

Sociotechnical Synthesis

The positive and negative impacts the built environment can have on a community is something I acknowledge in both my sociotechnical and technical capstone research projects. Although in my technical capstone project, the role of community impact was arguably of less importance as a design element, my team understood the social benefit and competitive nature of including community impact in our response to a request for proposal (RFP). In addressing sustainability in the built environment in my sociotechnical research I discuss the connection of sustainability to social and environmental justice through a systems lens. Although community impact can be used in a broad sense, it can be taken to mean how communities in the immediate vicinity of a construction project are impacted economically, socially, and environmentally.

In responding to an RFP for a University of Maryland (UMD) building, my capstone team designed a ground water management system for the highwater table, provided a decision matrix for choosing the structural system, and provided a competitive estimate and construction schedule. These elements were developed through industry research and the contributions of industry experts. The goal of our technical capstone project was to convey our teams understanding of complex building systems and ultimately win the project. However, other aspects of the project such as community impact we were included to make our bid more attractive and which ultimately contributed to a successful RFP response.

Through secondary sources on adaptive reuse as a sustainable building practice, and sustainability as a form of social and environmental justice, I found valuable sources to shape my sociotechnical research. From a systems view we can understand the connections of the built environment to many aspects of life. Many of the materials that make up the built environment have energy intensive manufacturing processes and with that comes large amounts of greenhouse gas (GHG) emissions. Using materials already existing in the built environment ultimately reduces GHG's by extending the materials service-life in reuse and eliminating the need for new (raw) material processing. My sociotechnical research examines real world examples of quantifiable energy savings of converted buildings.

Additionally, the built environment has been used as a tool for oppression even after the passing of the Civil Rights Act of '65 and the Fair Housing Act of '68. In many ways these oppressive practices can be seen to persist in our built environment today, and ultimately, my sociotechnical research charges planners and builders to prevent inequality and oppression by preserving community ties to urban areas and planning for a future of sustainability. One way to do that is to use the existing buildings of a community or

neighborhood to preserve ties to the area's history. Through adaptive reuse those building can be converted into public space, retail, or restaurant space that draw community together rather than displacing them through processes such as gentrification or new development.

My research paper scratched the surface of the relationships between people and place and how sustainability relates to those things. I believe that more work can be done to examine the impacts of displacement due to processes such as gentrification. In many cities adaptive reuse can be synonymous with gentrification which drives the cost of living up to levels that communities which originally occupied the area can no longer afford. To avoid facing the same failures of displacement and housing inequality these issues need to be addressed. Examining power structures of the local, state, and the federal government is one place to begin untying the Gordian knot that is the United States fixation with oppression and growth for the sake of growth.

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