semester by establishing a common understanding of the history of adaptive reuse, from its roots in the 19th century to its more modern conception starting in the 1970s.

We will address the following questions:

- Where and how did the concept of adaptive reuse originate?
- How can we learn from the examples of the past?

Student-Led Discussion, 9/15 + Primary Advisor Meeting, 9/15

Total Pages + Hours: 111 pages + 1 2-hour course

Assignments: Reading Notes + Course Quiz

Readings:

- Liliane Wong - Adaptive Reuse: Extending the Lives of Buildings - Chapters 1-6 ([Link](#))
 - o An introduction to adaptive reuse, including its history.
- Bie Plevoets, Koenraad Van Cleempoel - Adaptive Reuse As An Emerging Discipline: An Historic Survey ([Link](#))
 - o A paper on the history of adaptive reuse through examples starting in the 19th century up to the present, as well as a brief overview of the different approaches used in adaptive reuse.

Certification Course(s):

[Living Building Challenge 4.0 Introduction](#)

Week 2: Theories of Adaptive Reuse [9/16 – 9/22]

We will build on our new knowledge of the history of adaptive reuse by learning about the theories employed in adaptive reuse. We will address the following questions:

- How is adaptive reuse currently done?
- What historical and cultural contexts need to be considered when beginning an adaptive reuse project?

Student-Led Discussion, 9/22 + Elizabeth Debs Meeting, 9/22

Total Pages + Hours: 143 pages + 1 2-hour course

Assignments: Reading Notes + Course Quiz

Readings:

- Liliane Wong - Adaptive Reuse: Extending the Lives of Buildings - Chapters 8-15 ([Link](#))
 - An introduction to adaptive reuse, including theories in adaptive reuse and how to understand the contexts within which you are designing.
- Georg Giebeler - Refurbishment Manual: Maintenance, Conversions, Extensions ([Link](#))
 - A practical planning aid for conversions and extensions to existing structures, this manual offers concrete tips on planning steps and cost analysis, covers all aspects from energy-efficiency to fire safety.
- Jean Carroon - Sustainable Preservation: Greening Existing Buildings ([Link to request from the Rock](#))
 - A nuanced look at the hundreds of choices that adaptive reuse requires architects to make--from ingenious ways to redeploy existing structural elements to time-honored techniques for natural ventilation to creation of wetlands that restore a site's natural biological functions. In addition, Sustainable Preservation presents 50 case studies of projects--schools, houses, offices, stores, museums, and government buildings--that set new standards for holistic approaches to adaptive reuse and sustainability.

Certification Course(s):

[Living Building Challenge 4.0 Imperatives In-Depth](#)

Week 3: Site Selection and Analysis - Research [9/23 – 9/29]

This week will be dedicated to learning about the site selection process for adaptive reuse. Our goal is to understand the factors to consider, the mechanisms by which to search, and the ways to evaluate a site for viability. We will address the following questions:

- What factors need to be considered when choosing a site for an adaptive reuse project? Transit? Access to public services? Proximity to jobs? Proximity to grocery stores, restaurants, shops? (etc.)
- What attributes of a site/building are warning signs? Environmental contaminants? Structures not up to code? Flood risk? (etc.)
- How are zoning designations considered? What is the process for rezoning in Providence? How long does this process take? Is there an adaptive reuse code for PVD?
- Are there funding opportunities/subsidies available for adaptive reuse projects in PVD?

Student-Led Discussion, 9/29 + Meeting with Elizabeth Debs, 9/29

Total Pages + Hours: 111 pages + 1 1-hour course

Assignments: Reading Notes + Course Quiz

Readings:

- Rebecca Ahlers - “A Method for Adaptive Reuse Site Preselection” ([Link to download](#)) (p.83-143)
 - A paper on methods for whittling down site options for adaptive reuse, including important factors to consider
- Xander Lacson - “Adaptive Reuse and the ARP Model: Background and Method Analysis” ([Link](#))
 - The ARP Model of Craig Langston is analysed for its robustness and limitations as a tool for site selection in adaptive reuse.
- Lucia Della Spina - Cultural Heritage: A Hybrid Framework for Ranking Adaptive Reuse Strategies ([Link to Download](#))
 - Describes through a case study a multilevel decision-making process able to support the decision maker in optimizing investment choices for the efficient allocation of public resources, with specific reference to recovery and adaptation to the reuse of unused historical public heritage.
- Yongtao Tan - A fuzzy approach for adaptive reuse selection of industrial buildings in Hong Kong ([Link](#))
 - Adaptive reuse of industrial buildings is discussed in this paper, and a fuzzy adaptive reuse selection model is developed for decision-making. A hypothetical example is used to demonstrate the application of the method and show its effectiveness.
- Providence Zoning Laws ([Link](#))

Certification Course(s):

[Introduction to Living Affordable Housing: Strategies and Benefits to Applying the Living Building Challenge](#)

Week 4: Site Selection and Analysis - Practice [9/30 – 10/6]

This week, we will employ the strategies learned in the previous week to choose a site in Providence. We will address the following questions:

- Which sites should we consider in Providence?
- Which neighborhood is in most need of affordable housing?
- Which site in this neighborhood is best suited for a mixed-use adaptive reuse project based on the strategies we have learned?
- Does this site have documentation? If not, what strategies can be used to take measurements efficiently and accurately?

Student-Led Discussion, 10/5 + Tour with Kurt Teichert (Date TBD), Meeting with Elizabeth Debs, 10/5

Total Pages + Hours: 36 pages + 8 hours (Practice - touring neighborhoods, looking through online listings, and doing analysis) + 1 2-hour course

Assignments: Chosen Site + Course Quizzes

Readings:

- Urban Land Institute - Ten Principles for Developing Affordable Housing ([Link](#))
 - Ten Principles for Developing Affordable Housing seeks to help those who wish to develop housing for low- and moderate-income households understand what it takes to make affordable housing projects happen. It also seeks to help policy makers and community leaders understand the principles behind the production of affordable housing.

Certification Course(s):

[The Living Building Challenge Framework for Affordable Housing](#)

Week 5: Community-Centered Design - Research & Planning [10/7 – 10/13]

We will use this week to read further on community-centered design strategies, building on our knowledge from the MADE summer studio. We will then use this research to develop a project-specific method for community engagement, plan a community-centered design session, and develop any tools needed for this session.

- What tools can we develop that will allow residents to use their creativity to tell us what they would like to see in their neighborhood?
- How and who can we connect with within the community we are planning to build in so that we can initiate a community-centered design session?
- What venue could we use for such a session?
- How can we attract people to come to this session?
- Can we partner with any local community organizations to act as a venue and draw in residents to participate?

Student-Led Discussion, 10/13 + Elizabeth Debs Meeting, 10/13

Total Pages + Hours: 57 pages + 2 2-hour courses

Assignments: Schedule for Community Design Session + Reading Notes + Course Quizzes

Readings:

- Daria Cantù and Daniela Selloni - From engaging to empowering people: a set of co-design experiments with a service design perspective ([Link](#))
 - A paper on strategies for community-centered design with examples of some successful sessions
- Mirian Calvoa, Annalinda De Rosab - Design for social sustainability: A reflection on the role of the physical realm in facilitating community co-design. ([Link](#))
 - Analyzes to what extent participatory processes can strengthen communities and their identities, and reflect on place-based approaches for design strategies of territories.
- Luisa Collina, Laura Galluzzo, Claudia Mastrantoni, Vanessa Monna - Hall of the Future: a Systemic Research Project for Public Interiors and Spaces using Co-Design Tools. ([Link](#))
 - This essay describes a Systemic Research project with a focus on the use of a Co-Design approach within the process of the Hall of the Future requalification project
- Ezio Manzini, Anna Meroni - Catalysing social resources for sustainable changes ([Link](#))
- Daniela A. Ottmann - CO+LIVING DESIGN Participatory design simulation gamification for life-enhancing built environments in age appropriate, inclusive and multi-generational co-living buildings without limitations ([Link](#))
- Research on and outreach to community organizations
 - This article reports on conducted research on co-design for multi-generational co-living architecture and development proposals for urban living as a solution to deal with ageing populations that are spatially disconnected.

Certification Course(s):

[Introduction to the Living Community Challenge](#)

[Living Community Patterns: The First Step to Sustainable Innovation](#)

Weeks 6-9: Community-Centered Design - Practice [10/14 – 11/10]

We will use this month to read put to action our research to plan the specifics of and develop any tools needed for a community-centered design session. This date will be scheduled in the prior week.

- What are the needs/wants of the community we are designing for/with? (food security, affordable housing, access to healthcare, public space, community centers/spaces?)
- Is the community made-up of mostly families? Young professionals? Older adults?
- What sector of the community are we designing for? Why?
- What features of a home are most important to this sector of the community?
- What are people in this sector open to (such as composting, community gardening, co-living spaces, etc.)?
- How can we best gauge the wants and needs of people within this sector of the community (how do we gather community feedback?, create places/opportunities for community engagement/participation)?

Assignments: Tools for Community Design Session + Report of Community Design Session Results (Due by 11/10) (Roughly 20 hours over 4 weeks)

MEANWHILE

Week 6: Biophilic Design [10/14 – 10/20]

This week, we will learn about the fundamentals and benefits of biophilic design, both through a 2-day biophilic design leadership conference and the Terrapin Green fundamentals guide to biophilic design. We will use this research to discuss how these could be applied to our adaptive reuse project.

- What are the fundamental principles in biophilic design?
- How is biophilic design being used to change living environments?
- What benefits does biophilic design have to people's lives and the environment?
- How can we use biophilic design in our specific adaptive reuse setting?

Student-Led Discussion, 10/19 + Jennifer Bissonnette Meeting, 10/19

Total Pages + Hours: 64 pages + 2-day conference (roughly 12 hours)

Assignments: Reading Notes & Conference Notes

Readings:

- Biophilic design leadership conference ([Link](#))
 - Hosted by The Biophilic Institute, Biophilic Cities, and Serenbe, this year's theme is Biophilia at Scale: Land and Water, with presentations focusing on land use and infrastructure. Through presentations, group discussions, and workshops, leaders will dissect the applications of biophilia in order to understand the "biophilia effect" on health, global warming, policy, and future developments.
- Terrapin Bright Green - 14 Patterns of Biophilic Design ([Link](#))
 - Biophilia in Context looks at the evolution of biophilic design in architecture and planning and presents a framework for relating the human biological science and nature.
 - Design Considerations explores a sampling of factors (e.g., scale, climate, user demographics) that may influence biophilic design decisions to bring greater clarity to why some interventions are replicable and why others may not be.
 - The Patterns lays out a series of tools for understanding design opportunities, including the roots of the science behind each pattern, then metrics, strategies and considerations for how to use each pattern. This paper moves from research on biophilic responses to design application as a way to effectively enhance health and well-being for individuals and society

Certification Course(s):

[Getting Started with Biophilic Design](#)

Week 7: Approaching Net-Zero through Green Retrofitting [10/21 – 10/27]

We will use this week to understand how sustainability can be achieved in adaptive reuse through green retrofitting, or adding elements to the existing structure to increase insulation, improve energy efficiency, and reduce waste.

- What design elements are most impactful in creating as close to net-zero as possible? Shell redesign? Heating and cooling technology? Energy generation?
- Can we retrofit the shell of an existing building to bring it closer to net-zero?
- What heating and cooling technology is most energy efficient, cost-effective, and retrofittable?
- What other strategies are currently being employed in green retrofitting?

Student-Led Discussion, 10/27 + Kurt Teichert Meeting, 10/27

Total Pages + Hours: 25 pages + 5 1-hour courses + 1 2-hour course

Assignments: Reading Notes & Course Quizzes

Readings:

- Ikbal Cetiner, Ecem Edis - An environmental and economic sustainability assessment method for the retrofitting of residential buildings ([Link](#))
 - o This study focused on a government initiated retrofit project in Korea to provide insights to its process and find helpful and applicable tips for other retrofits in similar contexts. To assess the effectiveness of a green remodeling in its local context, the study used different methods: archival research on green remodeling related government policy and regulations, examinations of processes, strategies, and implementations of a public building energy retrofit as a case study, and energy simulation analyses comparing actual and expected building energy uses by calculating buildings' heating and cooling loads.
- Green retrofitting – A review of current status, implementations and challenges ([Link](#))
 - o This paper aims to critically review the existing literature on green retrofitting and to identify contemporary research trends. Additionally, with the view to the current challenges, barriers, obstacles or problems to green retrofitting, this study highlights the needs to identify the Critical Success Factors (CSFs) for successful implementation of green retrofit projects.
- RCI - High Performance Building; Performance by Design ([Link](#))
 - o High Performance by Integrative Design follows the first installment in the High Performance Building Series to provide an in-depth look at how the integrative design process happens. The film includes examples of how design teams collaborate in new ways to integrate high-performance design elements, such as daylighting, energy efficiency and renewable energy, for optimal performance.
- **(Optional Reference)** Norbert Lechner - Heating, Cooling, Lighting ([Link to download](#))
 - o This is a huge book (used in Kurt Teichert's Sustainable Design in the Built Environment course) and should be used to reference anything to do with energy-related sustainable design.

Certification Course(s):

[Energy Equity and Resiliency in Affordable Housing](#)
[Water, Health, and Independence in Affordable Housing](#)
[Zero Carbon](#)
[Introduction to Zero Energy](#)
[Net Zero Energy at the Bullitt Center](#)
[Getting to Zero: Net Zero Energy Building Projects](#)

Week 8-9: Sustainable Materials, [10/28 – 11/10]

These two weeks, we will study sustainable materials, especially those that could be useful in an architectural context. This will be accomplished through the Healthy Materials for Sustainable Building online certificate course at Parsons.

- What materials can we use to minimize impact on the environment throughout the lifecycle of the building?
- What materials can be used structurally vs. as finishing/non-supporting materials?
- How can a material's environmental impact be quantified and assessed?

Student-Led Discussion, 11/3, 11/10 + Jennifer Bissonnette Meeting, 11/3

Total Course Hours: 26 (13/week)

Assignments: Course Completion

Certification Course(s):

[Parsons](#)

Materials and Human Health

Building Projects and Chemistry

Healthier Materials: Design and Specification

Executing a Healthier Project

ILFI

[Innovating the Materials Petal in Affordable Housing](#)

MID-TERM RESEARCH REPORT DUE 11/15

Design: Weeks 10-15

Week 10: Design 1 (+ Systems Design) [11/11 – 11/17]

We will start using all of the research we've done up to this point as well as the input we gained from the community to start our design.

- How do we integrate all of the concepts we've learned about throughout these 10 weeks?
- Are there competing objectives within these topics? If so, how do we strike a balance between two poles?

Student-Led Brainstorm Session, 11/17 + Jonathan Knowles Meeting, 11/17

Total Pages + Hours: 111 pages + 2 1-hour courses

Assignments: Reading Notes & Course Quizzes

Readings:

- Donella Meadows - Thinking in Systems (Pt 1 & Pt 2) ([Link](#))
 - o This book teaches how to start viewing the world in terms of systems, why we tend to misunderstand complex systems, and how to intervene most effectively in systems. We hope to use this as a way to understand how each of the elements we've learned about thus far fit into the system of adaptive reuse.

Week 11: Design 2 (+ Systems Design) [11/18 – 11/24]

We will build on the design as well as the systems thinking research, continuing to bring elements from the research throughout the course into the design.

- How do we integrate all of the concepts we've learned about throughout these 10 weeks?
- Are there competing objectives within these topics? If so, how do we strike a balance?

Student-Led Brainstorm/Design Session, 11/24 + Elizabeth Debs Meeting, 11/24

Total Pages + Hours: 42 pages + 2 1-hour courses

Assignments: Reading Notes & Course Quizzes

Readings:

- Donella Meadows - Thinking in Systems (Pt 3) ([Link](#))
 - o This book teaches how to start viewing the world in terms of systems, why we tend to misunderstand complex systems, and how to intervene most effectively in systems. We hope to use this as a way to understand how each of the elements we've learned about thus far fit into the system of adaptive reuse.
- Wendell Berry - Solving for Pattern ([Link](#))

Certification Course(s):

[Life Cycle Assessment & Environmental Product Declarations: What You Need to Know](#)
[Living Product Challenge 2.0](#)

Week 12: Design 3 (+ Systems Design) [11/25 – 12/1]

We will build on the design as well as the systems thinking research, continuing to bring elements from the research throughout the course into the design.

- How do we integrate all of the concepts we've learned about throughout these 10 weeks?
- Are there competing objectives within these topics? If so, how do we strike a balance between two poles?

Student-Led Design Session, 12/1 + Kurt Teichert Meeting, 12/1

Total Pages + Hours: 10 hours design + 13 pages + 2 1-hour courses

Assignments: Reading Notes & Course Quizzes

Readings:

- MC Jackson, N Johnston, J Seddon - Evaluating systems thinking in housing ([Link](#))
 - o This paper describes and evaluates work carried out in the social housing context in the United Kingdom using a systems thinking approach called 'lean systems' (LS). The work, sponsored by the Office of the Deputy Prime Minister, was designed to test whether LS could improve the efficiency of delivery of housing management and maintenance services. A pilot programme was developed in which three housing organizations used the approach in different service areas.

Certification Course(s):

Living Products: Three Case Studies of Regenerative Designs
Achieving Healthy Materials

Week 13: Design Week 4 [12/2 – 12/8]

We will build on the design as well as the systems thinking research, continuing to bring elements from the research throughout the course into the design.

- How do we integrate all of the concepts we've learned about throughout these 10 weeks?
- Are there competing objectives within these topics? If so, how do we strike a balance between two poles?
- How can we align our design with the requirements of affordable housing development?

Student-Led Design Session, 12/8 + Jennifer Bissonette Meeting, 12/8

Total Pages + Hours: 10 hours design + 1 1-hour courses

Assignments: CAD Model & Reading Notes & Course Quizzes

Certification Course(s):

[Introduction to Reveal](#)

Weeks 14-15: Final Design Weeks: Scale-Model & Write-up [12/9 – 12/22]

We will use our CAD design.

- How can we represent our CAD model with a scale model to clearly translate our ideas in a physical medium?
- Can we create our model such that it can be used as an engagement tool and adapted by the community?
- What materials should we use to both accurately show our ideas and make it modifiable?

Student-Led Design Session, 12/14 + Elizabeth Debs Meeting, 12/14 + Jonathan Knowles Meeting 12/22

Total Pages + Hours: 12 hours/week of model building and writing

Assignments: Scale Model and Write-Up (describing design choices)

OPTIONAL Week 10: Urban Agriculture [11/11 – 11/17]

This week is optional because our community-centered design sessions will dictate whether the community is even open to these topics. If they are interested, or at least willing to consider these ideas, we will research them and try to incorporate them into the design concept.

- How can we incorporate urban agriculture into a community/residential space in a thoughtful, sustainable way?
- How can we both incorporate compost as part of this urban agriculture system as well as a part of the community system, creating ownership and buy-in among community members?
- How can we incorporate aspects of co-housing, intentional community design to adaptive reuse projects

Student-Led Discussion, 11/17 + Jennifer Bissonnette Meeting, 11/17

Total Pages + Hours: 120 pages + 1-hour Webinar + 1 hour course

Assignments: Reading Notes & Course Quizzes

Readings:

- Robert L. France - Integrated Urban Agriculture : Precedents, Practices, Prospects (p.1-74, 153-181) ([Link](#))
 - Intended as a “one stop shop” of a veritable who’s who of leading urban agriculture authors and scholars, this book brings together seventeen contributions on the design, development, science, and society of the rapidly expanding, multi-disciplinary field.
- Elizabeth Yarina - Adaptive building reuse for vertical urban agriculture ([Link](#))
 - These case studies examine three existing buildings that have been repurposed into functioning urban farms: The Brooklyn Grange (New York), The Plant (Chicago), and Farm:Shop (London). By providing a variety of urban contexts, scales, technologies, and modes of production, this project seeks to become a productive catalog of adaptive reuse for urban agriculture.
- Milica Koscica - Agropolis: The Role Of Urban Agriculture In Addressing Food Insecurity In Developing Cities ([Link](#))
 - Through a historical retrospective of urban agriculture to an analysis of current practices and policies, this article explores urban agriculture's potential ability to manage the lack of land and water in cities through the development of innovative growing techniques that optimize the access, quantity, and quality of food for millions of people in developing cities around the globe.
- Sarah Donovan Huckins - Urban agriculture and creating a sustainable foodscape Webinar ([Link](#))

Certification Course(s):

[Urban Agriculture and Community Food Systems](#)

OPTIONAL Week 11: Coliving [11/18 – 11/24]

This week is optional because our community-centered design sessions will dictate whether the community is even open to these topics. If they are interested, or at least willing to consider these ideas, we will research them and try to incorporate them into the design concept.

- How has coliving been successfully implemented?
- How has coliving been unsuccessfully implemented? Why was it unsuccessful?
- What are the benefits of successful coliving?
- How can we design for coliving?

Student-Led Discussion, 11/24 + Jennifer Bissonnette Meeting, 11/24

Total Pages + Hours: 30 pages + 2 1-hour courses

Assignments: Reading Notes & Course Quizzes

Readings:

- Denny Setiawan - Designing co-living housing with green and ecology architecture concept ([Link](#))
 - 4 parameters of ecological-green architecture design, such as nature should be the main actor of the design; nature becomes a solution for every problem in the site; honor the user by involving them as a designer; and be a climate conscious building by conserving energy.
- Ying-Sheng Zheng, Alex Yeung, Koon Kwan Shing - Social Cohesive Approach to High-density Communities: Co-living and Modular Integrated Construction as a Way Forward ([Link](#))
 - This study aims to introduce a framework of creating a co-living community, through the case study of a pilot co-living project called “InnoCell” located in Hong Kong and designed by Leigh & Orange Ltd. In this project, diversified communal services are integrated to accommodate the increasing needs for social activities in addition to providing shelter.
- A N Saputra, D G Lineker, H E Hibaturrahim- Space Utilization and Transformable Architecture of Peri-Urban Co-Living Concept in Rancaekek, Bandung ([Link](#))
 - Co-living Rancaekek in Bandung’s peri-urban area is a concept which aims to improve the effectiveness of land use by providing multifunctional living space and household food production through hybrid infrastructure. The analysis provides evidence that each responsibility requires specific spatial planning and multifunctional furniture that can support various activities, tools, and processes to enable adaptation in limited space. The solution to space utilization is determined through the proposed movement of furniture based on a review of transformable architecture, namely flexibility and functionality of the space being utilized, to maximize functions in a minimum size space.
- Jeffrey Steele - Is Co-Living The New Co-Working? ([Link](#))
 - This article discusses the trend towards co-living and the pros and cons of this trend.

Certification Course(s):

[Declare 2.0](#)

[Just 2.0](#)

OPTIONAL Weeks 12-15: Planning & Development [11/25 – 12/1]

This week is optional because we will be focusing heavily on the design side of the project at this point. Nonetheless, learning about the planning and development portion of the system is really important to bring a project to life. I've listed the Downtown Development course syllabus in the references below so as to give you the opportunity to read as much or as little on this topic as you'd like and have time for.

- How can we work with city planners to meet zoning requirements?
- What historic preservation laws/guidelines do we need to take into consideration?
- How can we use our work to mitigate gentrification and push for plans and laws that allow for and continue this work?

Readings:

- Downtown Development Syllabus ([Link](#))
 - o Sections include:
 - **Zoning**
 - [RI Zoning Ordinances](#)
 - [Shaping our cities](#)
 - Urban Land Use
 - **Preservation**
 - [Penn Central Transportation Company vs. City of New York](#)
 - [Providence Historic District Commission Standards & Guidelines](#)
 - New Urbanist Codes and Smart Growth
 - **Planning for Development**
 - Urban Development: the Logic of Making Plans ("How Plans Work") - [Available at the Rock](#)
 - [RI Comprehensive Planning and Land Use Act](#)
 - **Redevelopment and Economic Development**
 - [RI General Laws: Redevelopment Agencies and Redevelopment Projects](#)
 - Downtown Development
 - **Public Infrastructure, Sustainability, and Resiliency**
 - [APA Climate Change Policy Guide](#)
 - [Providence Climate Justice Plan](#)
 - **Affordable Housing, Equity, and Gentrification**
 - [How Some of America's Richest Towns Fight Affordable Housing](#)
 - [Rally calls for affordable housing at Providence's Barbara Jordan II complex](#)
 - [Cities Start to Question an American Ideal: A House With a Yard on Every Lot](#)
 - ["You don't have a problem, until you do": Revitalization and Gentrification in Providence, Rhode Island](#)
 - [Providence Anti-Displacement and Comprehensive Housing Strategy](#)

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