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Tactical Urbanism

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Tactical Urbanism | Social Exchange and Community Building

Introduction

Making is thinking ... the craft of making physical things provides insights into the techniques of experience that can shape our dealings with others. Both the difficulties and the possibilities of making things well apply to making human relationships.¹

The Tactical Urbanism course frames the theory of creating small-scale design interventions in public space to create a long-term impact that shapes our cities' social and cultural life. Pedagogically, the design-build nature of the class provides opportunities for upper-level architecture students interested in exploring design-thinking and making skills to build a one-to-one fully deployable structure as artifacts to test as provocations in the city in a public event. Tactical Urbanism², Guerilla Urbanism, Streets Alive, and Parking Day have become annual events in many large cities. Such events bring real-life opportunities to design-build pedagogy in the classroom for meaningful social engagement and community building, thus expanding the role of education as a participatory practice-based design research and fabrication lab.

This strategy engages students directly with social and spatial justice issues within our cities and public spaces. It leverages design thinking skills to provide new urban imaginaries around place-making, shelter, and sustainability. The power of applying design skills to re(imagine) and re(think) social interactions through playful design-build artifacts as provocations redefine the role of architects as social agents of change for the *common good* that connect all citizens.³ The process is rigorous, giving students real-life experience of project scope: from conception to design, to prototyping testing scalar mockups, to actual fabrication and deployment, whereby engagement with materials, tectonics, and tools intuitively gives them design feedback that is critical to the creative process as attested by Richard Sennett⁴.

¹ Sennett, R. 2008. *The Craftsman*. Yale University Press.

² / tac-ti-cal urbanism / A city and/or citizens-led approach to neighborhood building using short-term, low-cost, and scalable interventions intended to catalyze long-term change.

³ Lefebvre, H. 1991. *The Production of Space*. Blackwell.

⁴ Sennett, R. 2008. *The Craftsman*. Yale University Press.

This paper critically examines the Tactical Urbanism projects undertaken, specifically, *Walls as Living Surfaces* through the lens of Scale and Representation and its deployment to generate and promote critical discourse around issues of equity - Social Engagement and Community Building.

Design Build | Walls as Living Surfaces

Inspired by Rem Koolhaas's, questioning of the architectural elements as basic building blocks: wall, floor, ceiling and more at the Venice Biennale exhibition⁵, students explore the notion of Walls - to re(imagine) and re(think) the needs around shelter and placemaking by developing a prototype through scalar interrogations engaging program: as a planter, as a pop-up bookshelf, as seating, and as a collaborative social exchange space. Each design-build class explores the issue through a public forum⁶ to test its efficacy for further exploration.

Genesis | Walls as Living Surfaces

The genesis of *Walls as Living Surfaces* follows a trajectory of tactical urbanism design-build projects around street activation, place-making, and shelter, where projects respond to a given prompt as a problem. Scale and Representation are at the core of this process as form, space, design, programming, materiality, tectonics, access, and safety are interrogated through an iterative process. Students work in teams to brainstorm, conceptualize, and test scalar mockups for fabrication details. Project management skills are tested to keep teams on task and project coordination with the wood shop and digital fabrication labs: from material delivery, storage, logistics around the CNC machine, cleaning, waterproofing, painting, finishing, assembly, testing details, and on-site deployment and transportation. Through a multi-prong approach, the class collectively develops a discourse on how design thinking contributes to the material production of space as socially engaged constructed artifacts: modular structures as playful provocations for the community to engage and gather evidence-based data. *Walls as Living Surfaces* build upon the research and findings from TU 2019 - *Ubedeh* and TU 2020 - *Inhabitable Planter* as listed below:

- *Ubedeh*

Students participated in *Hi Hat Competition*⁷ to design a prototype for a shelter that challenged the notion of the Wall as a programable vertical surface: an urban garden to generate produce as an economic driver and social exchange to improve the quality of life of the homeless people.

⁵ Koolhaas, R. 2018, *Elements of Architecture*. Taschen

⁶ Tactical Urbanism public engagement: 2019 – *Ubedeh*, *Hi Hat Homeless Shelter Competition*. 2020 - *Walls as Living Surfaces*, *AIA GA Research Grant*. Tiny Parks, *Liveable Buckhead*. *Fibonacci Nook*, KSU Math Club

⁷ Mad Houser Hi Hat Competition 2019, KSU CARE Services and KSU Architecture Department. <https://cobbchamber.org/ksu-students-re-imagine-shelters-for-the-homeless/>

Applying their research, Ubedeh⁸, questions how a shelter as an architectural construct rethinks its elements: *Walls as Living Surfaces* for growing food that can generate income and allow for social exchange. This project theorizes the utilization of ‘lo-fab’ building techniques that integrate reclaimed wood and leverage structural, kinetic, and tectonic joinery systems. The prototypical structure provides solace to those experiencing homelessness through intuitive construction techniques that exemplify modularity and deployability to “rehumanize” social issues surrounding homelessness as attested by Michael Murphy⁹.



Fig. 01. Walls as Living Surfaces: growing, social exchange
Source: Tactical Urbanism Class 2019

- *Inhabitable Plantar*

Students in TU 2020 were tasked to interrogate Walls as a vertical garden using the following prompt: ‘Walls are defined as edge conditions in our cities that act as boundaries/dividers/thresholds, physically separating public and private realms while acting as facades projecting a public face to the street. Within this most simplistic definition of a wall, how do we as architects/builders start the conversation to redefine the Walls as Living Surfaces - an assemblage engaging social, cultural, and economic framework suitable for today’s day and age? ‘

Through precedent studies, walls as the vertical surface were explored as building skin and a structural system. The interplay between light and geometrical forms and shapes was interrogated. Concepts were developed to illustrate two iterations a) as a pavilion in the park for play and social exchange and b) as an inhabitable interactive planter wall engaging air and light to create a phenomenological experience as illustrated in the images.

⁸ Murphy, M. *Architecture that’s built to Heal*. Ted Talk

⁹ ibid

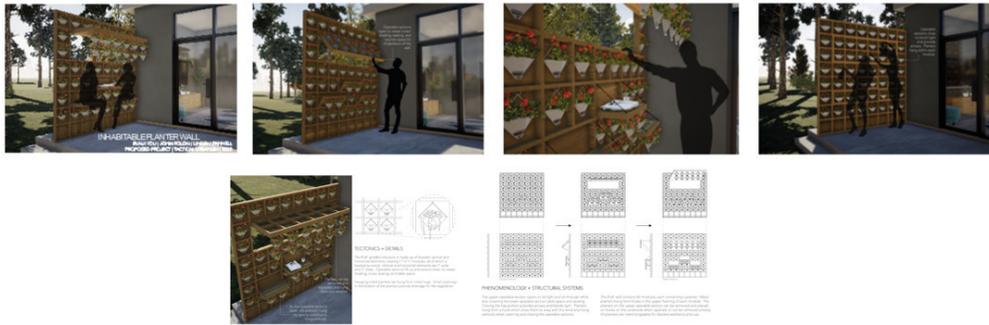


Fig. 02. Inhabitable Planter Wall
Source: KSU Tactical Urbanism 2020

Walls as Living Surfaces | Pop-Up Bookshelf

TU class 2022 was charged to respond to the KSU Math Club’s desire for a pop-up bookshelf to engage students in the greens of the Math building at KSU. Student teams were challenged to conceptualize the Walls as Living Surfaces engaging the following program: i) hold books, ii) provide seating, and iii) provide a collaborative social exchange space.

Design Scope - Defying Walls

Individual exploration combined with group work provided an enabling environment to push the concept forward. Students started the process by analyzing the site outside the Math building. In teams of two, the notion of a wall was interrogated as a 2d and 3d representative artifact to be further explored. Through sketches, physical and digital models’ ideas were presented to respond to the design brief for a modular component-based wall system engaging the given program. As per Richard Sennett, humans are apt to create since they exist in material reality. The craft of making physical things using materials and tools in digital and analog modes establishes a feedback loop in an iterative method that informs design outcomes¹⁰.



Fig. 03. Concepts of a Wall, Students Explorations
Source: KSU Tactical Urbanism 2022

¹⁰ Sennett, R. 2008. *The Craftsman*. Yale University Press.

Design Exploration Through Scale

Design Concepts were explored at incremental scales to test modularity, assemblage, ergonomics, and ease of construction: waffle structures, boxed structures, stacking methods, and mesh forms were some of the initial design proposals. The exercise of scaled physical model-making introduces a threshold that sends students on an immediate series of feedback loops when testing different design iterations. Using this methodology, students progressed from sketches to physical/digital models, mockups, to building prototypes.

The following narrative outlines the process and highlights the importance of *scale* and *representation* as an iterative tool to make critical decisions in the act of making¹¹.



Fig. 04. From Sketches, Physical Models, to Building

Source: KSU Tactical Urbanism 2022

The iterative design process continued as two teams were joined from the original four groups to refine another design iteration within budget considerations. They communicated their initial design ideas by creating 1'=1/16" or 1'=1/8" physical models. As the design developed, the feasibility of the proposals was tested through a change in scale. The next step was to produce 1"=1'0" models to test modularity, assemblage, fabrication, ergonomics, and ease of construction. The following two projects were the final proposals for the pop library.

1 The Summit focused on developing a waffle structure to provide seating, storage, and a wall for the enclosure. The site inspired the form; the shape is intended to weave through the foliage in the site and create an environment of comfort and calmness. The tectonics of this design uses vertical and horizontal wood slats to create a waffle structure. The porosity of the structural system allows for a phenomenological experience: light, air, and the function of storing books. Moreover, the organic nature of the waffle structure allowed students to think about ergonomics. The final form was then shaped in terms human body's comfort.

¹¹ Sennett, Richard

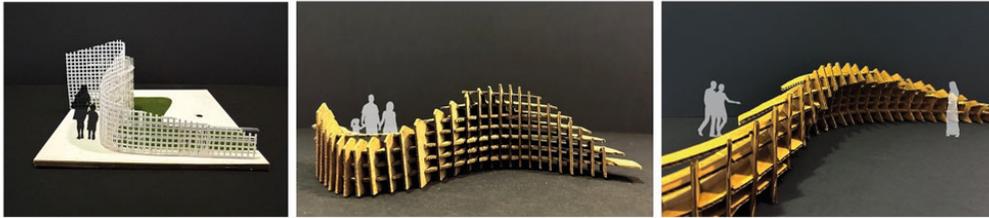


Fig. 05. The Summit. Waffle Structure Explorations
Source: KSU Tactical Urbanism 2022

2 *Fibonacci Nook's* concept of the Fibonacci sequence explicitly defines the shape and form of the design. It employs a stacking strategy for the structure and seating spaces which follows a topographical gesture at the lowest point creating a circular space for seating and collaborative exchange. As the form rises, the highest part transforms into a Wall with rectangular openings to create a sense of porosity, providing the function of a bookshelf.

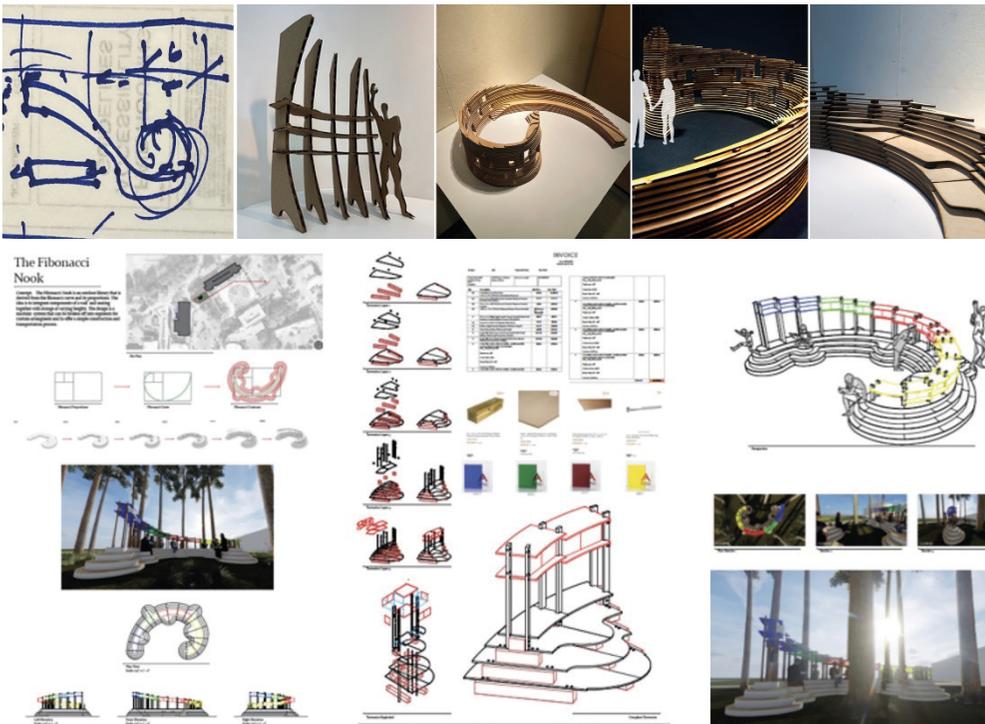


Fig. 06. Fibonacci Nook Explorations
Source: KSU Tactical Urbanism 2022

Testing Through Scalar Mock-Up

Testing through scalar mock-ups was the key in this and every other design-build project in the Tactical Urbanism course. A threshold between digital to scaled physical model-making provides an analogical opportunity to test tectonic details on a one-to-one scale which generally can be presumed to work in the digital modeling platform. When digital design ideas are carried forward into the analog world, details refine and expose problems with specific materials joining together to create an assemblage tectonically. Selecting a section of the design to explore in 1 to 1 scale brought many issues to the surface, as the resolution of details becomes clearer once as the assemblage is put together piece by piece in the material world.

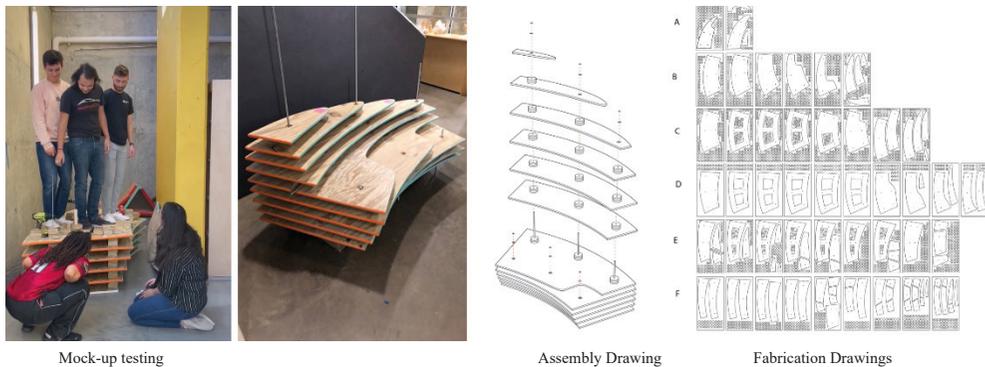


Fig. 07. Fibonacci Nook | Shop Drawings | Assembly Details | Mock-up and Testing

Source: KSU Tactical Urbanism 2022

Fabrication and Assembly

Engaging students in hands-on exploration in design, using multiple scales, calibrates the designers-in-training in terms of thinking and practicality of accessible stock materials and how they translate over into the real world in making and prototyping. Fabrication of the mockup model and assembly unfolded to the students that the material selection, at this scale, gave the module tremendous weight.

Considering this design must be transported, the team decided to solve this issue by subtracting unneeded material from the lower submodules that did not affect the structural integrity of the overall module. Another discovery that translated over into the real world unsuccessfully was the size of the threaded rods used for guiding the submodules down onto each other in a stacking manner. The $\frac{1}{4}$ " rods buckled under loads of the modules during assembly and once they were set, the lateral loads of a user leaning back on the backrest did not provide enough structural integrity to seat someone safely. This design feedback loop communicated to the students to increase the diameter of the threaded rods to $\frac{1}{2}$ ", ensuring the loads are safely directed at this scale.



Fig. 08. Fibonacci Nook | Fabrication and Assembly Process

Source: KSU Tactical Urbanism 2022

Installation and Testing

The prototype, once completed, was deployed in the architecture building due to weather constraints for a soft opening to test its efficacy through public engagement: the math club, students, faculty, and other guests interacted with the installation. The task set out for *Walls as Living Surfaces* proved to be a multi-faceted experience as a playful provocation inviting the audience to engage with the structure: bookshelf, seating, and collaborative social exchange space.



Fig. 09. Test Installation and Opening Night

Source: KSU Tactical Urbanism 2022

Fibonacci Nook won many accolades. Students took great pride in accepting the AIA Georgia 2023 Merit Award. Learnings from the project were disseminated through conference presentations¹².



Fig. 10. Wall as Living Surfaces

Source: KSU Tactical Urbanism 2022

Conclusion | Social Engagement and Community Building

The project Walls as Living Surfaces illustrates how pedagogy can engage with notions of Walls to re(imagine) and re(think) elements of architecture - first, as a shelter in Ubedeh, and second, as an Inhabitable Planter, learnings from which was then applied to the Fibonacci Nook providing the function of a bookshelf, seating, and collaborative social exchange space.

As an elective course, Tactical Urbanism design-build strategies allow upper-level students to engage with spatial and social justice issues by leveraging design thinking skills as a generative tool to create small-scale design interventions as artifacts that are playful encounters as provocations for meaningful social engagement and community building, thus expanding the role of education as a participatory practice-based design research and fabrication lab. The theory put into practice with actionable design-build projects has an immense value that can further be developed as independent research projects beyond the scope of the class that generates a life of its own, as is evident with Art on the Beltline *Enfold Pavilion*¹³.

¹² 2023 BTES | Building Technology Educators Society. (2023). *Beyond the Artifact: Constructability, Complexity & Constraints*. Arcosanti & Cosanti

¹³ <https://art.beltline.org/art/enfold-pavilion/>

These projects allow students to develop research as competitions and conference papers as they leap into the profession or pursue graduate work as “**making is thinking** ... an enduring, basic human impulse, the desire to do a job well for its own sake.”¹⁴



Fig. 11. Tactical Urbanism Projects

Source: KSU Tactical Urbanism Elective Class

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¹⁴ Sennett, R. 2008. *The Craftsman*. Yale University Press.