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Training Architects as Activists: Social Sustainability in the Studio

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Abstract

This paper discusses the application of social sustainability to architecture through a second-year graduate architecture studio focused on urban buildings. I designed the Urban Design Studio in such a way that future faculty could choose assignments between five socially sustainable equity issues: housing, food insecurity, transportation equity, access to opportunities, and environmental health. This supports the Rochester Institute of Technology (RIT) graduate curriculum by focusing on sustainable practices, including activism in architecture. Using the built environment as a platform, the students learn to promote equity, especially in the urban environment. The students research on equity topics, adopt a position on a selected issue, and begin to develop a site, program, and building form around their issue. Architecture has a unique ability to influence social sustainability through equity, especially if we shift our design practices to support disenfranchised populations. Buildings can provide more than social markers. They can create locations that empower local communities. The question is, how do we teach a process that instills this as foundational to quality design? My studio's process not only establishes a foundational knowledge of building within an urban context, but also provides a firm grounding of activism as central to architectural practice.

Introduction

The twenty-first century has witnessed many changes to the idea of sustainability. As the United Nations has made clear, sustainability includes not only material outcomes but also social and cultural goals as well (United Nations). Social sustainability recognizes that a lack of equity significantly reduces the effectiveness of sustainable efforts within the urban context. This has a significant bearing on architectural faculty, who are charged with producing both licensed architects and sustainability activists. As a result, teaching students about the role of technology as a means of achieving sustainability, including photovoltaics, energy modeling software, and other tools, has increased rapidly. However, academic architects have had more difficulty in teaching social sustainability, even though it has become more important to the industry. An example of this is the American Institute of Architecture's (AIA) 2030 commitment to standards and goals of climate mitigation strategy including creating equitable communities. According to the AIA, "Every project can be used as a platform for addressing big problems and providing creative solutions" (2021). The question for academics is, how do we teach social sustainability such that all building inhabitants can benefit?

Architecture has long been associated with a society's ethics and norms. Many of modernity's architectural theorists thought that building form both responded to and drove social responsibility. In the twenty-first century, architecture's ethical stance is linked to the sustainability movement. But the definition of sustainability is constantly evolving. To date, much of the movement-driven change has emphasized building technology and, as in the twentieth century, tended toward universality. For example, the use of photovoltaics seems to be a widespread indication of both technical and ethical sustainable practices. But, as the UN recently made clear, social sustainability is one of seventeen equity goals, which also includes inclusive education, access to modern energy, water, and sanitation, in addition to ensuring and promoting sustainable economic growth, building resilient infrastructure, and making cities inclusive, safe, resilient, and sustainable (United Nations). These goals contain many possibilities for architecture to spearhead ethical and social change in terms of sustainability, melding twentieth- and twenty-first-century goals.

The architectural profession is still learning how to develop and apply the principles of social sustainability. As architectural faculty, we are charged with not only producing licensed architects but sustainability activists. Applying technology to produce sustainable buildings, such as photovoltaics, energy modeling software, and other sustainable tools, is manifesting at a rapid rate. But much remains to be done to support the needed activist roles relative to social sustainability.

This paper discusses the application of social sustainability to a second-year graduate architecture studio focusing on urban buildings. Most urban structures are still based in a modernist model, which means they are *not* designed for the needs of local populations. Architectural theorist Kenneth Frampton (2007) argues, however, that when architecture has site specificity, it responds more to the needs of a society. His idea of critical regionalism sees the profession of architecture as engaged in the "architecture of place rather than space," responding both to physical and to social conditions (p. 385). The greatest need for this merger of place and social conditions is found in cities. Bringing this idea together with the UN's goals, it becomes clear the lack of equity significantly reduces the effectiveness of sustainable efforts within the urban context.

Rochester Institute of Technology's (RIT) Urban Design Studio was designed so that students could design with one of five local equity issues in mind: housing, food insecurity, transportation equity, access to opportunities, and environmental health. The students are tasked with researching and adopting a position on an issue as part of their development of a site, program, and building form. This process teaches not only a foundational knowledge of building within an urban context, but also the application of activism within the architectural profession.

Hypothesis

Social sustainability, the mitigation of systemic social problems within our specific professions, is a form of activism, or bringing about political or social change. Increasingly architects see a connection between social sustainability and our profession's activism. In other words, we see that we need to use the tools of architecture to bring about political or social change. Typically in architecture, sustainability happens within building technologies, but a rethinking is needed to encompass how buildings engage with broader social issues. Activism

must thus change focus from individual clients and their technological solutions to design practices for the wider community. This new method begins with the social issues prevalent in a particular place and time. It uses these issues for the creation of program, site selection, and building form. It thus gives the student a useable process for developing a more responsive built environment. The architect uses the craft of design for social improvement.

Method

Educating for social sustainability application requires a nuanced approach that must rely on a design process that analyzes, explores, and responds to local equity issues. It is, at its core, transdisciplinary. Educational experiences that are transdisciplinary in structure have three components (Doucet and Janssen, 2011, p. 3). First, they emphasize the integration of discipline and practice. Second, they also place a substantial emphasis on ethics. Finally, the third component of a transdisciplinary practice emphasizes a designerly mode of inquiry. A transdisciplinary approach encourages students to more thoroughly implement the ethics of a social sustainable profession.

Integration of Discipline and Practice

RIT's master's of architecture program supports the integration of discipline and practice throughout its curriculum. In this paper, I focus only on the second-year studio where students focus on the urban context of Rochester, New York. Rochester is the third-largest city in New York. Urban flight and high crime, double the crime rate of New York state which has reduced the city center's vitality.(Neighborhood Scout) Despite many initiatives to increase the number of people living in the city, the fact that it is a food desert, or an area with few affordable health food options within a reasonable distance, is a major deterrent. In 2022, the mayor's office committed \$5 million to attract quality markets into the city center (Moussignac, 2022). To date, the only solution discussed to address this problem is bringing more grocery stores into the Rochester area.

The question the students were required to answer was how the architecture profession could mitigate this equity issue. Architectural practice integrates function, structure, and aesthetics in a specific context, in this case an urban one. The students were tasked with researching what function their buildings could have that would improve the quality, quantity, and availability of food in Rochester beyond attracting major stores into the area. They also explored how other cities mitigated the issue and use architectural solutions. From this research, each student selected a solution and began to seek out the best site for their building type.

Substantial Emphasis on Ethics

By researching the importance of reducing food deserts, the students learned that ethics are fundamental to the evolution of design understanding. The research component of all architectural practice begins the design process itself. All other decisions about a building, structure, or site start with a basic understanding of human needs relative to a specific project. So, within this studio, the students learn to develop a series of spaces and functions, or programs, to promote food security in Rochester. Solving the building function then influences the specific site

the student selects. The ethical impetus of providing Rochester residents with access to healthy food encourages students to ask new kinds of questions. For example, the students must incorporate questions into their site analysis such as, how far a walk to gain fresh food, where to place an urban farm so it is central to the city and its inhabitants, and which site accommodates the function. These foundational ethical decisions begin the design process.

Prioritizes a Designerly Mode of Inquiry

A designerly mode of inquiry is an iterative process. In this studio, we used multiple layers of drawings for the site analysis including historical, climate, urban density, and population. The diagrams produced were both in sketch and model form. By using this method, the students were able to experiment with merging their program and site with architectural form. The studio also concentrated on the designerly mode of inquiry by requiring iterative study process for all design projects. The students only began their design after they had developed both a function and a site for their building. The architectural process then continued through multiple sketch and model studies for integrating the program, site, and aesthetics. The students were expected to continually reevaluate their iterations through the lens of creating an ethical decision around their equity issue.

Results

This studio model ran for four years with thirty students participating. The urban food desert and quality food accessibility was the equity issue addressed for all four studios. Because the focus remained on Rochester, the students were able to visit local sites and analyze the urban context directly. From this research, each student chose both the purpose of their building and what site within Rochester was best suited for its proposed function. The form and structure of the building were based on precedent research on existing steel structures. The building designs were developed from these initial research projects.

Integration of discipline and practice

Architectural practice strives to integrate function, structure, and aesthetics. In these studio projects the development of function were based on research of equity issues in an urban environment. Not only were the students challenged to integrate this function with a structure focusing on innovation in steel construction, they were also expected to integrate aesthetics in a positive way to invite sustainable growth. The process was to research each of these areas and then bring them all together to create a single building.

The example below is a visual and written assessment of how one student's design met the criteria of designing for urban food deserts. The model building is not focused on a single institution, but instead stresses new access to quality food. In this case, the student chose an urban farm, which teaches the local community both agricultural and business skills. The food grown is sold to the local community, and the profits are used for agricultural education and research.



■ Positive Cycle of Benefit

The second major cycle is the positive cycle of benefit that innately exist within the facility. The vegetables and greens produced by the vertical farming within the building will be either sold in the market stalls or cooked in restaurants in the B1 level. These raw and finished goods are then sold to visitors, and the profit gained from this exchange will then be used to further fund the research in the building to create better and more efficient vertical farming techniques.

Figure 1. Student Simon Bai, Urban Design Studio, spring 2022

Substantial Emphasis on Ethics

Architectural ethics in the studio play out in both written, graphic, and architectural form. The studio begins with the development of an understanding of how the community is affected by an equity issue. The student analyzes the issue and prepares a report, a written analysis to be presented to the entire studio. A unique aspect of this process is that the equity issue drives the later design decisions. The equity issue becomes, in essence, the client within the design process.

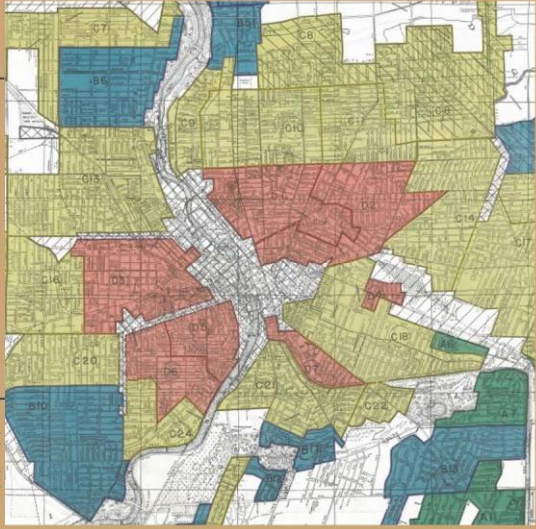
Second, the student assesses several locations within the city, or within a set of urban sites, based on which support a local change in the stated problem. For example, where in the city would an urban farm best sustain the community and reduce the local food desert? This becomes a second research project, this time incorporating graphics. They produce both written and visual answers to questions such as: How far of a walk is it to gain fresh food? Where do we place urban farming so it is central to the city and its inhabitants?

Below is an example of the graphic and written analysis. The student identified how the history of Rochester's planning practices created blight areas within city limits. These, in turn, became the areas the student chose to locate their building. This is a new process for finding the right location for a particular building. Instead of researching which areas would enhance and help the building owners, the students concentrate on how the building helps the community.

Redlining

- The redlining of downtown Rochester occurred in 1939, identifying areas that were lacking in nominal value and financial contribution
- After WWII, migrants (almost entirely non-white) were subjected to the Seventh Ward and Ward Three
- These areas limited any financial opportunities and faced heavy discrimination

“Researchers have correlated a direct generational loss of wealth and perpetuated impoverishment due to these practices”



Race and Pace in the Flower City by Brennon Thompson - Medium 4

Figure 2. Student Aaric Celeste, Urban Studio, spring 2023

When the site is selected the student then concentrates on researching what urban designs work to enhance community within the city. They walk the streets and analyze what architectural features are positive and negative. In the example below, a pair of students identified negative aspects of streetscape: a focus on cars and roads instead of pedestrians and walking paths, a lack of natural features, no internal views of the city, and general dilapidation. They linked these negative elements to a lack of local community. The positive areas of the city provided excellent walking pathways, natural features, and a design scale which prioritized humans, all design features that enhanced the sense of community. The students took this research forward into their designs to promote local community through architectural form.

Good Urban Context

- Protected walkways for pedestrians
- Different types of plantings to bring more nature into urban scape
- Ample space on walkways for people to walk
- Interactive in different ways for both adults and children
- Exists at a human scale
- Creates a feeling of community



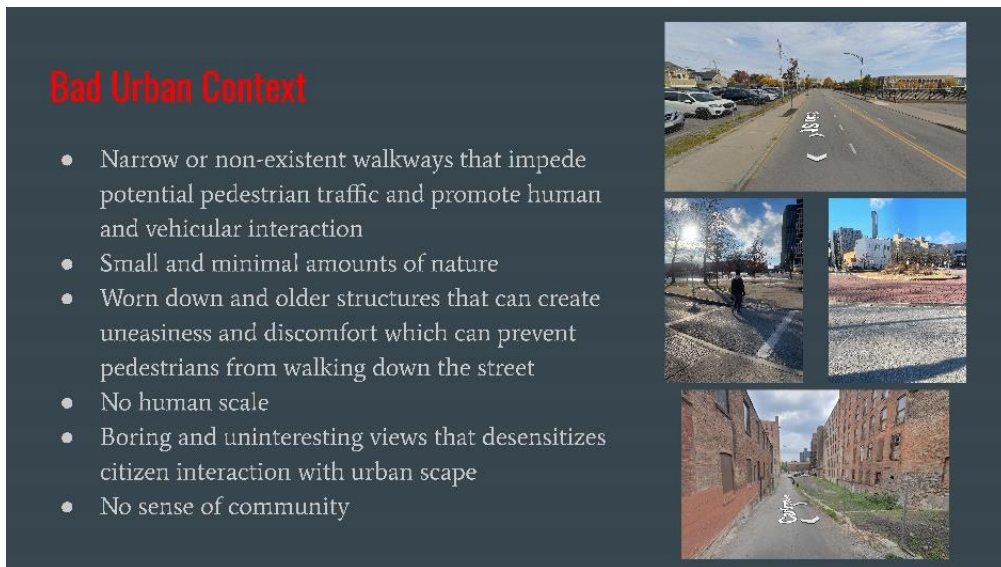


Figure 3. Students Jeremy Weeden and Michael Patchen, Urban Design Studio, spring 2023

The last analysis is of function. The basic question is, what type of spaces and functions would mitigate the equity issue in this urban context? Each student produces their own program of use based on the research they conducted. For example, two-thirds of the students chose to create buildings which held spaces for farming, education, and community development. Other students coupled farming with either high production and sales or product use in on-site restaurants. All of them concentrated on how many jobs would be created around urban farming.

Prioritizes a Designerly Mode of Inquiry

The research developed through concentrating on an equity issues, rather than imagining the needs of a typical client. It was also used to develop an architectural design project. The studio concentrated on the designerly mode of inquiry by requiring iterative study models to relate the student's research to their building. They were able to integrate the different aspects of design. As you see below, this student merged the concept of flowers with creating a healing bridge and community center through multiple iterations.

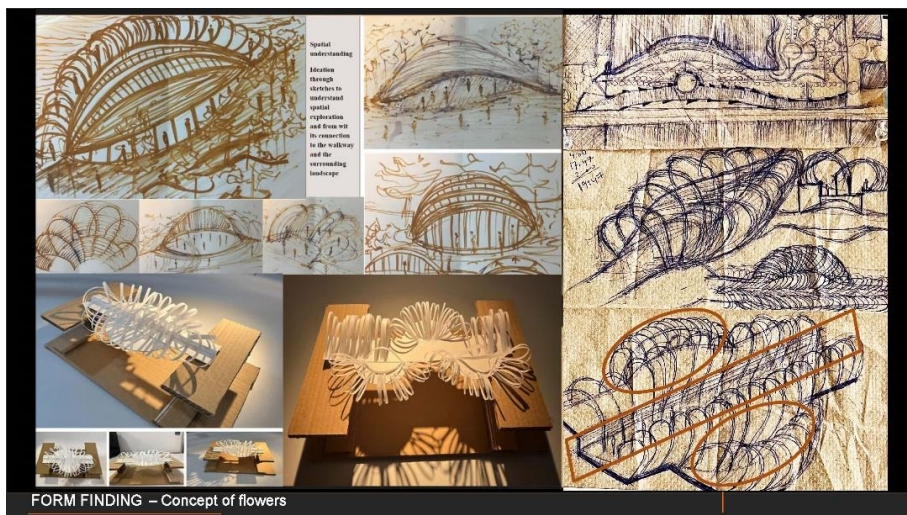


Figure 4. Student Arushi Bhatia, Urban Studio, Spring 2023

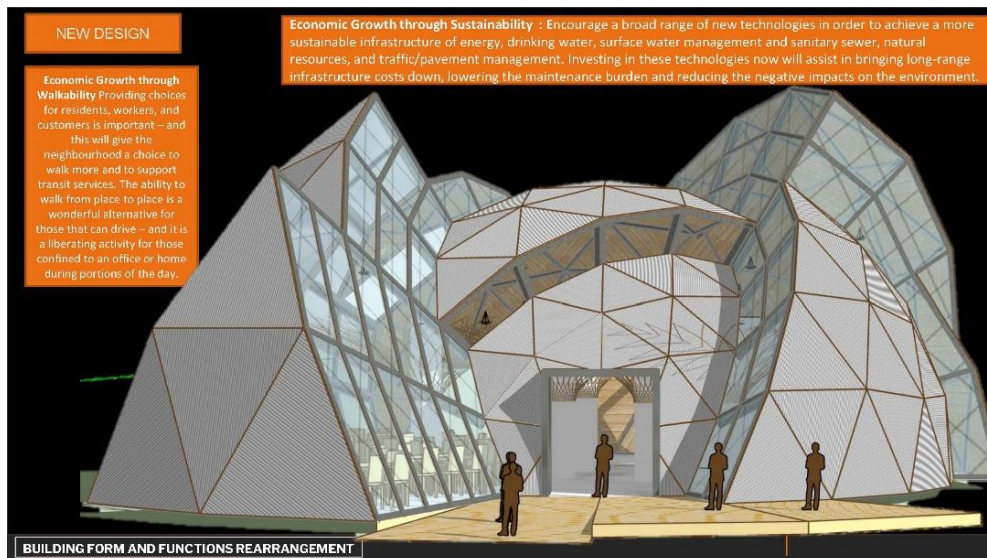


Figure 5. Student Arushi Bhatia, Urban Studio, Spring 2023

This student's final iteration shows the development of the design focusing primarily on social sustainability issues. The student decided to create an economic-based community center as a metaphorical bridge. The project literally sat on a bridge spanning two sides of the city. The function of the bridge project was to create a walking market. The student created this biophilic form through multiple model and sketching explorations (figs. 4 and 5).

Each iteration considered how one might walk over a bridge and through a flower. Yet this project also had to accommodate the goals of economic activity. The final model not only included her previous structural ideas about steel petals but also was able to incorporate shops and other community activities. This iterative designerly approach allowed the student to explore multiple iterations before finally settling on one which encompassed the social sustainable goals and specifics of the site chosen.

Discussion

Over the four years this studio has been running, several general types of functions were created. Most students argued that a combination of urban farm and community center would mitigate the food desert within the Rochester city center. These projects focused on connecting the residential areas surrounding the center to the city's core. They tended to have large and extensive programs. For example, the buildings included indoor hydroponic agriculture and exterior community gardens. These spaces were connected to community and educational spaces. Many of these buildings were placed adjacent to an existing school and were designed to enhance the elementary school curriculum.

A difficulty of these programs was the complexity of accommodating the different types of spaces. Students struggled with maintaining access to the full community in both interior and exterior spaces. The example below is a very successful integration of exterior and interior urban activity areas for a community center and hydroponic farm.



Figure 6. Student George Ray-Offor, Urban Studio, Spring 2021

The second most common type of program focused on economic opportunities through large-scale commercial urban farming. These were placed in very different areas of the city, usually adjacent to existing commercial districts. These buildings provided large-scale hydroponic agriculture. The structures tended to be more monolithic because they primarily accommodated a single function. They developed less opportunity to engage the community but provided more economic opportunity, which the students felt would positively impact the local community. In the project below, for example, the student created a farmers market in the center of the city. The building complex provided for both large-scale farming and local community farming. Integrated into the structures are both exterior and interior shopping areas for local produce.



Figure 7. Student Claire Witt, Urban Studio, Spring 2021

The last general function of these projects was the creation of spaces for rehabilitation and contemplation. Such projects had much more complex programs. The students struggled to create a cohesive design around the many spaces that rehabilitation require. In figure 8, the form of the building related well to the program of the healing center, but there is little integration of exterior spaces.



Figure 8. Aaric Celeste, Urban Studio, Spring 2023

Many of these buildings maintained the commitment to sustainability in their building technology. The students continued the traditional methods of analyzing the site for sun, wind, and daylight. Many also created opportunities to actively use the sun within the building, as figure 9 makes clear.

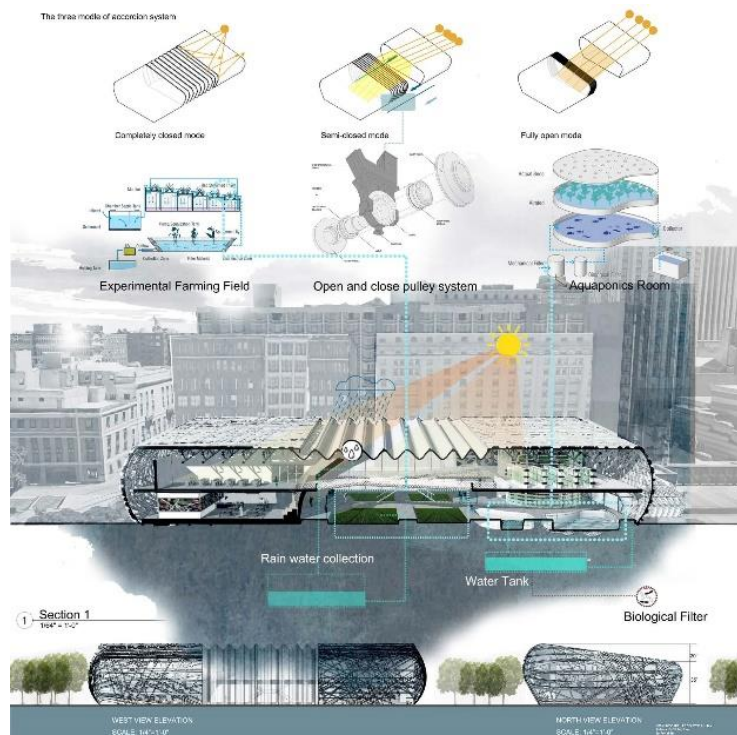


Figure 9. Student Reddish Liu, Urban Studio, Spring 2021

All the projects benefited from the urban analysis as their designs showed significant integration with the existing urban fabric. There was a marked effort of prioritizing community spaces both inside and outside the buildings. The students were able to create projects with more expansive integrations because of their specific understanding about the surrounding community. The equity issue became the primary client. This is atypical in the architectural field where individuals or communities are generally the clients. Yet, in creating a method for integrating social sustainability, the studio became a location of and for activism, and by assuming the client's position, equity became the core of the design. The architectural students thus learned how to center activism within the profession.

Conclusion

Social sustainability has a crucial focus within the graduate Urban Design Studio. As a result, there is a clearer connection to programming space through the ethical lens of equity issues. The designs not only work as buildings but also create connections with the greater Rochester community. By using a transdisciplinary method to design, the students learned to integrate this larger context as a crucial element of their process. This gave them an opportunity to mitigate specific social and community issues through their building design. The process offered a way for student architects to be activists.


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