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Merging Social Science and Neuroscience in Architecture: Creating a Framework to Functionally Re-integrate Ex-Convicts

Kylie A. Landrey
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MERGING SOCIAL SCIENCE AND NEUROSCIENCE IN ARCHITECTURE:
CREATING A FRAMEWORK TO FUNCTIONALLY RE-INTEGRATE
EX-CONVICTS

A Thesis Presented

by

KYLIE ANN LANDREY

Submitted to the Graduate School of the University
of Massachusetts Amherst in partial fulfillment of the
requirements for the degree of

MASTER OF ARCHITECTURE

May 2016

Department of Architecture

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DEDICATION

To my Jimpa, who loved and appreciated research, writing, editing, and social justice.
You will always be an inspiration. I love you.

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First, I would like to extend my most sincere thanks to my Thesis committee members, Kathleen Lugosch and Ray Mann. Thank you for agreeing to take on this project with me. Your critical support and insightful guidance were invaluable to its successful development, from the research phase through design development. As the project developed, my “inside jury” team was also dedicated to providing constructive observations that were equally as crucial to propel the design forward. Thank you to Lindsay Schnarr, Garth Schwellenbach, Jason Newman, and Chris Novelli.

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ABSTRACT
MERGING SOCIAL SCIENCE AND NEUROSCIENCE IN ARCHITECTURE:
CREATING A FRAMEWORK TO FUNCTIONALLY RE-INTEGRATE
EX-CONVICTS

MAY 2016

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Directed by: Professor Kathleen Lugosch

Every year the United States corrections system costs tax payers \$52 billion. The failures of the prison system are both tangible and intangible. This Thesis research builds on existing literature to seek out a solution to the high rate of recidivism post release.

Can design be employed as a tool with the potential to reduce rates of recidivism in the prison population? The City of Springfield, in Western Massachusetts, acts as a test case to examine the inter-relationships of social science, neuroscience, and architecture. Initial research identified the primary obstacles individuals face after prison that contribute to keeping recidivism rates high. This is not intended to oversimplify the issues or suggest there is an easy solution, but to provide a starting point to try something new.

Ultimately, this thesis deals with how architecture can provide a concrete solution to the deep set, less tangible roadblocks to successful reintegration. Residents often lack a sense of self-worth, personal responsibility and stable social ties. In addition to designing a building to provide the physical support system that released prisoners often lack, such as housing, access to transportation, and access to services, the project will explore techniques to serve a much greater purpose and provide a model for a re-imagined process of incarceration, release, healing and growth.

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CHAPTER 1. INTRODUCTION

Architecture has a distinct ability to act as a positive intervention that affects human systems of activity. This body of research aims to identify the shortcomings of the correctional system that perpetuate a cycle of crime and re-incarceration. In particular, it focuses on the role of architecture to aid prisoners through the reentry process in order to improve their chances of successful re-integration.

Architectural decisions for this Thesis will be guided by five primary goals: to create a stable home, support community engagement that leads to steady employment, facilitate autonomy through access to public transportation during the transitional period, foster the development of healthy relationships through a combination of architecture and social services, and support mental and physical health through informed design strategies and supporting wellness services. As a result of these directives, the project should become an integrated part of the urban fabric, reinvigorating the city.

These challenges facilitated an exploration of the ways that architecture necessarily inter-relates with human mechanisms of perception. It provides an opportunity to study how spaces can contribute to increased productivity, happiness, comfort, and stability, and act as an intervention that improves healing and growth. Hopefully, it ultimately provides a replicable model to better systematically address an issue that affects all citizens, and which desperately needs to be re-imagined.

Research for this project grew in response to the failures of the current incarceration system and the scarcity of effective rehabilitative efforts in the United States. With strained federal and state reform budgets, facilities that are over capacity,

and recidivism rates that continue to rise, this is a national issue that has not yet been effectively addressed. Although one could argue that there is much reform needed within the prison system itself, this project strives to specifically address a course of action to make the transition from prison (as it currently functions) to society more successful in order to reduce recidivism, decrease the potential for future crime acts, and improve rehabilitation to help successfully reintegrate those marginalized members of the community who are currently prone to re-offense due to lack of transitional support and services upon release.

SYSTEMS LEVEL FAILURES

Cycle of Recidivism: Contributing Factors

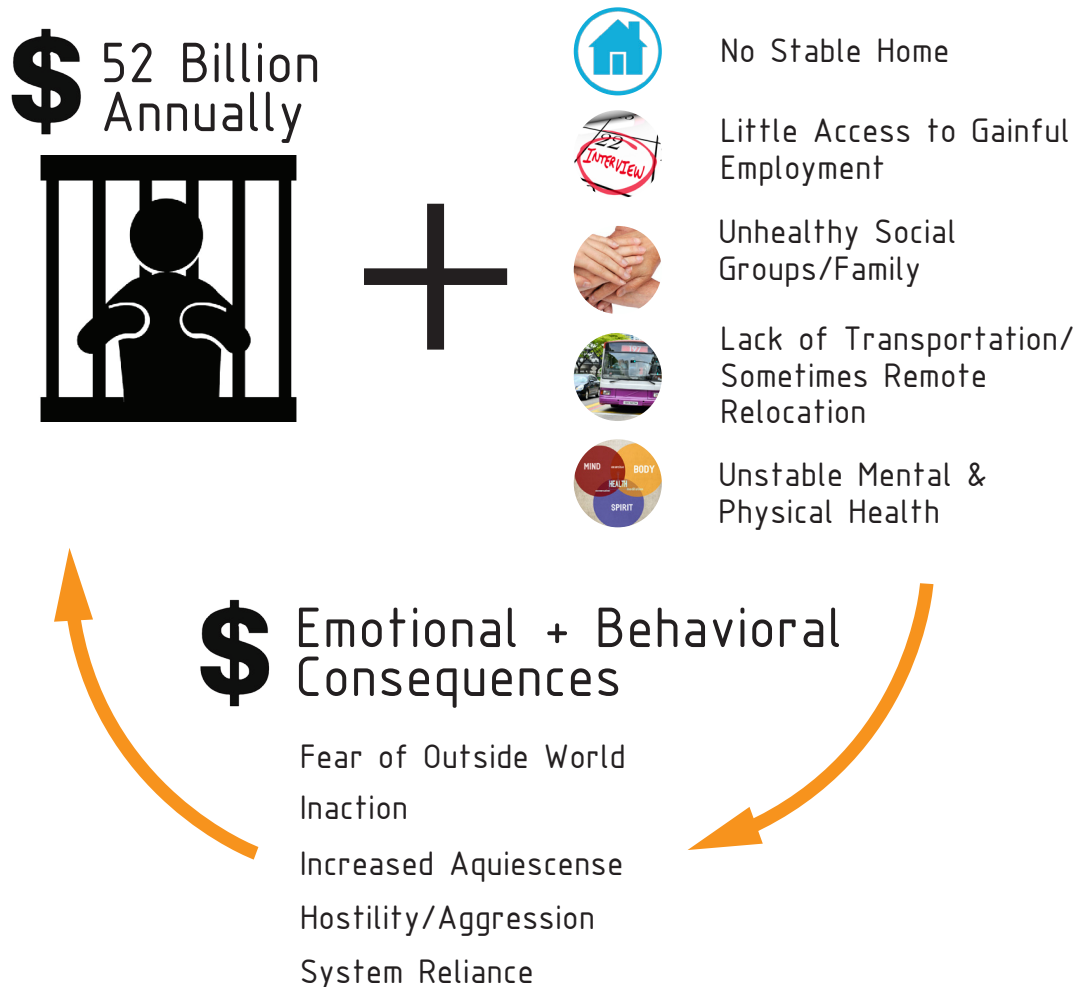


Figure 1: Current system failures (Image produced by author)

In order to plan a housing development for ex-convicts, it is necessary to understand where inmates are coming from. Research was crucial to the development of this project as a parallel investigation throughout the design process. In order to provide some general context to explain how the project developed, it is helpful to share some general statistics to further expound the state of the current prison system and to familiarize the reader with inmate demographics and characteristics that provide a starting point for an architectural investigation.

According to the Bureau of Justice Statistics¹, the United States held approximately 1,561,500 prisoners in federal and state custody at the end of 2014. The incarceration rate in the U.S. continues to be the highest in the world and the \$52 billion associated annual cost burden, second only to Medicaid, sits on tax payers' shoulders.² Joan Petersilia's 2003 book, *When Prisoners Come Home: Parole and Prisoner Reentry*, deals with many of the issues affecting re-integration that begin within the prison system itself. She explains that although 93% of all prisoners are eventually released to the street in the United States (1,600 adults per day), the popular attitude is still to take a punitive approach during incarceration. Petersilia provides a definition of reentry:

All activities and programming conducted to prepare ex-convicts to return safely to the community and to live as law-abiding citizens.

For the purposes of this thesis, I have expanded this definition to suggest that the process of reentry is more than increasing the number of law-abiding citizens, but that it must also fundamentally address the healing process in order to support citizens to achieve a sense of self-worth and community engagement to give back to society as fully

1 USA. U.S. Department of Justice. Office of Justice Programs. Bjs.gov. By Ann E. Carson. Bureau of Justice Statistics, n.d. Web. 11 Jan. 2016.

2 Roget Guy and Roger Guy. "Applied Sociology and Prisoner Reentry: A Primer for More Successful Reintegration" (*Journal of Applied Social Science* 5.2, 2011), 40.

functioning, employed and invested human beings.

Petersilia explains that the problems after prison are tied to the human history that the prisoner takes into the cell, as well as and their experiences in the prison system until their release. The issues stem in part, Petersilia argues, from the general attitude that prison should be punitive. Based on the “principle of least eligibility,” she explains, why should prisoners be granted rights that free, law-abiding men and women might not have access to? This seems like a valid point, however the result of this mentality and its influence on policy development and reform, is a system which releases a population of people who end up costing tax payers more money because they are ill-equipped to rejoin society.

The ramifications of the punitive approach have been far-reaching. Beginning in the 1990’s, educational and vocational training were scaled back, and congress eliminated Pell Grants that allowed prisoners to take college courses from corrections programs. Instead of focusing on rehabilitation, funds were (and still are) funneled into hiring prison staff, construction of facilities, and rising health care costs.³

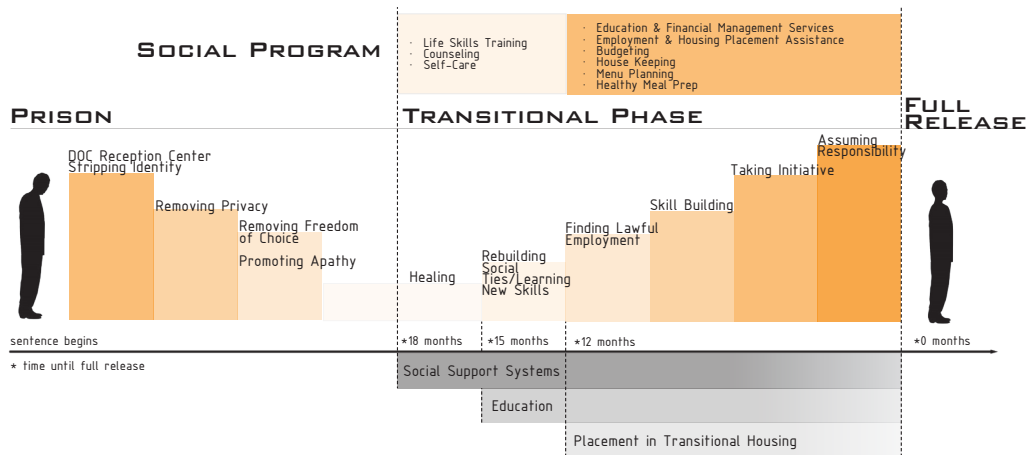


Figure 2: Rebuilding human capital (Image produced by author)

3 Joan Petersilia. *When Prisoners Come Home: Parole and Prisoner Reentry* (Oxford: Oxford UP, 2003), 5.

The impact of the current procedures of incarceration and release have devastating impacts on offenders. Petersilia points out that as a result of the punitive approach to corrections, often the prisoners who need the most support (ie. have committed the most egregious crimes, have behaved poorly in prison etc.) are the ones who do not receive any when their sentences “max out.” In contrast, those who have played by the rules, or who have less severe sentences, are often the ones who benefit from parole.⁴ Of those who do currently have some form of support upon release, most do not have case managers and offenders are held almost entirely responsible for their own transition plan. In some cases, these individuals have been housed in super-max facilities with little human contact for 23 hours per day. In order to succeed in the real world they need a transitional release plan.

A snapshot of Petersilia’s research will help the reader to understand how parole has evolved and why the path of release in the United States needs to be re-investigated. The U.S. parole system was borrowed from Captain Alexander Maconochie’s model which he envisioned and implemented in Europe in the early 19th century. His system was created to respond to the punitive model of incarceration with a system predicated on rewards and rehabilitation. It provided a gradual system of release that progressed through five stages: strict imprisonment, labor, freedom within a limited area, a ticket of leave on parole, and full restoration of liberty.⁵ Maconochie had the opportunity to test his model in several prisons in Europe during this time with great success. His system was touted as the first of its kind and was the foundation for what became adopted and adapted as the parole system in the United States. It was founded on the principal that

4 Petersilia, *When Prisoners Come Home*, 6.

5 *Ibid.*, 56.

inmates could play an active role in their own rehabilitation and release. Instead of imposing a set sentence, Maconochie advocated for an indeterminate sentence that would be based on successful progression through the stages of his program.

Zebulon Brockway is given credit for instating the first parole system in the U.S. in New York, 1876. He is also credited with implementing the first system of indeterminate sentence length in the states. Although there was some early success, it was not well documented and the parole system in the U.S. from its inception was used more to address over-crowding than rehabilitation. This was in part due to the fact that the majority of the general public consistently express a belief that the parole system is not strict enough and that parole should not be so frequently granted. Petersilia argues that this attitude is often rooted in a lack of understanding of how the original parole model was intended to operate, and that people tend to see it as “letting criminals out early” or without “paying for their crimes.” This was a problem, Petersilia explains, saying: “No one is more dangerous than a criminal who has no incentive to straighten himself out while in prison and who returns to society without a supervised transition plan”⁶.

In addition to the inherent problems with the version of parole that became part of the U.S. system, there is also a shortage of any system in many states that is even more disconcerting. When parole was first introduced, it was well-received and 95% of inmates were released on parole. However, over the years that number has declined to only about 20% and many states have abolished parole altogether. In still other cases, where states still provide the option of parole, many prisoners choose to waive it in favor of a definite sentence end date, since it is often unlikely that they will be granted parole anyway.⁷

6 Ibid., 75.

7 Ibid., 73.

The failures of the current system go beyond failing the offender and the taxpayer investment. It is a much broader societal problem that affects all citizens because it contributes to increased crime, increased issues of homelessness, increased health problems in the community, and negative impacts on the American youth. More than 1.5 million children in the United States have a parent in jail or prison and those children are five times more likely to end up in prison themselves compared with the general population.⁸

This Thesis aims to address the many-faceted web of interconnected issues that stem from our system of prisoner reentry, by targeting one of those critical needs, stable housing. As Petersilia's research and others have shown, there are tested methods, such as parole, that have achieved success. However, it has not functioned effectively for a long time for several reasons, including lack of funding, and scarcity of proven positive outcomes, among other factors. The greatest problem is the scarcity of any remaining programs. Petersilia points out that there are secluded instances of progressive reform. There are experts who recognize a need for reform and who have developed and evolved effective tools for evaluating prisoners prior to release to rank them in several relevant categories as a predictor of post-release behavior and a way of creating a structured and effective release plan. The Parole Commission developed the Salient Factor Score (SFS) in 1981 to predict risk of recidivism, and other research led to the development of a more thorough assessment tool in the 1990s called the Level of Service Inventory-Revised (LSI-R). The improved assessment took a more holistic measure, looking at more than just past crime history, but also at measures of offender needs, such as residence,

8 Karaim, Reed. "Housing First: A Special Report." NPR. NPR, 2002. Web. 09 Apr. 2016.

employment and substance abuse history.⁹ These tools are positive developments in the corrections system, but are still not adopted widely enough to have a significant impact on the national level. The map below shows which states have inclusive programs for felons, and the data indicators are disturbing. Excluding the efforts of the Northeast United States, the majority of the country does not successfully address issues of re-integration for the most dangerous population of offenders among us.



Figure 3: Felon exclusion policies by state (Image borrowed from *When Prisoners Come Home*)

Fewer than 10% of released inmates live in a transitional facility or half-way house as a condition of their release.¹⁰ This project explores how architecture can act as a catalyst, in concert with a re-envisioned version of the parole system, that might instigate further solutions to repair the system by looking at felons as humans with the potential for rehabilitation. Instead of avoiding the fact that almost all of them will eventually

⁹ Joan Petersilia. *When Prisoners Come Home: Parole and Prisoner Reentry* (Oxford: Oxford UP, 2003), 72.

¹⁰ Petersilia, *When Prisoners Come Home*, 94.

rejoin our midst, we must test a solution to repair the communities where our prisoners are returning home.

CHAPTER 2. LITERATURE REVIEW: WHOLE SYSTEMS THINKING

A review of previous literature explores a diverse body of work. Sources vary from environmental studies to neuroscience and helped to create a foundation that informed this project and defined the central questions for further research. Delving into an inclusive compilation of voices from these broader fields of knowledge brought greater depth to the more specific research that informed later design decisions. Though subject matter differs, all of these scholars address a common theme- a focus on the role of the human being in the design process. Their investigations help to clarify the relationship between humans, nature and the built environment and indicate areas that warrant further investigation by the designer. Including some of the takeaways from this body of thought will help the reader to create a foundation of knowledge and provide a basis for joining the conversation. An architecture that addresses the human condition must be part of a greater conversation, a living system that is always in flux, and that ultimately reaches beyond the confines of physical architecture.

2.1 An Inclusive System: The Role of Nature in the Built Environment

Journalist and non-fiction writer Michael Pollan addresses many of the tensions that result from humans' interaction with the natural environment in the accounts chronicled in *The Botany of Desire: A Plant's Eye View of the World*. Although his work does not address architecture directly, Pollan's insights provide an understanding of the delicate relationship between the need to take from, but also to restore and cultivate, the places that we inhabit. Each chapter of his book addresses one of four human qualities through an exploration of the role humans have played in the evolution of various

plant species. Pollan's investigation helps to clarify questions about the nature of the relationship between humans and the world we inhabit. The qualities Pollan addresses: desire, beauty, intoxication, and control, are intimately tied to architecture and the human condition. His analysis of crop evolution and the ways in which they have been shaped by human desires, for example, helps to clarify the cultural context that influences the environmental conditions we are building in. Pollan manifests the interrelationships between the places we live, the demands of society, and the ways in which human choices contribute to the development of society as we know it. However, his investigation also unveils the human qualities that will dictate design decisions. In order to create an architecture that facilitates successful inmate reentry, it is imperative that the designer understand the human drivers, like desire and control, for example, that can be mediated and addressed by successful architecture.

Pollan's chapter on the potato plant provides one example. His investigation of humans' relationship to the potato plant over time acts as a case study to chronicle human desire for innovation (often) at the cost of the natural environment. He explains the history of the potato plant and its origins in ancient Inca culture, pointing out the vast array of potato species the Incas were already cultivating at that time. Pollan contrasts early potato farming methods with large-scale modern farming practices to explain how dramatically the culture of farming has shifted in the 21st century. Through his study of the American Monsanto Company's "New Leaf Potato," Pollan explores the role of the tuber in modern commercial agriculture and discusses the corporation's choice of language surrounding the potato plant as a way of communicating this change over time. For example, their adoption of the word "product" reveals Monsanto's image of the

potato as a human-created entity rather than a product of nature. This lexicon shift by Monsanto (and others) demonstrates a shift towards a cultural attitude characterized by possessive ownership of the environment and its products.

By changing the way we talk about the potato, Monsanto has broadened their repertoire of control to include the potato. The new plant becomes property of the Monsanto Company, a way for them to increase profit. Due to these cultural shifts, humans have altered the potato crop in a powerful way. These changes in the potato-human relationship resulted in a “New Leaf” potato that is characterized by new selection criteria. In the past, the tubers were altered for taste or size, or to weather harsh climates and resist disease, but now people are using engineering to claim ownership of the potato. The unnatural changes in the potato plant are an important part of a narrative in which humans exert control to manipulate the environments we live in.

The evolution of the potato plant, for better or for worse, is the tangible result of human innovation. As the demands of modern society changed, the potato plant followed suit and was re-shaped to fit new desires. Architecture that responds to the human condition must empower inhabitants to exert some level of control over their environment. Although the advent of the New Leaf Potato could be viewed as a human failure, it also demonstrates the ingenuity, creativity and innovation that result from human need for control. Successful architecture must address human desires in order to maximize human potential without facilitating self-destruction.

In Pollan’s chapter on marijuana, he explains humans’ proclivity for extraordinary experience. Like the tulip (discussed in his book), the marijuana plant

offers an intoxicating effect on its human consumers. Rather than visual experience (beauty), however, it offers, as Pollan says, a trigger that “artificially trips the brain’s reward system”¹¹. Like humans’ “fever” for tulips’ beauty, they covet the state of altered consciousness they can achieve using the marijuana plant. This desire is rooted in humans’ search for pleasure. Just as the beauty of the tulip provided a reprieve from Holland’s drab and barren landscape, where the “tulipomania” began, the marijuana plant has the ability to remove people from their realities. Its mystical nature offers an escape and a fascinating state of mind that intrigues and further drives curiosity and desire.

Pollan’s investigation of human desires through his study of various crops can help to inform design decisions. His unconventional lens allows him to explore human desire in a new way and offer a refreshing narrative of mutual reliance between nature and the human as the moderator of the natural world. Due to life circumstances and curiosity to alter themselves and the things around them, people are driven to adapt the plants around them to satisfy their intrigue. Even more so than a tulip, marijuana is a species that, with great mastery of cultivation, can be adjusted to fit the ideal model of control by the human species. Perhaps, then, control and experimentation are the central drivers for cultivation and discovery. These “crops” along with the potato (and the apple, which he also discusses) provide a narrative that helps us to better understand who we are and how we can choose to influence and shape the world around us. What we choose to cultivate, Michael Pollan would argue, exposes our desires.

Pollan’s research helps to uncover some of the root causes of addiction and desire that contribute to unsuccessful prisoner reentry. His findings suggest that if we

11 Michael Pollan, *The Botany of Desire* (New York: Random House, 2001), 141.

invest our energy in cultivating healthy desires, we can achieve self-discovery and self-responsibility. This process could also help individuals to identify alternative outlets for their self-destructive behavior. The detailed knowledge base Pollan presents in his writing provides a new way of looking at the world, and the profound impact we have to shape it, even as it continues to shape us. From an architectural perspective, Pollan's work is an important piece of literature in the dialogue between the world we create, human desires and the far-reaching effects that our design decisions can have to in turn shape us. There is more to Pollan's writing however. He provides a fresh outlook on the human relationship with the natural world, suggesting that the plants he uses as case studies actually participate in their own evolution. By fostering human desires with their beauty, tulips, for example, perpetuate their own survival, relying on humans to cultivate their species. This approach again provides a perspective of hopefulness, that humans and our environments can work together towards a future that serves the "interests" of both.

The Botany of Desire, written only 14 years ago, was received by an audience not unlike the one that would receive it today. Pollan was writing in the context of large corporations and consumerism. Criticism of the book seems limited, as it mostly received accolades from the world of critics, including the New York Times column from June, 2001. In architecture today, the growing movement towards smart design that integrates agriculture and food education with our interactive built environments is telling of the influence that writers like Pollan have contributed. Pollan challenged the ways that many people think about the relationship between humans and our environments. With a few in-depth case studies, he helped to articulate the intricate and complex history and evolution of why we cultivate certain plants.

Professor, writer and lecturer Susannah Hagan, is an important voice in the discourse on architecture and nature. Her influential book, *Taking Shape: A New Contract Between Architecture and Nature* (2001), helps to unpack some of the intricacies of sustainable design and unearth the greater questions about belief systems that influence peoples' divergent approaches to addressing the environment in design solutions.

Hagan begins with an exploration of terminology. Words like nature, green and sustainable mean different things for different people. It was not until relatively recently that official definitions and policies were developed to help a broader audience find common ground on which to discuss sustainability as an integral part of the design process. Hagan discusses how individuals form definitions for these words in the context of their different belief systems. She suggests that people tend to dichotomize complex issues like sustainability in order to better understand and articulate them. This polarization can make it difficult for society to move towards common goals.

To clarify her hypothesis, Hagan introduces two camps of seemingly divergent thought within the field of architecture. The Arcadian attitude, which is inclined towards an architecture that would return to a pre-industrial state, rejects modern technologies. Others, which she labels the Rationalists, embrace technological advancements with optimism for the ways they can improve sustainability efforts in the contemporary world.¹² Hagan is concerned that although these schools of thought exist within the field of design, issues of the environment are only a small part of conversation on a greater scale. She says, "Culturally, it has barely broken the surface of the collective

12 Susannah Hagan, *Taking Shape: A New Contract Between Architecture and Nature* (Oxford: Architectural, 2001), x.

consciousness”¹³. Returning to the evolution of language surrounding sustainability, Hagan discusses how the shift in the 70’s and 80’s from “green architecture” to “sustainable architecture” was crucial in the movement’s embrace by a greater contingency. “‘Sustainability’ can refer as easily to the establishment’s answer,” she said, “as it can to a critique of that establishment. It embraces, in other words, reformer as well as revolutionaries”¹⁴. This language shift and continued articulation of what sustainability should mean in the context of architecture continues to evolve and influence the way we design and build. Hagan suggests that divergent factions of opinion within the field of architecture need to find common ground in order to champion the importance of sustainability outside the field.

Hagan implores the architect to use his or her influence for positive change and to include nature in the design solution. Since the built environment produces almost half of all carbon emissions, buildings provide a critical venue through which to enact real change. In Hagan’s words, “the building, as much as the car, is an environmental hazard”¹⁵. Architecture, in her opinion, should not only aim to achieve sustainable status, but possibly has an even greater power- to influence the public. However, continued ambiguity surrounding “sustainability” often raises questions about the best methods for achieving sustainable endeavors. Hagan offers three “models of engagement” with the environment. The first, she says, is symbiosis, which would focus on materials and their origins. The second, she calls differentiation, the shift in building forms as they respond to environmental conditions. The third archetype is visibility. Architects would develop new forms for environmental operation. Hagan hopes to unpack the multifaceted issue of

13 Hagan, *Taking Shape*, xi.

14 *Ibid.* xii.

15 *Ibid.*, xiv.

environmental design on a broad scale in order to account for some of the inconsistencies in views, and the plurality of approaches designers pursue to address the environment. She hopes to reconcile the questions of form-making that some architects might feel are threatened by sustainability-driven design. What is the role of beauty? Of power? Is complexity unsustainable? She suggests maybe environmental design should embrace a new logic born of environmental concern.¹⁶ What is the role of ethics? These questions are not easily answered and are framed by peoples' complex ontologies. Critics of "sustainable pluralism" might argue, Hagan says, "'environmental architecture' connotes a narrowing of horizons, an abdication of ambition and imagination, and a self-imposed restriction to a palette of twigs and thatch"¹⁷. Hagan's concerns are manifest in such statements. She hopes that by breaking down the strict divide of opinion, more architects would find common ground on the subject. "Beauty as traditionally defined in the West," Hagan explains, "is replaced by 'aesthetic value,' and wholeness by fragmentation. Architecture that has aesthetic value is architecture legitimated through its expression of this 'multiplicity' of communities"¹⁸. Hagan's solution is captured in this passage. She suggests that beauty might re-enter the world through "the ethos of community"¹⁹. How might an environmental approach transform the mainstream attitude?

Hagan's book, published in 2001, is part of a body of literature that has contributed to the sustainability movement of the 21st century. The conflicts that she discusses as central to the architectural "progress" in sustainable design are complex and require acceptance of adaptation within the profession. Change is often a slow process,

16 Ibid, 10.

17 Ibid, 11.

18 Ibid, 13.

19 Ibid.

and with some success, Hagan's work might spark discourse and contribute to advances in the field of environmental design- a design she hopes could become integrated into all different styles of architecture without limiting creativity of expression.

Now, in 2015, there are many examples of "sustainable buildings" whose design teams have made valiant efforts towards achieving some level of integration with nature, or which are intended to "tread lightly" using less energy and resources than their conventional counterparts. However, the greater leaps towards achieving the ideas espoused in Hagan's writing are embodied in the policy shifts that push all architects and designers towards more sustainable design. Updates in ASHRAE energy guidelines, for example, help to cultivate the mainstream attitude towards acceptance of an environmental consciousness. Other guidelines such as USGBC's LEED (Leadership in Energy and Environmental Design) continue to at least influence design decisions on a greater scale than was previously part of common protocol. And around the same time Hagan's book was published, more all-encompassing, holistic guidelines (although not yet incorporated into legal policy) such as The Living Building Challenge, were being developed. This progression is promising that perhaps a larger contingency of the design world is consciously making room for a discussion that addresses sustainability. Clearly defined and accepted methods for approaching sustainable architecture will continue to strengthen its place in design and beyond.

Hagan's writing has been influential in academia, presenting questions for debate and imploring architects and designers to consider the aesthetic manifestation of advanced sustainable design. However, the main body of criticism towards her work focuses on its lack of applicability for practitioners. An article published in Architectural

Review responded to Hagan's writing on that platform- that with limited examples, her book does not provide solutions or methods for improving the current state (in 2001) of sustainable design approaches. Since 2001, the body of literature addressing sustainable design has grown and evolved. David Bergman's book, *Sustainable Design: A Critical Guide*, was published in 2012 and provides more specific guidelines and methods for practice. Stang and Hawthorne's *The Greenhouse: New Directions in Sustainable Architecture* (2010) also provides more than 30 case studies (although the focus is small-scale residential). Countless others, including Daniel Williams with *Sustainable Design: Ecology, Architecture, and Planning*, have contributed to an expanded dialogue, and as the number of showcase sustainable projects grows, and continued evolution of policies are adopted, perhaps Hagan's words were part of an influential body of theory that has impacted real design outcomes in 2015. In order to integrate sustainability as a useful part of prisoner reintegration, we need to address it with greater precision in the design process. The discourse that Hagan contributed to has great value to provide sustainable design strategies that can be implemented in an integrated way. By doing this, the designer can add meaningful value to the human experience and healing outcomes for inhabitants of a building, while also addressing environmental concerns that must be integral to every design process.

In order for sustainable efforts to take hold on a greater scale in the built environment, they need to be part of the broader consciousness that Hagan discusses. These strategies need to be part of a conversation in all building projects, both those designed by skilled architects and those that are not. These changes, ultimately, will stem from continued policy shifts that force the hand of those who have still not adopted the

tenets of sustainable design that architecture students are now accustomed to contending with in academia. As policy change drives continued shifts in the structure of the market, decreased “cost of sustainability” will ultimately make it more accessible.

2.2 Human Perception and the Built Environment

In addition to considering the role of architecture as part of a dialogue with the natural world, this Thesis evolved in response to literature that addresses how spaces affect human experience. How can the designer direct a person through a space, make him or her feel excitement, or calm? The architect has a unique position to create the spaces that humans must interact with on a daily basis. The following literature and case studies provide a language for understanding human-centered design and provide specific examples that collectively act as a “tool box” of design strategies to address the more nuanced perceptually influential aspects of spaces. Architect Alvar Aalto is a prime example.

Andres Duany, the co-founder of the New Urbanism Movement, studied architect Alvar Aalto’s design approach in order to rationalize his work and provide a framework for understanding Aalto’s great contributions to the Modern Movement. Duany’s article was published in the Harvard Architecture Review in 1986, and titled, “Principles in the Architecture of Alvar Aalto.” He hoped to demonstrate the universal lessons of design he believes Aalto’s work teaches us. In particular, Duany is concerned that Aalto is often removed from a discourse surrounding the principles of modern architecture, and hopes to disprove those who might assume Aalto’s style was too varied or unique to have any real coherence. Instead, he delicately analyzes several of Aalto’s projects, hoping to show

a continuum of style and a “highly systematic syntax”²⁰. Duany’s approach to research provides a helpful guide in how to analyze another’s work. Through careful analysis and sketch studies of countless precedents, Duany uncovers some of the mysteries of Aalto’s design process and provides inspiration for anyone conducting research of their own.

Instead of suggesting that Aalto’s seemingly varied style was motivated by whim, Duany asserts that in fact, it was motivated by a systematic design approach, which guided him and developed over the course of Aalto’s career, helping to shape his project outcomes. Duany articulates the key to understanding Aalto’s work as a product of its dualistic nature. Perhaps others were unable to see Aalto’s rationale because it is contradictory by nature. Duany explains, “Aalto’s designs seem to involve a dialectical process which integrates mutually contradictory concepts into comprehensive syntheses. The resulting buildings are complex and virtually free of failures common to the application of single-minded concepts to social and urban situations”²¹. In other words, he suggests that although Aalto’s buildings seem to have no rationale, their success lies in their ability to address complex issues of the social urban context that most of his projects were built into. Duany even suggests that Aalto’s approach might be more successful than a seemingly more rational approach by another architect of the modern movement, which he would consider overly simplified to address the many, and varied, needs of a building’s site. Aalto’s process allows him to break down the components of a space and make sense of them on a human level. His approach is a useful tool for any designer, and can be used to de-clutter complex social issues in order to address them during the design process.

20 Andres Duany, “Principles in the Architecture of Alvar Aalto,” *The Harvard Architectural Review*, 1986. 105.

21 Duany, “Principals in the Architecture of Alvar Aalto,” 105.

In light of this dualistic design approach, Duany explains that the complexity of Aalto's buildings can often be rationalized by an understanding of the effect he hoped to impress on the inhabitant. His design decisions were most often guided by his interest in human perception and memory creation. Aalto had a keen astuteness for understanding human vantage point and used the mental interaction between man and building as a component of design. In order to further impress his buildings upon people's memory, Aalto incorporated elements of Classical Grecian architecture to respond to human tendencies to relate to what we find familiar. Duany analyzes several examples of Aalto's work under the scrutiny of these three inter-related principles: a dualistic sensibility, manipulations of building form intended to engage human perception and memory, and his incorporation of familiar design characteristics from a shared architectural past. Once clarified, these techniques become part of a collection of design solutions in a bank of architectural knowledge that can strengthen the human-centered design approach espoused by more recent work in neuroscience-driven design to enhance the efficacy of future architectural projects.

In an effort to further outline how these principles of design play into Aalto's work, Duany explains a few specific applications in his projects. First, he introduces the idea of a "head/tail" approach that Aalto used to organize the design for many of his buildings. Duany says that often projects which others might have dismissed as incoherent, were actually comprised of distinct parts with specific functions. The "head" often embodied the "special" function of the space, whereas the "tail" housed the opposing (dualistic) functions- such as the mundane aspects of the program.²² Often, Duany also suggests, the tail is made up of a simple geometry to reflect the activities

22 Ibid, 105.

that take place within, in contrast to the head, which might have a slightly distorted form, indicating its unique and more important functions. Again, this ensemble of spaces is deeply intertwined with Aalto's understanding of human activity, his architecture intentionally creating negative space that supports the functions of the interior. These exterior spaces were often distinct public areas that easily impress upon memory as well. In addition, Duany asserts that Aalto was equally concerned with scale as a design device that takes advantage of humans' natural inclination towards rationalizing a hierarchical order.

In order to seamlessly integrate his buildings within the urban context, Aalto mastered an arrangement of forms that was unique for each of his projects, but also responded to the building's locale by relating the geometries of the tail form to the site, as "the urban anchor"²³, while still allowing the head to grow freely in complex form. In regard to form, Aalto also made intentional design decisions in order to impress his buildings on the skyline. In characteristic fashion, Duany suggests that Aalto's building silhouettes were as much a product of his interest in the human relationship formed between his buildings and an observer, as other aspects of the form. Duany says, "Only by designing the silhouette, which is the perceptual hybrid generated by the human vantage point, does the architect have precise formal control of what is to be seen"²⁴. Again, instead of identifying disorder, Duany asks us to recognize the exact opposite in Aalto's work, a decisive control that guides the human experience of his buildings.

Aalto uses several devices to achieve this level of control. Duany points out that the architect's duality in the relationship between the plan and section in several of his

23 Ibid, 109.

24 Ibid, 110.

projects serves to manipulate the viewer's perception of the building. Often, a project might seem rectilinear in plan, but would gradually increase in plan vertically, creating a diagonal section. The seeming disparities are resolved in the building silhouette, however, where perception brings together the design, infusing what Duany believes is a monumental presence, even for Aalto's smaller projects.

Using these examples and others, Duany argues that Aalto's work was a crucial contribution to the modern movement. His de-constructed forms became discreet elements in a powerful interplay that "recomposed" them into projects with great influence on human experience. Unlike other architects of the modern movement, Aalto introduced finesse with an understanding of building scale that Duany believes was unprecedented, and which can teach the architecture student a great deal about design, if only he or she knows what to look for in Aalto's work. His inclusive design strategies provide a lesson that is invaluable for informing new design solutions, and which should act as precedent to inform an inclusive, human-oriented architecture that promotes well-being and responds to the human condition.

Duany's analysis of Aalto's work is influential because it makes a compelling argument that human-centered design has always been important to the architect. Before it was defined, human perception and experience played a role in design outcomes. Now, in the 21st century, scholars are trying to make sense of these spatial interactions in a more formal way. A broader range of practitioners are examining the interaction between human experience and the built environment using scientific analysis, and the research is beginning to take hold. Credible studies can now prove the positive impacts of strategic design decisions to improve human outcomes. As a result, a business owner

might be interested in using this design approach to increase employee productivity, or the developers for a hospital design could potentially increase the speed of patients' recovery. The benefits of continued data collection and distribution within the design field will have far-reaching effects to make our buildings healthier, happier, more productive environments.

John Zeisel , a widely recognized member of the architecture faculty at Harvard University, with a Ph.D. from Columbia, has extensive experience that weaves together the worlds of architecture and sociology with health, aging, and memory. Zeisel's book, *Inquiry by Design: Environment, Behavior, Neuroscience in Architecture, Interiors, Landscape, and Planning* (2006), examines the relationships between critical questions about what spaces should be and how to arrive at architecture that facilitates health, well-being, comfort and healing. His work attempts to clarify the intangible aspects of design that make spaces meaningful.

Zeisel's research is an especially important contribution to the field because he is able to bring a quantifying approach to concepts that seem unquantifiable. In his chapter titled, "Environment, Behavior, Neuroscience," he begins by identifying central terms, and then employs them to apply a methodology for design that places the human being at the center of the architectural form. Neuroscience data becomes an influential tool in the design process. There are many ways to navigate a design problem, and the many possibilities for solutions are rooted in the questions the designer hopes to answer. When looking at design as an answer to an inquiry, it is helpful to understand the background, interests, and ultimate goals of the design team and, more importantly, of the people who will use the space. Each architect's approach teaches us about new tools that we might

borrow to strengthen our own work. It is interesting to compare Zeisel's design strategy to others, to better understand how we might synthesize divergent methods to arrive at a further-developed solution.

Some architects guide their design decisions using energy data. Others consider this behavioral approach, and still others rely on any combination of creative solutions to arrive at a building that is their best attempt to meet the needs of the client, the site, and the intended functions of the conceived space. In addition to these influences, the designer is consistently confronted with the reality check of a budget and the many constraints, imposed by the site and other unforeseen obstacles, that ultimately have a powerful influence on the design outcome. Each approach is valid, but after delving into the divergent approaches, we can ask new questions. How can all of these important considerations of design function together in an inclusive solution? After reading theory from Susannah Hagan rooted in a belief in implementing sustainable design solutions, one could argue that Zeisel's approach should also incorporate those principals, and vice versa. Integration of knowledge is the key to strengthening the discipline and generating new and innovative solutions to impact the designers of the future.

Zeisel's starting point, the notion of place, is a relatable concept regardless of specific design approach. All architects and designers ultimately hope to achieve meaningful spaces. Awareness of place, Zeisel says, is one of our earliest-developed brain faculties. "Wayfinding" is Zeisel's term that explains how humans navigate the world, which he proposes may be linked with certain architectural cues. For example, he explains that evidence supports specific techniques that are most effective in guiding individuals through space:

Knowing that physical cues located below eye level are more readily processed and attended to than those located above it, wayfinding cues that designers place in our lower field vision are likely to be most effective.²⁵

This tendency, Zeisel believes, may be a result of humans' early necessity to track food for sustenance, or to locate a predator. By understanding human proclivities the designer is better equipped to build places, instead of just spaces. They are equipped to build places with logic, that best cater to the "real" needs of the people who will inhabit them. In addition to place and wayfinding, Zeisel is concerned with the notions of territory and personalization. These concepts are all firmly grounded in tradition, history and collective memory. Memory is the common ground that Hagan might have been searching for in her discourse on sustainable architecture. Although individuals channel and understand shared experiences in unique ways, collective memory can serve as a point of connection. It can help to inform design that is both responsive to the concerns of environment, and to the needs of the people, to help both the people and the environment find their own common ground and synthesis of their own interdependence.

As discussed earlier in this section, writer and scholar Michael Pollan presented the influential ideas that both plants and people exploit each other in a symbiotic relationship that is mutually beneficial for longevity of each species (*Botany of Desire*). This symbiosis is crucial in the design field as well. Nature cannot be separated from architecture, and Zeisel's approach to creating places that encourage ultimate human development and function, cannot be separated from either. As an inhabitant of this multi-faceted world, the architect can take the tools learned from the neuroscientist, and the

25 John Zeisel, *Inquiry by Design: Environment, Behavior, Neuroscience in Architecture, Interiors, Landscape, and Planning* (New York: W.W. Norton, 2006).

lessons learned from the engineer, the farmer, and the history that they all share to build a more integrated world tomorrow.

Zeisel's own work embodies the ideas espoused in his writing. He has designed prototypes for senior housing that cater to the specific needs of Alzheimer's patients, based on known understandings of the relationships between people, memory, space, and place. Zeisel is part of a contingent of practitioners that are realizing design solutions founded in neuroscience. This emerging approach holds significant promise for the future of our communities, and is embodied in and supported by the Academy of Neuroscience for Architecture, a non-profit formed in 2003. The organization sponsors events such as the upcoming conference at Pratt Institute, *Sculpting the Architectural Mind: Neuroscience and the Education of an Architect*. The ideas that are embodied in the connection between neuroscience and architecture will necessarily be connected with Pollan's understanding of the relationship between people and the natural world, incorporating environmentally sustainable efforts, since neuroscience has already confirmed the benefit for humans that lies in a relationship with the natural world- a relationship that asks the designer to bring nature into our buildings in an intimate, interconnected way.

Esther Sternberg is another critical voice in the field of research that deals with neuroscience in architecture. Her book, *Healing Spaces: The Science of Place and Well-Being* (2009), provides a compendium of research that has contributed to the merging fields of neuroscience, architecture, and engineering. The author, Esther Sternberg, identifies the origins of human-centered design approaches and many case studies that have evolved the field towards human-centered design.

Sternberg effectively synthesizes a history of evolving knowledge to demonstrate the intertwined relationship between human experience, place, and design. She begins by identifying many architects of the modern era as pioneers of various design strategies to address human conditions and contribute to improved, healthful environments. Architect Alvar Aalto, for example, incorporated windows for the patients at his Paimio Sanatorium that looked out over the pine forests of the landscape and provided daylight. Seemingly simple design strategies like these had a real impact on patient healing, contributing to improved health and speed of recovery. Architects like Aalto, who experimented with human-centered design strategies were truly pioneers of a body of scientific research. Studies have shown that certain forms of depression, such as seasonal affective disorder, can be treated by a “prescription” for sunlight. Light is proven to increase mood and change stress hormones.²⁶ Studies that investigate such impacts can and should influence and evolve the architectural design field. When the study of the human brain indicates the importance of simple architectural features like windows, for example, the architect can play an influential role to improve building inhabitants’ condition.

In addition to the importance of daylight for improved health, Sternberg also unpacks the way other human senses respond to stimuli and how the brain processes and interprets them. She identifies the physiological characteristics of the ear, for example, and the nose, and introduces various studies that help to explain how people process information. For example, knowledge of the startle reflex, which studies have shown is usually triggered by contrasts in sound, becomes a useful tool for the architect. Often, Sternberg explains, it is in human nature to seek out the “startle feeling.”²⁷ Knowing this,

26 Esther Sternberg, *Healing Spaces: The Science of Place and Well-Being* (Cambridge, MA: Belknap of Harvard UP, 2009), 48.

27 Sternberg, *Healing Spaces*, 60.

the designer who wishes to create a space that elicits excitement, can use architecture to respond to physiological triggers. Sternberg also points out that the same knowledge base architects can employ to manipulate human experience using contrast, can also be used to create the opposite effect - what neuroscience research calls habituation. When a person becomes accustomed to a particular sound, for example, the brain learns to block it out and it can even become soothing. This is how a city dweller can sleep through loud traffic, but a visiting friend, who is used to the quiet sound of the country, might be kept awake in the night by the noise. Again, these findings, which may seem intuitive, have an influential impact on the design field. Sternberg describes how music used in the healing process has been proven, like daylighting, to increase positive outcomes for patients' health improvement. One study in particular found that hospitalized individuals who listened to music while anesthetized required lower doses of pain medications when they awoke.²⁸ These environmental conditions reinforce the importance of meaningful design that incorporates a knowledge of human physiological response.

These two examples provide evidence for some of the ways design can influence health and human potential for well-being. Places can offer signal cues that connect us with powerful memory, both physical and mental. When stress is minimized by joy and excitement, or the calm and familiar are maximized by design, architecture can have a true measurable impact for maximized human potential. This research led to the creation of a web of physical design components that helped to direct this Thesis, and which could be used as a toolbox of methods for addressing human experience of a given space. They became drivers for the design of this project and helped to inform design decisions throughout the process (see Chapter 8).

28 Ibid, 73.

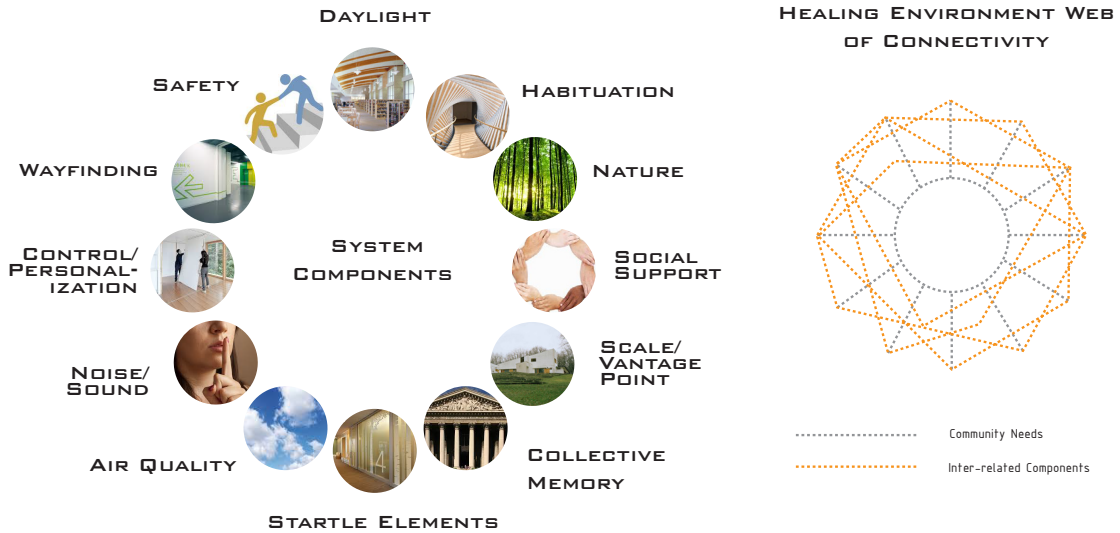


Figure 4: Healing system components & web of connectivity (Created by author)

These voices from the field helped to introduce important questions into my research agenda. What does it mean to be sustainable? How can the architect serve both the environment and the individual? What is the role of cost? Of public policy? What tools do we have available to us? What is place, and how do we create it? How can the architect incorporate concepts like collective memory, healing, territory, and ambition into the built world so that architecture can empower those who inhabit it? These questions do not necessarily have concrete solutions, but by asking them, we can at least make sure they are part of the design process.

CHAPTER 3.
PRECEDENTS: MOVING TOWARDS AN ARCHITECTURE OF CHANGE

Expanding Architecture: Design as Activism (2008), edited by Bryan Bell and Katie Wakeford, provides insight into several case studies that might help architects entering the workforce to better understand how they can continue to address meaningful issues through design in their careers. How can the engaged thesis student continue to present creative solutions to critical issues after graduation?

In the book's preface, Bryan Bell suggests that the first step is to literally "expand architecture" to encompass groups of people who might not seem like financially viable clientele due to most firms' very real need to prioritize costs and profit. He explains that currently market forces determine the population architects serve. Instead of limiting our potential as problem solvers, he suggests we should seek a solution.

As society evolves let us strive for the improvement of the lives of all, not just the privileged few. Designers can play key roles as we give new forms to the diverse needs of this future...²⁹

Bell suggests that the first step lies in education. Architects must be the catalyst for change. They must leave the office and sell design to the majority of people who probably do not even know what architecture can be for them. In his words, we must "seek out need"³⁰.

In their introduction, Jose L. S. Gamez and Susan Rogers remind the reader that these goals of social change are not novel or new. The architects of the Modernist Era hoped to achieve social equity through "universal spaces." However, they suggest that modernist architecture in the vein of the International Style increasingly diverged from

29 Bryan Bell and Katie Wakeford, *Expanding Architecture: Design as Activism* (New York: Metropolis, 2008), 16.

30 Bell and Wakeford, *Expanding Architecture*, 16.

the needs of the masses. An architecture that more successfully addresses the social shortcomings of both modern and postmodern architecture must no longer remain in the apolitical discourse. Architecture must not be just about designing buildings, but about designing a “process of political engagement”³¹. They provide the optimistic view that this change can and will start with the work of students and faculty who are able to reach beyond the educational platform once in the workforce. To achieve these goals, however, collaboration and cooperation are necessary to a unified process:

We need a theory that is practicable and asks citizens to participate, architects to reinvent, academic administrators to rethink, and politicians to again become accountable...a theory that encourages designers to infiltrate city halls, statehouses, national offices, city streets, community meetings, and back rooms, as well as the offices of chancellors, developers, policy makers, and bank executives. Such a theory would examine the fragmentation in the current system of architectural education and practice...To achieve this goal such a theory would collapse the layers of politics, culture, and economic dimensions...in an attempt to build a unifying framework within which to capture the trajectories of change.³²

Unlike other visionaries, the authors of *Expanding Architecture* attempted to provide a method for implementing such a dramatic shift in the structure of current architectural practice. They provide three areas of action. First, an understanding of the market and cost of projects relative to their value, second, architects should dismiss a utopian approach to design and engage in a “participatory practice,” and third, architects should illustrate the value of an alternative approach. Ultimately, they believe students of architecture must go out into the field and must assume responsibility for their work.

An essay by Barbara B. Wilson describes one example of social change architecture in action. A round-table held in 2005 at the Harvard Graduate School of

31 Ibid, 23.

32 Ibid.

Design came together to discuss how to address justice in terms of design. The discussion produced the Social, Economic, and Environmental Design (SEED) Network, which works to advance the rights of all people to live in a healthy community. The network hopes to integrate itself in the field. Experts work alongside locals to create designs that are holistic. Today, SEED is a successful organization that has worked on many projects to bring architecture to under-served populations. An article written for the Boston Society of Architects in 2011, “A Seed for Change,” discusses the positive impact Bryan Bell (one of SEED’s co-founders) continues to have. The author does point out that SEED may still have replaced serving the top 2% with the bottom 2%, instead of finding a way to reach the middle majority with architecture. Bell acknowledges this dilemma and suggests that the opportunity for efforts in this area present a challenge for continued efforts from the design world.³³

Wilson’s case study, and the tenets of social change architecture presented in *Expanding Architecture*, provide insight for the graduate of architectural education. We must seek out opportunities for meaningful work through the development of clear goals. To address political, social and environmental issues of the world, we must first clarify our relationship to those issues. That will be the catalyst for continued evolution of the field of architecture. The following case studies are a sample of projects that demonstrate innovative ways of addressing social change through design.

3.1 Case Study 1: Traugott Terrace, Seattle Washington

In Seattle Washington, Traugott Terrace provides an affordable place for recovering addicts to call home. This case study exemplifies sustainable design successes

33 Ibid.

in a project for low-income tenants that has helped to re-integrate marginalized members of society. Seattle-based non-profit Architects at Environmental Community Design Center completed the LEED certified project in 2003 with funding from the City of Seattle's LEED incentive program as well as Environmental Works' internal grant-funded sustainable design budget. With sustainability driving design decisions, the firm worked to achieve a successful building that would facilitate speedy recovery for the inhabitants.



Figure 5: Traugott Terrace site plan (Image credit: Environmental Works)



Figure 6: Traugott Terrace 2nd, 3rd & 5th floor plans (Image credit: Environmental Works)

The project combined a remodel of an existing building with the addition of new space. Completed, it has 50 units, some designated as permanent, and some transitional (see plans). The community is supported and managed by the Catholic Housing Services of Western Washington. According to their website, the organization, which was established in 1979, “develops, owns and manages affordable housing programs for low-income families and individuals”³⁴. Only sober individuals committed to recovery are permitted to apply.



Figure 7: Traugott Terrace daylighting (Image credit: Environmental Works)

34 “Housing.” Catholic Community Services/Catholic Housing Service of Western Washington. N.p., 2015. Web. 08 Jan. 2016.

The building is located in a dense urban area, but design strategies to maximize daylight and occupant satisfaction with the space were important to the architects. With a tight budget and site constraints, the architects increased the footprint on the upper levels to create window bays that would significantly increase daylight potential for interior spaces, without affecting the ground level footprint. The site (see figures 5 & 6) is oriented with primary daylight access on the east and west facades, with existing buildings flanking the north and south sides of the facility (although the north is not affected by the one story building beside it). This is not ideal from a design standpoint since the east and west have greater potential for glare. Circulation and other functions, such as laundry, are located on the north side of the building. This created an opportunity to exclude glazing from the north façade, most likely increasing energy efficiency, and decreasing construction and long-term building operating costs. With a roof deck incorporated on the southwest, all apartments have access to natural light.

This project is unique because it was the first LEED-certified affordable housing project completed in the United States. It is sited to facilitate healing, creating a mixed-use development in conjunction with the Matt Talbot Center at street level, which is a social services facility specifically focused on substance abuse. According to Design Advisor, “[the] mid-block location in downtown Seattle serves both a social and architectural function by helping to reduce the neighborhood homeless population and fortify the urban fabric”³⁵. This design function is crucial to the success of Traugott Terrace in contributing to social change for the city. In addition to taking advantage of strategic siting and its relationship with the street and surrounding buildings, Traugott

35 “Traugott Terrace.” Design Advisor. N.p., n.d. Web. 07 May 2015.

Terrace is arranged in an L-shape around the upper courtyard that facilitates views to Puget Sound and the Olympic Mountains. This was also a critical design move for a facility intended to specifically deal with an at-risk population. As studies have shown, views that connect inhabitants with the natural world are proven to have a positive influence on healing.

In terms of design for long-term use and maintenance, the architects were careful to choose materials that would be environmentally responsible options, as well as long-lasting and cost effective with a small energy footprint. The corrugated metal siding has a 20-year Kynar coating and requires no painting, and all windows are tilt vinyl framed styles to reduce maintenance. The corrugated exterior wall material allows for an airspace, and serves the added function of a rain screen façade, helping to limit moisture from penetrating the building envelope. These simple and successful strategies showcase methods of integrated, cost-effective, sustainable and human-centered design.

Traugott Terrace demonstrates how one city was able to create a beautiful and sustainable affordable housing option that enhances the pedestrian experience of the street and fits within the urban fabric of the area. An article published for the Online Housing Trust provides details to explain the benefits of the “green design” strategies as a model in sustainable design and improved life-cycle cost. With the energy-conscious design decisions implemented at Traugott Terrace, it should achieve a 30% reduction in energy use compared with traditional building methods.³⁶ This project is also a model in how to secure funding and complete an energy efficient human-centered design with limited resources. With strategic, smart design decisions and knowledge of “healing” design

36 “Traugott Terrace Sustainability.” Sustainability. Traugottterrace.org, n.d. Web. 14 Apr. 2016.

principles, a non-profit firm was able to create 50 units of low income housing that would have a significant positive impact for their community.

3.2 Case Study 2: Columbia University Medical Center

Architecture firm Perkins + Will completed the new building for the Columbia University Medical Center in 2013, which was relocated to midtown Manhattan. The architects transformed a corporate office building into a LEED gold certified healthcare facility. With the constraints of the existing building, the design team paid special attention to details, hoping to maximize the positive aspects of the space to create a healing environment.

An article in Healthcare Design Magazine explained, “The client and design team wanted to craft experiences”³⁷. Perkins + Will’s project page also confirms this approach. Careful planning for “wayfinding” was an important part of the design process, as well as an individualized, small-practice feeling for each patient. The architects took advantage of natural light potential whenever possible, using lightly colored surface treatments to reflect light in the interior spaces, lining up hallways to end at expansive windows, and including windows with outdoor views in patient rooms.

Healthcare Design Magazine explained that the wayfinding mechanisms included wide hallways similar to airport concourses to direct visitors through the space. There are also conveniently placed signs that update in real-time. The windows at the end of major hallways serve two main functions: to deliver daylight and to orient visitors within the building to their relationship with the urban context outside. Artwork enlivens interior

37 DiNardo, Anne. “PHOTO TOUR: ColumbiaDoctors Midtown.” Healthcare Design. N.p., 4 Oct. 2013. Web. 07 May 2015.

spaces, where the details of design were just as important as the larger architectural strategies. Even the accent colors and palettes for each medical practice are unique in order to help patients and guests orient themselves in the large (100,000 sq. ft.) facility.



Figure 8: Wayfinding (Image credit: ColumbiaDoctors Midtown)

As architects, we can learn from the details of this project. Perkins + Will made sure to consider the patients their first priority when making design decisions. Light-filled spaces and ease of navigation are crucial to creating a sense of well-being that might facilitate recovery. Tasteful, calm decorations and art displays similarly work to put patients at ease. These architectural strategies are consistent with findings in neuroscience research that suggest that the architectural design decisions for a space can be used to improve health and well-being. Over time, this case study could be used to measure patient outcomes, in comparison with more traditional medical facilities. Although this field is still in developmental stages, many studies already correlate instances of

human-centered design with positive healing outcomes. Perkins + Will's strategies are cutting edge and serve as good precedent for similar projects that deal with healing.

3.3 Case Study 3: Folsom + Dore, San Francisco California

David Baker Architects completed the Folsom + Dore Affordable Housing Complex in 2007, achieving LEED certification at the Silver level. Developed on an existing brownfield in San Francisco California, the complex is approximately 79,000 sq. ft. and has 98 rental units, specifically targeting tenants with special needs, such as impaired physical development, AIDS and HIV, and chronic homelessness. The architects successfully renovated an old brick building which had fallen into disrepair and integrated the original materials into the new façade along Folsom Street (see figures 9 & 10). The project was a success for several reasons. First, it achieved sustainable design goals and provided a location for active education and outreach. It has also effectively incorporated a mix of tenants, demographically, helping to reduce homelessness in San Francisco.

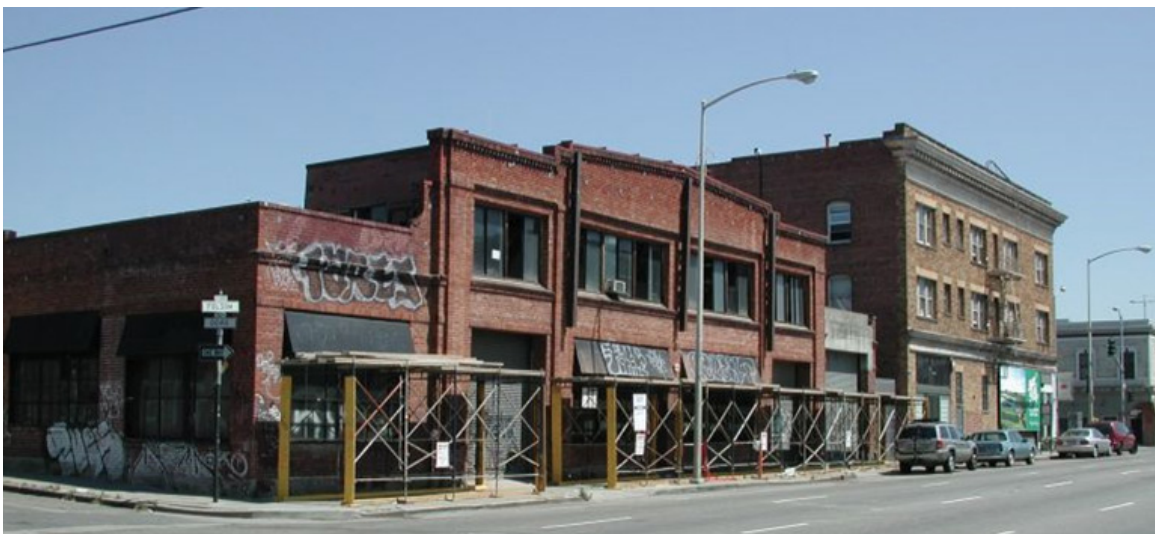


Figure 9: Folsom + Dore: Existing building (Image credit: David Baker Architects)

According to the project's LEED scorecard, 75% of interior spaces have access to daylight and views to the outside. In addition, the project achieved the LEED points for thermal comfort and low-emitting materials, which ensure healthy indoor living conditions for the residents. Interior views show clerestory windows in the main lobby that increase light entering the space, while decreasing glare and heat gain. Apartments also have strategically placed windows and skylights. A green stair and courtyard help make the transition between interior and exterior more enjoyable. Other sustainable building features include reduced parking, with bike storage integrated into the design, and an on-site car-sharing pod, solar panels to generate electricity for the complex, an efficient combined water and space heating system, and natural ventilation.



Figure 10: Folsom + Dore: Adaptive re-use & new construction (Image credit: David Baker

As a measure of tenant satisfaction, Yahoo reviews provided a snapshot. The

average rating by reviewers is five stars (out of 5). One tenant stated that the complex's convenient location for transportation access, groceries, and the library and downtown area contributes to its success as a housing community for individuals with limited means. Comments also touted the work of attentive maintenance crews. However, the comments that stood out most addressed the fact that the building really does achieve a "mixed" clientele. One review explained:

This is a "mixed" building, with various low-income programs contributing to tenants as well as containing a number of market value units on the upper floors. This building has a full time staff of support specialists that work with some of the tenants. Their work is unobtrusive and contributes to stability of the tenant base in the building.³⁸

Testimonials like these demonstrate that the architects, along with support programs and other contributing design team members, were able to create a home where sound building techniques and creative design solutions have an impact to bring together divergent groups of people, with different backgrounds and social and economic status.

One review also mentioned that the "management is very engaged." Lutheran Social Services of Northern California provides on-site support to help residents meet personal goals, get medical aid and counseling, or substance abuse assistance, among other services, such as financial advising or community building support. According to their website, Lutheran Social Services has had a positive influence in the housing community. One resident testimonial said, "I like it here. People are helping people. If I feel lonely, there are games and parties. If I have a big problem, there is always someone to talk to and I don't stress out." As the resident mentioned, LSS hosts activities, and maintains a busy calendar of events for residents to encourage the positive interactions of

38 "Folsom Dore Apartments." Yahoo Local. N.p., n.d. Web. 11 Jan. 2016.

a healthy community.

Folsom + Dore serves as a precedent in sustainable, cutting edge design, as well as a successful social experiment in re-integration. The architecture alone cannot be credited for the success of the housing complex, but it is clear that with the right people working towards a shared vision for community, the pieces fall into place. This project successfully took a neglected property and revived it to give it new life and new potential. The success of the sustainable design strategies as an integrated part of the project that also provides a healthful thriving community should be an inspiration to other cities looking to do good for the re-integration of marginalized citizens.

CHAPTER 4. WHAT HAPPENS AFTER PRISON?

In order to better understand the barriers to successful reentry for individuals leaving prison, scholars have compiled research investigating what happens after prison. As outlined in the introduction, the problem of successful re-integration to become law-abiding, contributing members of society is a multi-faceted one. A growing body of research demonstrates a trend in systemic failures that individuals have slim chances to overcome. Often equipped with no support upon release, they struggle to access basic needs like shelter and food, making it even more difficult to find viable economic opportunities that will help them exit a cycle of crime and re-incarceration.

As a result, one of the first roadblocks of the free world is access to stable employment. Economics professor, David F. Weiman, provides some insight in his paper, “Barriers to Prisoners’s Reentry into the Labor Market and the Social Costs of Recidivism”. Weiman points out that individuals who serve time for minor drug offenses enter a pool of applicants post-release who have a difficult time finding work due to their prison records. He says, “Their path away from crime and future prison spells - what criminologists call desistance - depends critically on employment, specifically finding and holding a good job”³⁹. Finding gainful employment is made particularly difficult by the current approach towards rehabilitation for prison inmates. Figure 11 describes the education levels and expected employment opportunities for inmates from several cities in the U.S. The sample population indicates low education (very few earned a high school diploma or equivalent). However, what is most concerning is the lack of participation by

members of the study who did not have available job training programs and education

³⁹ David F. Weiman. “Barriers to Prisoners’ Reentry into the Labor Market and the Social Costs of Recidivism” (Social Research 74.2, 2007), 577.

during prison- below 30%. Despite lack of participation in job training, almost all inmates believed employment after prison was important. These findings suggest (for this sample population) that the current methods of engaging prisoners in educational opportunities are failing. As part of the re-integration process, a system that encourages and incentivizes learning opportunities might have a more successful outcome.

Region	Pre-Prison Experiences			In-Prison Experiences					
	Education		Worked	Program Participation				Employment	
	<HS	HS or GED		Job Training	Job Readiness	Education	Pre-release	Prison	Work-release
Baltimore	51.7%	31.3%	67%	22.8%	36.8%	21.9%	27%	30%	33%
Chicago	51%	44%	64%	9%	31%	22.8%	86%	42%	10%
Cleveland	45%	32%	68%	26%	32%	38%	64%		86%
Texas	45%		67%		>35%				61%
Philadelphia								57%	20%

Region	Employment Expectations				Assistance from Family/Friends		Return to Neighborhood
	Important?	Hard?	Help?	Training?	Financial	Housing	
Baltimore	97%	35%	84%		>42.3%	80%	>54%
Chicago	87%	59%	92%		92%	85%	>49%
Cleveland	90%	49%	89%		78%	78.7%	46%
Texas	93%		87%	72%	>54%	63%	>58%
Philadelphia	67%	30.2%		34%	51%	59%	>29.5%

Sources: LaVigne, Visher, and Castro (2004); Watson, Solomon, LaVigne, Travis, Funchers, and Parthasarathy (2004); Visher, Kachnowski, LaVigne, and Travis (2004); Visher, LaVigne, and Travis (2004); Visher and Kachnowski (2005, 2006); Visher and Courtney (2005).

Figure 11: Characteristics of released prisoners re-entering the labor market (Urban Institute Returning Home Study)

The National Institute of Health released a publication in 2009 by PhD and professor Elizabeth Marlow (with co-author Catherine Chesla), of the University of California School of Nursing, explaining the difficulties parolees face when trying to find their way outside of prison. They often have long criminal histories and the time they spend in the free community is typically punctuated by several incarcerations. 60-70% of all individuals on parole are re-incarcerated within 3 years of leaving prison. This population is also characterized by a much higher percentage of physical and mental health problems than the general population. In regards to education that might help them

find gainful employment, 41% of all federal and state inmates have not completed high school or its equivalent (compared with 18% of the general population 18 and older).⁴⁰ These findings help to explain why released prisoners have so much difficulty finding steady work. In addition to facing low odds of being hired due to their prison records, they often have little education and developed skills, and may present mental instability that makes it especially difficult to find the support they need to make a fresh start.

According to Weiman (*Barriers to Prison Reentry*), many employers are uninterested in hiring past offenders (see figure 12), and even those employers who claim they would definitely hire an individual with a record, may be likely to choose a law-abiding citizen in a job market already teeming with more qualified applicants. Weiman's research was also helpful in identifying typical employment areas where past offenders would be most likely to find work. Within the low-skilled labor market, businesses which tend to hire past offenders are often in the manufacturing, construction, and transportation sectors- public utilities trades, as opposed to service or retail positions that would put them in more direct contact with the public.⁴¹

A facility and associated social programs created for past offenders should utilize this data in order to create a system of job training that has the greatest likelihood of matching released inmates with gainful employment opportunities. This is particularly important in the "new" labor market, where low-skilled service and retail sector jobs are more prevalent than those in the trades.⁴² Weiman's consensus, rooted in past research,

40 Elizabeth Marlow and Catherine Chesla. "Prison Experiences and the Reintegration of Male Parolees." (*Advances in Nursing Science* 32.2, 2009): 1.

41 Weiman. "Barriers to Prisoners' Reentry into the Labor Market and the Social Costs of Recidivism" (*Social Research* 74.2, 2007), 582.

42 Weiman. "Barriers to Prisoners' Reentry into the Labor Market and the Social Costs of Recidivism" (*Social Research* 74.2., 2007). 596.

suggests that the stigma of a prison record has a dramatic affect on released inmates, keeping them out of service and retail sector jobs that low-skilled and low-educated applicants with no criminal record would be apt to apply for.

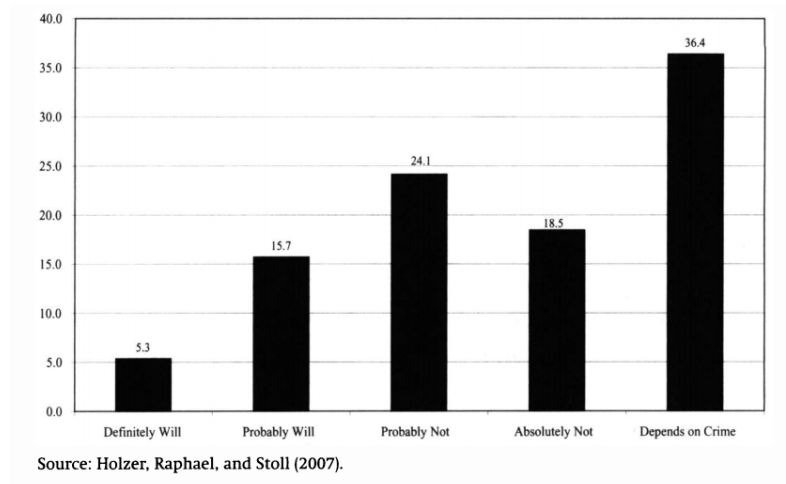


Figure 12: Percentage of employers willing to hire applicants with a criminal record into last filled non-college job, 2001

In addition to barriers in the labor market, barriers to secure housing are a primary concern for released inmates. Past offenders often return to their families or the social support systems that they were associated with prior to their offenses. These groups are often unstable as well, and may contribute to increased likelihood of re-offense. However, in a system with little other support, released prisoners often feel they have no choice but to return to what they are familiar with for social and financial support upon release. Housing becomes the pivotal barrier to successful reentry into society for released prisoners.

The Journal of Criminal Law and Criminology published an article in 2007 titled, “Assembling Recidivism: The Problems and Contingencies of Post-Release Life,” which

provides first-hand accounts from past offenders about the struggles they faced when trying to make ends meet after prison. Author Mark Halsey conducted several years of in-depth interviews that help to illustrate how a “risky” post-release environment can be equally detrimental to post-release outcomes as risky individual behavior. Context, again, becomes necessary to examine and reduce future crime and relapse. Halsey’s goal was to help illuminate some common issues prisoners face post-release. He wants to tell a new story, which in his own words:

...is the story of how young men return to custody not solely because of their behavior, but because of their responses to systems and procedures which, in an alarmingly high number of instances, steer people (back) into crime oriented pathways rather than clear of them.⁴³

Halsey’s qualitative approach allowed him to identify themes among the accounts of the young men he spoke with. In particular, he noticed a human propensity towards optimism, even in the face of poor odds, from young men who had been returned to custody several times in the past. Participants of the study interjected comments explaining how they were going to do “the right thing now,” or how they expected that in a few months (after release) they would have their lives “back on track”. They wanted to believe in themselves and expressed hope for the future. However, for many, their optimistic outlook did not pan out. One participant explained:

The [support] people said, “Yeah, when you get out [we]’ll help you out, you know, as much as we can,” you know. “As much as you want [us] to,” you know... So I thought, “All right then.” Didn’t help me or nothing. I tried to ask them [for help]. Nothing... “Yeah, I’ll be there in a minute.” Nothing.⁴⁴

43 Mark Halsey. “Assembling Recidivism: The Promise and Contingencies of Post-release Life” (The Journal of Criminal Law and Criminology (1973-) 97.4, 2007), 1212.

44 Halsey. “Assembling Recidivism” (The Journal of Criminal Law and Criminology (1973-) 97.4, 2007), 1217.

Commentaries like this were prevalent. Young men who started out with high hopes and trust in the social services counsel they received pre-release, got discouraged when systems put in place to provide support fell through or were inconsistent. The men began to feel disheartened and expressed sentiments about feeling alone or misunderstood. Others expressed a disconnect from the world outside prison:

At the moment I'm thinking that my life is just going to go down the drain 'cause I've been locked up for so long and... I don't know... what it's like on the outside anymore because I'm not out for that long... to notice what it's like out there.⁴⁵

This fear of the outside world was another repercussion of living in custody. With longer spells behind bars, prisoners felt more disconnected from society. The systems of prison living acclimated them to divergent modes of life and order that were not easily translated back into the “free” world. Marlow and Chesla’s research for the National Institute of Health corroborates these findings. They characterize prison life as a highly structured environment: it is closely monitored and does not provide inmates with privacy. Once outside, reentry requires the development of memory of skills that may not have been required of an individual for a long time. The free world is characterized instead, Marlow and Chesla explain, “by self-regulation, self-control, and independent decision-making skills”⁴⁶ This shift goes unaddressed for the vast majority of released prisoners, who are released without parole support. Some prisoners even acknowledge the prison system as their survival safety net and openly express their concern for life outside prison. Marlow and Chesla interviewed several middle-aged men for their research and identified major themes that defined the reentry process. In particular, they

45 Ibid., 1218.

46 Elizabeth Marlow and Catherine Chesla. “Prison Experiences and the Reintegration of Male Parolees.” (Advances in Nursing Science 32.2, 2009): 2.

noticed prison life tended to increase acquiescence, and in turn inaction or aggression, as well as dependence on the system. Prisoners felt a level of stability from the correctional system, which was able to consistently provide basic needs such as food and housing.

One interview helps demonstrate this dependence:

I've made life-long friends there. You can make life-long friends there... You don't have to go out and get a job, It's gonna be provided for you... When you come out of prison, you have to go see your parole officer. And you might not have wheels...you have to do all kinds of things, and it's so easy that when you fail at one of them, you're gonna fail at a lot of them...when you come outta prison, there's not resources available to you...And it's a lotta stress to find those things.⁴⁷

Others experienced similar concern. One interviewee stated: "it's kinda scary... what I'm saying is now here I am again...being put out the door, with nothing, you know what I mean?"⁴⁸ For prisoners like these men, who had spent much of their lives in and out of prison, they found it difficult to imagine being able to support themselves on their own. Prison and its modes of life had become home, with friends and food and a roof that took them off the streets- streets where they thought they might have died without prison. Prison took them out of harm's way. In order to conceptualize a successful transition for these men, it is important to understand the mental (and physical) battles they're facing.

Experts know that finding stable housing is one of the most important ingredients for successful reentry. It reintroduces some of the stability that prison offered and gives ex-convicts a fixed address to provide when looking for employment. It provides a place to shower (to look presentable), eat, and stay out of the elements. However, Halsey and others have defined housing as more than a place to sleep. Instead, the most successful

47 Marlow and Chesla. "Prison Experiences and the Reintegration of Male Parolees." (Advances in Nursing Science 32.2, 2009): 8.

48 Ibid., 9.

living arrangements would help to foster a new sense of place, as both a physical and psychological refuge. This is in keeping with Zeisel's notion of place. Often, participants of Halsey's study faced delays in provision of accommodations they were counting on. He also noted, "problematic placements, and insufficient familiarity with the demands of domestic life"⁴⁹. In an at-risk (of re-offending) population, individuals have less of a chance for successful re-integration when faced with even seemingly minor adverse circumstances, such as having to wait a few extra days (or in some cases, weeks) for suitable accommodation. One of Halsey's study participants explains his tribulations as follows:

Once I was out of here they just sort of forgot about me... I was meant to move into my house the day after I was released. Then I got a phone call saying, 'No you can't move in'... This went on for... a few weeks... And at my mum's it's not very good because she drinks a bit and then when she drinks, I'll drink with her.⁵⁰

Instability from supporting systems, family and friends are a common threat to successful re-integration. Another study conducted by Harvard University and published in the American Journal of Sociology called "Stress and Hardship after Prison," corroborates these findings. With prison admissions and releases concentrated in poor urban neighborhoods, any existing support systems, both emotional and financial, were typically weak or even harmful to individuals. Like others have noted, risks to health - especially drug overdose - were common immediately after release. Bruce Western et al. define social integration as "simultaneously establishing community belonging and material security"⁵¹. This definition is consistent with others, like Halsey, who believe

49 Weiman. "Barriers to Prisoners' Reentry into the Labor Market and the Social Costs of Recidivism" (Social Research 74.2, 2007), 1220.

50 Ibid., 1221.

51 Bruce Western et al. "Stress and Hardship After Prison" (American Journal of Sociology 120.5, 2015), 1515.

in creating a holistic picture of the reentry process in order to better understand how to improve it. The Harvard team's research revealed another important factor, underscoring the importance of finding stable housing for men:

Women were much more likely to receive money or housing from family than were men. Family support was weakest for respondents with histories of drug addiction and mental illness and those over age 44...Forty percent of those over 44 and 30% with mental illness and addiction never reported family support at any of the three post-release interviews.⁵²

These findings are important for identifying post-prison populations most in need of support. From an understanding of Halsey and others' research, we can identify opportunities to improve the current systems in place to hopefully improve individual and community outcomes. It is clear from surveys of recently released inmates, that many have a difficult time adjusting to the routines of life outside prison. Even when they express optimism for their futures, they are often quickly discouraged when they are turned away from employment opportunities, or have trouble finding people they feel they can trust. All of these struggles point to a disconnect between the strict routines of prison and the lack of support moving back into society. In order to create a more successful transition, communities must take on responsibility and work with law enforcement officials and other stakeholders in order to make their efforts a success.

In addition to housing and employment, the reentry process is much more successful for individuals who have a medical (both mental and physical) support system. As we've seen in previous literature, the population in question is in large part defined by substance abuse and mental illness. In order to help address these weaknesses and improve health, returning inmates who suffer with addiction or mental illness, for

⁵² Western et al. "Stress and Hardship After Prison" (American Journal of Sociology 120.5, 2015), 1523.

example, need to find a stable environment that also provides the services they require during the vulnerable period of transition.

A research report released in February 2008 by the Urban Institute Justice Policy Center explains some of the disparities between released prisoners dealing with physical or mental health conditions, or substance abuse, compared with the general population of returning prisoners. The authors, Kamala Mallik-Kane and Christy Visser provide data to help explain how these conditions decrease chances of successful reintegration. The study, *Returning Home*, explains some of the current system failures. Respondents typically had one or more chronic health conditions at the time of release. One half of men reported chronic physical health conditions and only 15% reported mental health conditions. Of those with diagnosed mental health conditions, 4 in 10 individuals did not receive treatment during prison. 7 in 10 men struggled with substance abuse problems (defined as using drugs or drinking to intoxication more than once per week).⁵³ These individuals often face greater difficulty adapting to life outside prison than their (relatively) healthy counterparts, due to a decline in treatment and support for their conditions. They have more difficulty finding housing and employment (sometimes they are unable to work and need employment assistance). The following figures explain some of the trends in health and treatment.

53 Kamala Mallik-Kane and Christy A. Visser. "Health and Prisoner Reentry: How Physical, Mental, and Substance Abuse Conditions Shape the Process of Reintegration." (2008), 11.

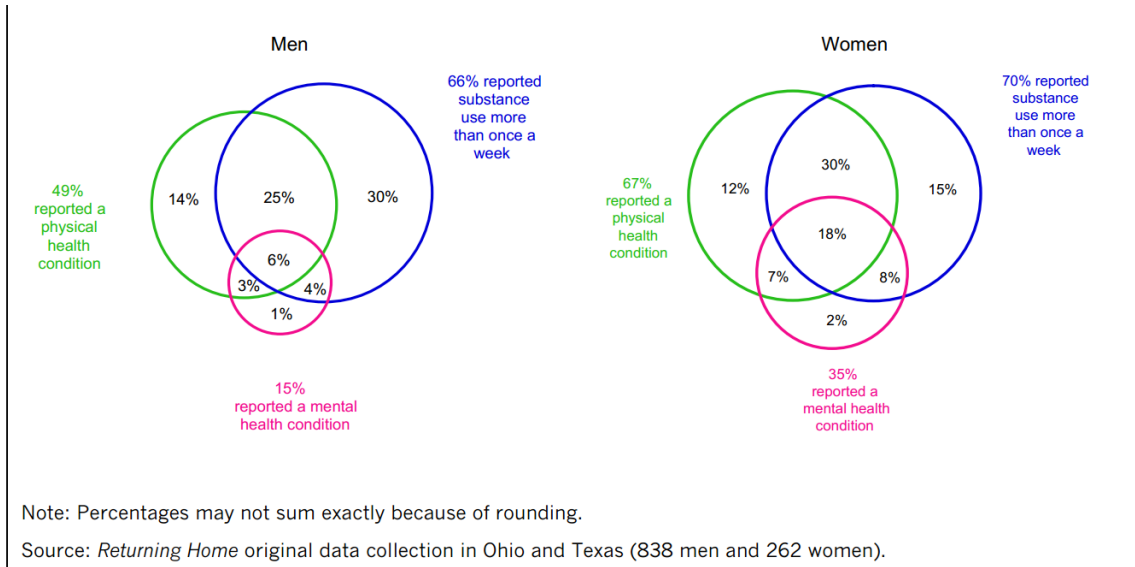


Figure 13: Self-reported physical or mental health problem; or substance abuse

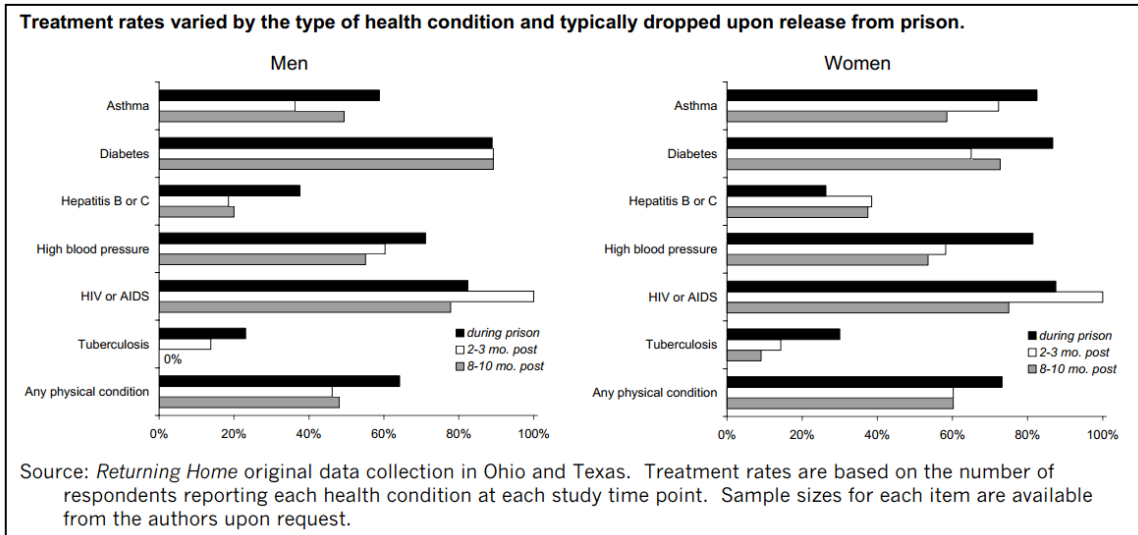


Figure 14: Drop-off rates of treatment after prison, by health condition

Figure 13 (above) shows the percentage of individuals who self-identify as having physical, mental or substance abuse conditions. Figure 14w (above) is a sample of physical health conditions, displaying how supporting services drop off after prison

(similar trends for mental health and substance abuse). These findings show a need for increased health services after prison to help improve the reentry process for all returning inmates. Mallik-Kane and Visser suggest that the best strategy would be to implement a comprehensive strategy to assess past offenders' eligibility for Medicaid, disability and other forms of assistance as part of the pre-release process. Prisoners needed to have supporting connections already established in the communities they were returning to. They explained that the results of their research showed a correlation between substance abuse problems and criminal behavior much more acutely than healthy individuals.⁵⁴ A reentry and housing plan needs to address the issues of prisoner health as a first step towards helping them achieve stable independent employment and housing after they leave the transitional facility.

⁵⁴ Mallik-Kane and Visser. "Health and Prisoner Reentry: How Physical, Mental, and Substance Abuse Conditions Shape the Process of Reintegration." (2008), 4.

CHAPTER 5. SITE AND CONTEXT

Springfield Massachusetts was established by a group of pioneers from Boston in the early 1600s. It is located in the southwestern part of the state, along the Connecticut River in the Pioneer Valley. The river, as a route of commerce and transportation, was central to its successful development, and the town thrived on its agricultural economy and fur trade. As Springfield grew, it became a flourishing industrial city. Mills that harnessed the power of the river required a skilled labor force and the metal craft industry rapidly expanded. In 1794 the United States Armory was established in Springfield (near the project site) which led to further industrial advancements. During the 1800s, Springfield experienced another economic boom as a major railroad hub. Printing, machine manufacture, insurance, finance and other industries took hold. Education systems developed and the city evolved into a multi-cultural metropolis. According to Springfield's present day website, the Connecticut River, railroads and major highways were the primary assets that contributed to making the city what it is today.⁵⁵

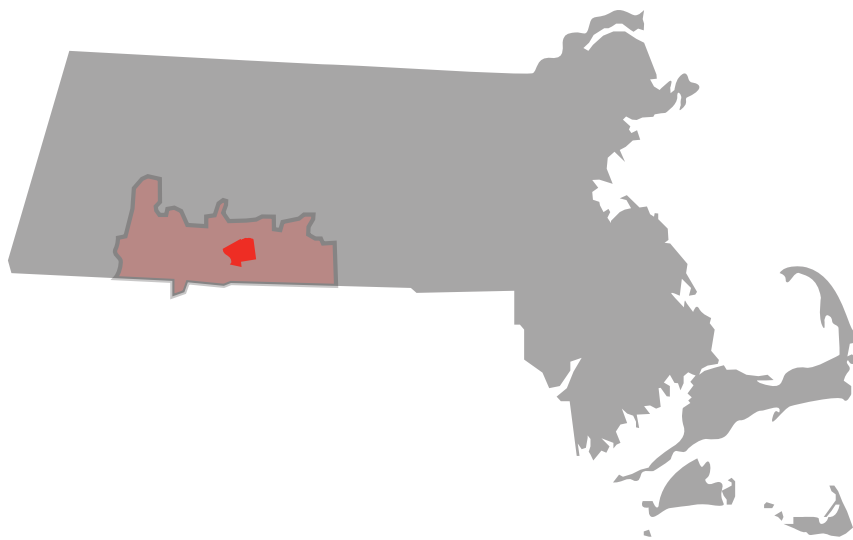


Figure 15: Springfield, Hampden County Massachusetts (Map graphic produced by author)

55 “History and Culture.” City of Springfield, Mass.: N.p., n.d. Web. 13 Apr. 2016.

Springfield's manufacturing economy remains an important industrial base. However, it also has a well-diversified economic base, with headquartered companies in Springfield that include Massachusetts Mutual Life Insurance CO., Merriam-Webster Inc., Smith & Wesson Corp., and the retail food company Big Y Foods Inc. Although there is a rich history and a great deal of progressive development in the City, Springfield is also a city ripe for new business development. The Massachusetts Economic Development Incentive Program designates the city as an Economic Target Area.⁵⁶ As a result of this designation, approved development projects in Springfield are eligible for state investment tax credit, abandoned building tax deductions, and municipal tax benefits. "They may also apply for tax increment financing, emerging technology funds, tax credits for research and development, a pre-development assistance program, a capital access program, and bond equipment, and export financing."⁵⁷ This economic climate creates a perfect opportunity to explore innovative new venues in the city and introduces the opportunity for creative, collaborative vision.

5.1 Understanding Springfield's Incarcerated Population

Springfield is a thriving cultural center with diverse industry. However, it is also one of the highest crime cities in Massachusetts- the highest per capita.⁵⁸ This characteristic makes Springfield an apropos case study to explore the ways that rehabilitation programming, in tandem with supporting architecture, could reduce

56 "Springfield: Economy." - Major Industries and Commercial Activity. N.p., n.d. Web. 13 Apr. 2016.

57 "Springfield: Economy." - Major Industries and Commercial Activity. N.p., n.d. Web. 13 Apr. 2016.

58 Lisa E. Brooks and Amy L. Solomon, Sinead Keegan, Rhiana Kohl, and Lori Lahue. "Prisoner Reentry in Massachusetts." (Justice Policy Center, 2005), 37: Suffolk County has the largest number of released prisoners in the state (Boston area), followed by Hampden County (Worcester area). However, the City of Springfield independently has one of the highest crime rates in the state and served as a logical location to study prison reentry.

recidivism and improve prisoner reform, both socially and economically. Since it is home to many Massachusetts prisoners, many released prisoners return to Springfield post-incarceration. 11% of the Massachusetts Department of Correction (DOC) population is released to the street in Hampden County, even though it only accounts for 7% of the total state population and violent crime is more than three times higher in Springfield than the median for the rest of the state.⁵⁹

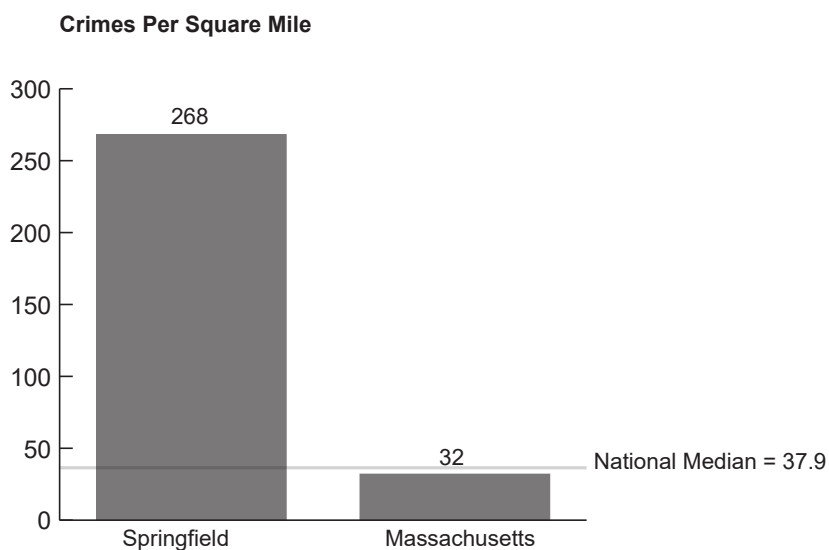


Figure 16: Springfield annual crime comparison with Massachusetts overall (Graph reproduced by author)

Massachusetts, although it is a progressive state in many respects, is a victim of the same systematic issues that are characteristic of the corrections system nationally. In order to address overcrowding in jails and prisons, we must work to address the root causes of recidivism. In Massachusetts, the total DOC custody overcrowding rate as of December 29, 2014 was 130 percent. With an annual cost per inmate of \$53,000 and recidivism rate of almost 40% over 3 years, the current progression through prison to

⁵⁹ Cannata, Nicholas et. al., Massachusetts DOC Prison Population Trends 2014. Concord: Research and Planning Division: 2015. Print. #15-096-DOC-01.

release is not economically viable.

The Massachusetts Department of Corrections report released in April 2015, provides current statistics describing the Massachusetts prison population. According to data collected in 2014, the majority of released prisoners were male (85%) and the majority were white. 95% of male prisoners serve a sentence greater than 3 years, and notably, most had previously spent time behind bars, consistent with trends across the country. Part of the reason that recidivism needs to be addressed is the fact that currently over half of all criminal and civil commitments in Massachusetts are released to the street upon sentence expiration, and they often have little resources to call upon for support.

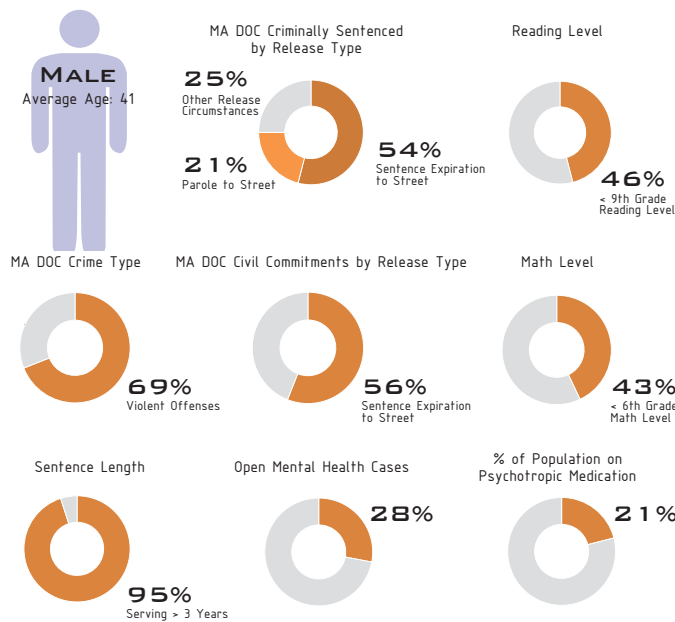


Figure 17: Massachusetts DOC 2014 male inmate data (Graphic created by author)

The Justice Policy Center released a report in 2005 that helps to explain the scarcity of resources that has led to the current system functions.⁶⁰ The Commonwealth of Massachusetts Parole Board is responsible for supervising adult state prisoners.

60 Brooks et. al. "Prisoner Reentry in Massachusetts." (Justice Policy Center, 2005)

However, most are released without supervision requirements, and those who do receive supervision are most likely not granted sufficient individual attention, as parole officers typically work with 43 reentry cases at any given time. Each case has specific conditions, with released prisoners required to meet on a consistent basis according to the terms of his release (the project will focus on male subjects). In addition to the fact that the existing parole system provides little structure to foster personal connection and true mentorship, it typically operates on a philosophy of punishment rather than reward.⁶¹ As some of the released prisoner's accounts chronicled in the Chapter 4 indicate, human beings do not usually respond well to threat and punishment. This is most likely especially true for the criminal population, who are accustomed to violating the rules set up for them. Typically those under parole are also required to submit to regular drug testing if they have histories of substance abuse. These systems of "re-integration" do not support the individuals in a successful transition back to society. Data analysis indicates a consistent trend of re-offense, however little has been done to change the way prisoners regain (or maybe for the first time in their lives achieve) responsibility for themselves. Lisa Brooks and her colleagues reiterate the critical nature of the first year after release, when released offenders are most susceptible to re-offense.⁶² However, even with the supporting data at hand, the DOC continues to release the majority of prisoners without any supervision and with weak prospects for successful reentry.

In addition to release trends, it is important to note other characteristics of the typical offender in Massachusetts that help to explain his struggle in making a life for himself when released. The primarily male population is also defined by their social

61 Ibid., 24.

62 Ibid., 24.

networks and personal connections (or lack thereof) in the outside world. To find housing, for example, many rely on female relatives (often their mothers), but it is relevant to note that the majority of released inmates (in 2002, 63%) are single (unmarried). This data corroborates the notion that many have little or no emotional support from a stable partner. The transitional phase after prison is affected by the associated vulnerabilities of these factors. In order to better address the roadblocks these men face, those supporting the reentry process need to assess common trends in the population.

5.2 Locating a Site

The proposed site for this project is located along the State Street Corridor in Springfield's Metro Center neighborhood.



Figure 18: Neighborhood context (Image created by author)

This area is in close proximity to a wealth of social services, public transportation, food and other relevant services necessary to support a successful reentry process. According to the Justice Policy Center, the increase in returning inmates who have spent long spells behind bars, exacerbates their ability to acclimate to the free world. Brooks believes prisoners today are less prepared for reintegration as a result. She and her colleagues' research lead them to believe that released prisoners are "less connected to community-based social structures, and are more likely to have health or substance abuse problems than in the past"⁶³. These concerns indicated resource types that would be most crucial to successful reintegration, such as medical facilities and educational programs.

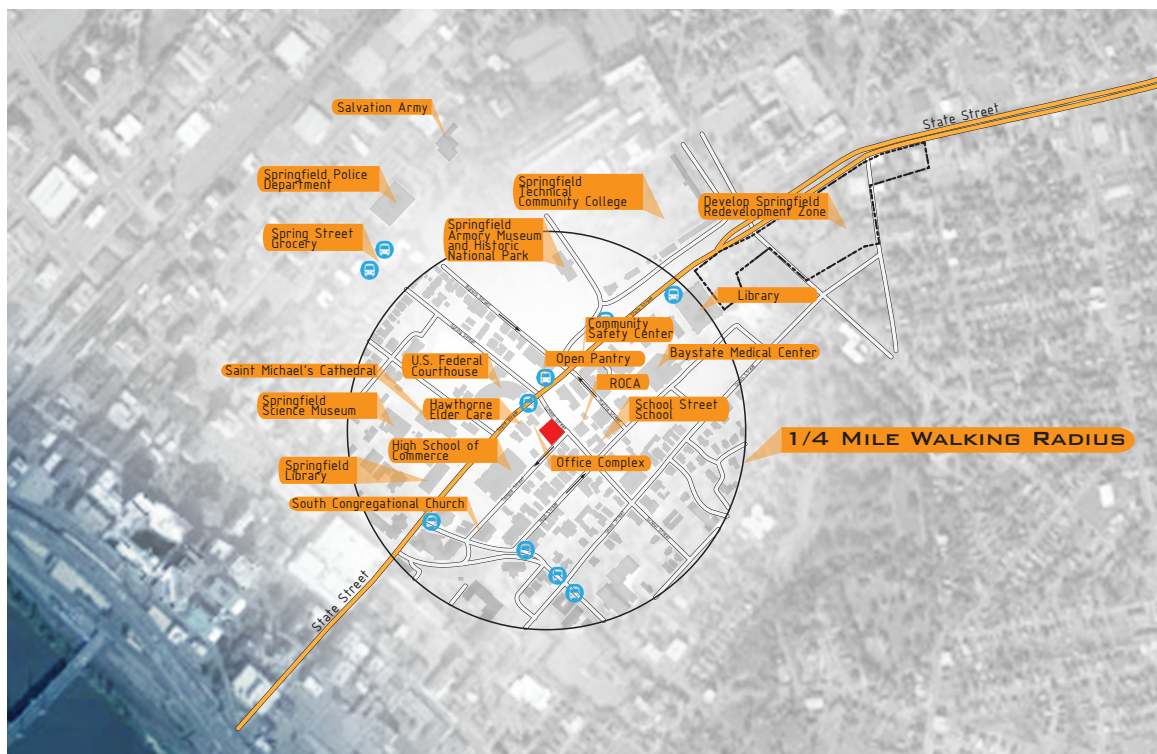


Figure 19: Site and surrounding services (Image created by author)

Medical support services (see figure 20), both physical and mental, are critical

63 Ibid., 3.

to successful reentry for many offenders. A program to address medical issues should be an integrated part of a housing project for released inmates. According to “Health and Prisoner Reentry,” returning prisoners’ ability to access medical care is limited by their lack of health insurance.⁶⁴ Mallik-Kane and Visser’s research shows that many prisoners also report post-release substance use, however services do not meet the needs these individuals present. Access to local treatment facilities and medical centers is critical to the reentry process.

Figure 3. Health insurance coverage among returning prisoners, by gender

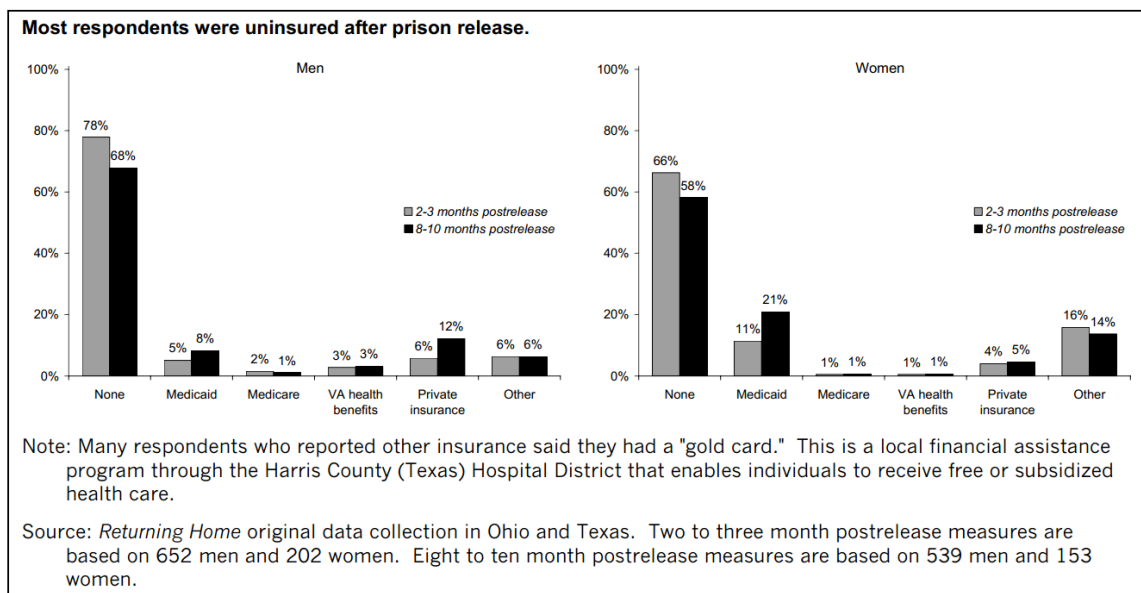


Figure 20: Health insurance coverage among returning prisoners by gender (Image credit: Health and Prisoner Reentry)

The site is also a good choice because it is located just south of Develop Springfield’s Vision plan for The Federal Hill Neighborhood on State street. The non-profit has a plan to reinvigorate an entire block, adding a grocery store and introducing

64 Mallik-Kane and Visser. “Health and Prisoner Reentry: How Physical, Mental, and Substance Abuse Conditions Shape the Process of Reintegration.” (2008), 13.

other street-level businesses.⁶⁵ The plan takes an urban design approach that would integrate townhouses, mixed-use retail, residential, a retail center at the street and a connection with revived historic mixed-use property. They hope to use the project to link the north and south sides of the street, create a retail destination for Federal Hill and the surrounding areas, and create a social center for the Springfield Tech Park and surrounding neighborhood, while also creating a framework plan for new housing development around the new grocery store. In addition to building development, the plan would integrate a greenway linking disparate areas of the city. The plan would also help to encourage pedestrian activity along the state street corridor.⁶⁶

Springfield is a city ripe for community development on many fronts, and like the Develop Springfield Foundation, the Conway School of Agriculture also released a research report in 2012, proposing a citywide agriculture initiative that would bring community farms into several proposed sites across Springfield.⁶⁷ Theirs and other proposals like it paint Springfield as a city that is nearing a shift towards a healthier community, with many passionate individuals who are already devoted to initiating necessary change. With the hope that some of these initiatives might come to fruition, this project made sense as an addition to the existing city fabric.

Just as others have identified this area's potential for redevelopment, it is also an ideal location for project funding opportunities. The U.S. Department of Housing and Urban Development (HUD) sponsors the Community Development Block Grant (CDBG). The program, which was initiated in 1974, is one of HUD's longest

65 "Federal Hill Final Report." DevelopSpringfield. N.p., n.d. Web. 14 Apr. 2016.

66 "Federal Hill Final Report." DevelopSpringfield. N.p., n.d. Web. 14 Apr. 2016.

67 Berg, Emily, Abigail Elwood and Marie Macchiarolo. Food in the City: An Old Way in a New Time: A Process to Assess Land Suitable for Urban Agriculture. 2014 report.

continuously running programs, and provides grants to over 1000 local and state governments each year. Areas are eligible if at least 51% of residents are considered part of the low or moderate income brackets. The funds are expressly channeled towards projects that provide suitable housing or expand economic development opportunities in low and moderate income areas.⁶⁸ The site for this project is located in a CDBG eligible zone, which makes this a possible funding source. According to WEED & SEED's Guide for Developing Housing for Ex-Offenders, there are several other potential funding sources to consider as well. The Housing Finance Agency (HFA) provides the largest source of funds for housing projects. It is funded by the U.S. Treasury Department. However, the application process can be difficult and lengthy. Partnerships with local organizations, such as churches, are another potential venue for identifying funding sources.⁶⁹ Ideally, projects could take advantage of a combination of funds from diverse sources, while also building strong bonds within the community.

68 "Community Development Block Grant Program - CDBG/U.S. Department of Housing and Urban Development (HUD)." HUD.GOV. U.S. Department of Housing and Urban Development, n.d. Web. 14 Apr. 2016.

69 Ashcroft, John and Deborah J. Daniels. Guide for Developing Housing for Ex-Offenders. Washington DC: U.S. Department of Justice Programs. 2004.

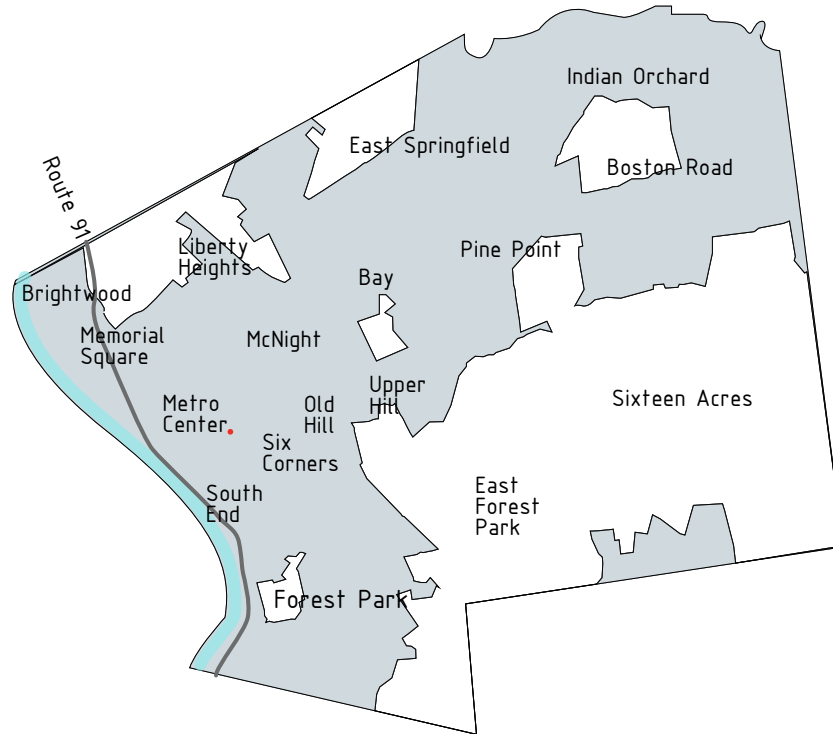


Figure 21: Site located in CDBG eligible area (Image created by author)

The proposed site is located just off of the State Street Corridor, at the intersection of School and Temple Streets. Situated between the commercial and civic (see figure 22), and the residential districts, this facility would be able to engage both communities, activating the commercial street front on School Street and responding to the residential neighborhood across Temple Street. Directly adjacent to the site on the North there is a community kitchen called Open Pantry, an elderly care facility, a law office, and other small businesses. To the east there is an ROCA- an organization that works with at-risk teens to help them start a path away from crime when other institutions are not working for them. According to an article posted in MassLive in early 2014, the program was made possible by a \$27 million government grant that went towards the Springfield facility and another similar facility in the Greater Boston area.⁷⁰ The program helps to

⁷⁰ Schoenberg, Shira. “\$27 Million State Program to Fund Roca Outreach Program in Greater

teach young people life skills that will contribute to reduced recidivism before they ever reach prison. The programming for a transitional housing facility located nearby would be able to feasibly create a mentoring program for its residents to work in concert with the ROCA community, strengthening the success of both programs.

The proposed site is directly surrounded by parking lots for the buildings on state street. Across the street to the south, the site faces the edge of a residential neighborhood on Temple Street (see figure 23). The real estate on the back of the site is designated as a service road that would be constructed adjacent to the parking lots with pedestrian scale trees and plantings to re-introduce nature at the edges of the site and create a buffer between the new residential program and the existing hardscape.

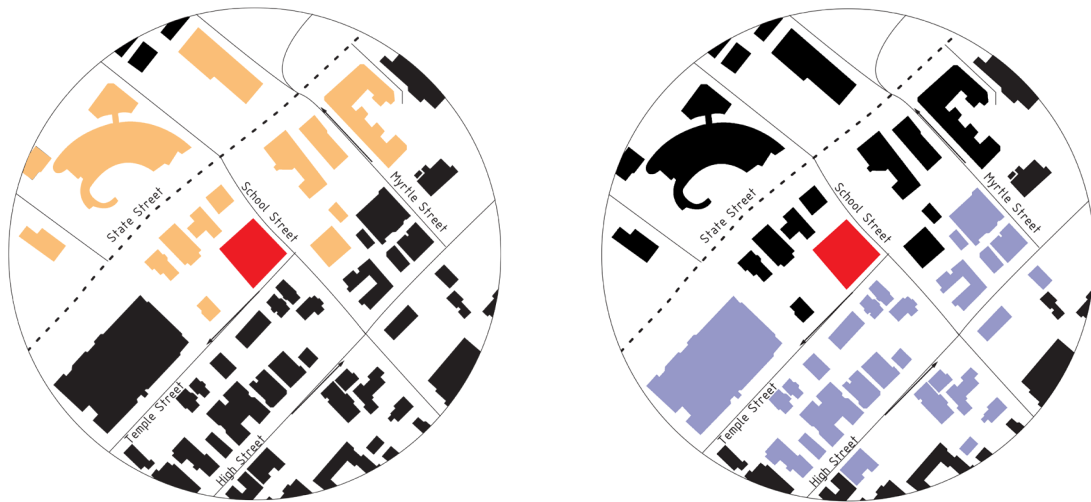


Figure 22: Site situated between commercial (yellow) and residential (blue) (Image created by

Springfield and Greater Boston.” Masslive. N.p., 29 Jan. 2014. Web. 14 Apr. 2016.



Figure 23: Site plan (Image created by author)

1. Transitional Housing Project
2. Main Entrance
3. Service Road
4. Open Pantry (food kitchen)
5. Historic Residential on Temple Street
6. ROCA (just off map to east side of School Street)

In terms of environmental conditions, Springfield is in the 5A climate zone (according to IECC classification), meaning it is generally cool and humid.⁷¹ Winters are generally cold with snow and summers are moderate (sometimes very hot and humid). In order to address both extremes, a building designed to be built in the northeast needs to be able to retain heat and use passive heating strategies in winter, but also provide opportunities for good ventilation and shading in summer.

Dominant wind patterns help to inform architectural decisions that would maximize the benefits of natural ventilation when integrated into the early phases of the design process. The wind on this site moves primarily North/South and the average wind speed is generally mild, between 5 and 8 MPH. This eventually influenced the orientation of operable windows in the building massing to optimize air flow (which is also correlated with human health and minimizes risk of Sick Building Syndrome). In addition to temperature and wind, precipitation is also an important consideration during the design process. In Springfield, there is approximately a 50% chance of rain during any given day, so the potential for collecting rainwater for use on the site is feasible. For example, the kitchen gardens that were incorporated into the design (see Chapter 8) could potentially use rainwater as part of an irrigation strategy. These environmental factors served as influential contributors to the design development as an integrative process between the site, the people, and the inter-related issues of sustainability.

71 Aksamija, Ajla. *Sustainable Facades: Design Methods for High-performance Building Envelopes*. Hoboken: John Wiley & Sons, 2013, 6.

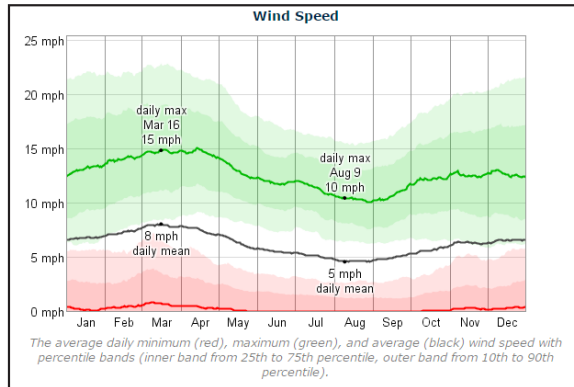
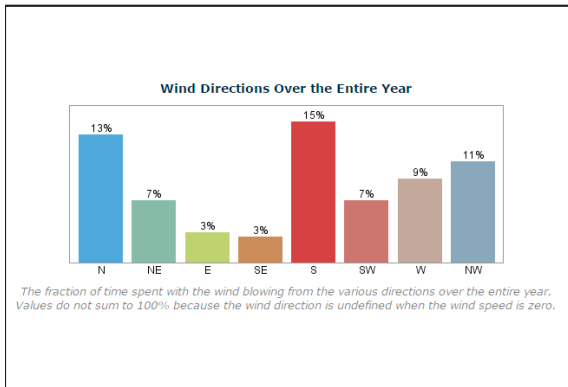
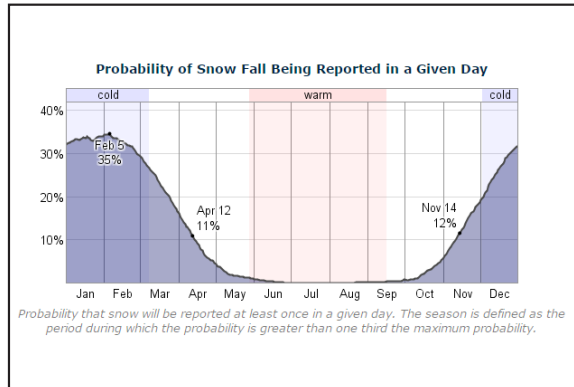
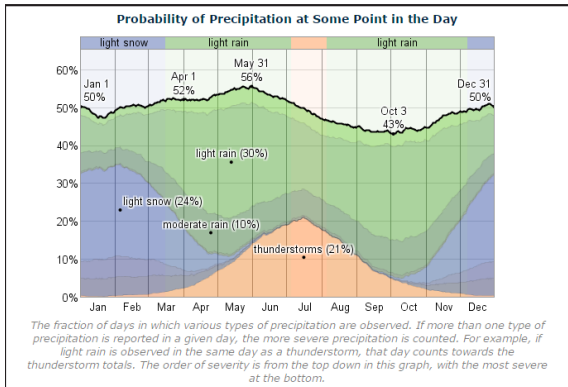
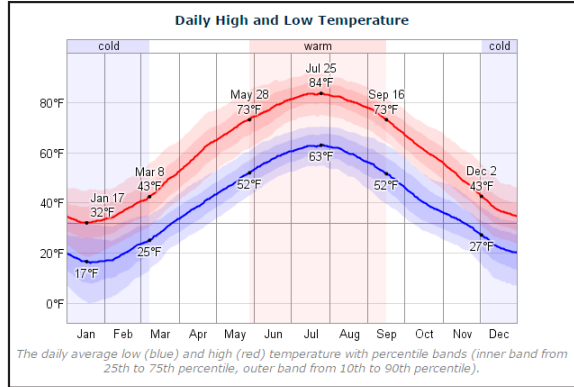
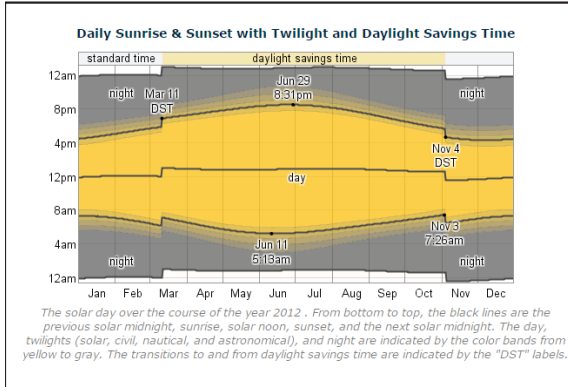


Figure 24: Springfield, MA climate conditions

Massing studies for the form of the transitional housing facility took these and other site conditions into consideration, such as surrounding building heights, pedestrian movement, and vehicular traffic approach.

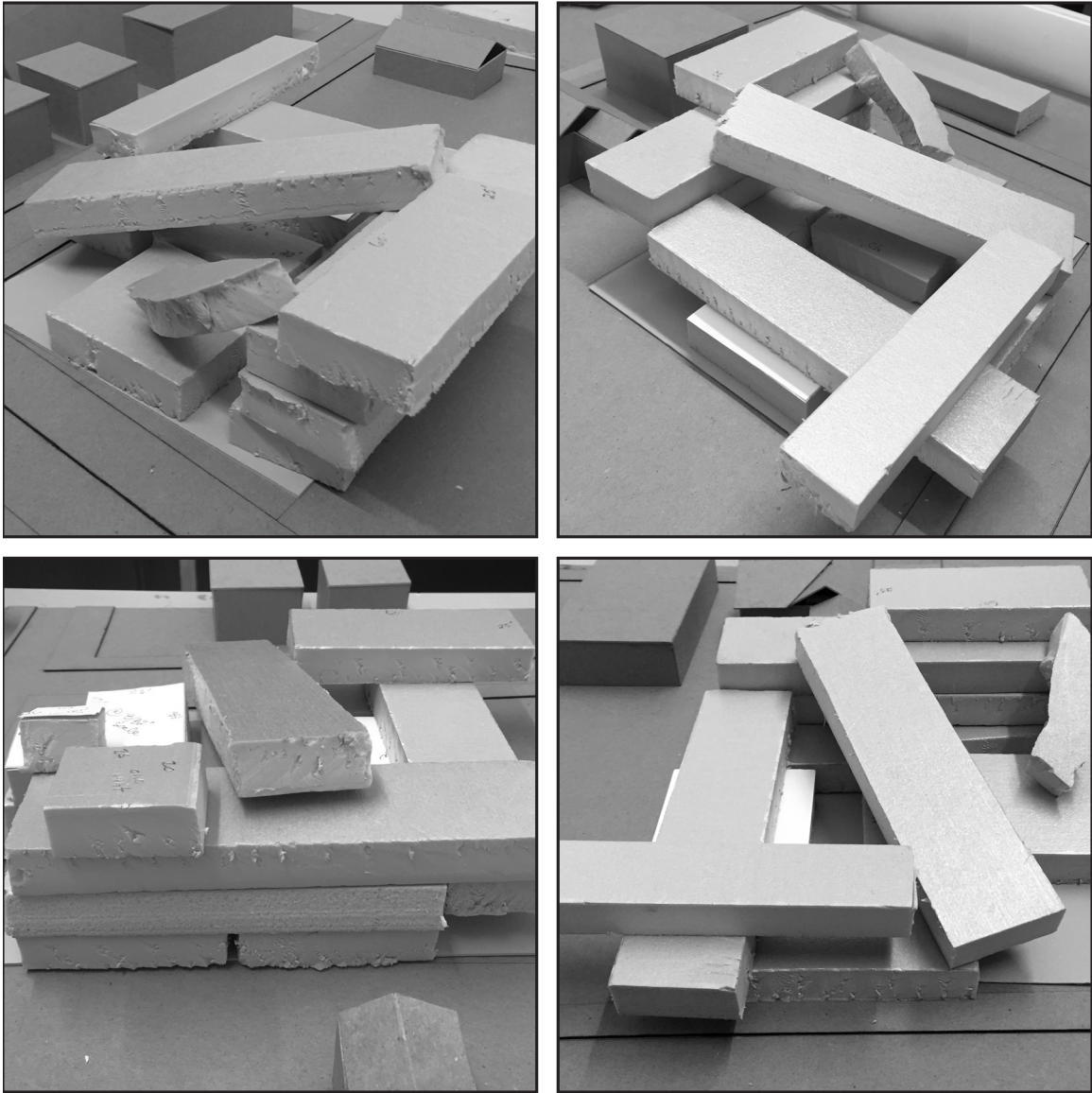


Figure 25: Early massing studies (Created and photographed by author)

The final massing was dictated by program requirements (discussed in Chapter 7) and environmental and site constraints. In order to address approach, the primary entrance to the facility is located on the southeast corner of the site at the intersection of School

and Temple Streets, in order to create a gestural connection with the residential sector of the neighborhood and provide an inviting approach from the ROCA facility. This decision was also logical because the existing conditions on the other sides of the site were already programmed with parking lots and service entrances. From State Street, the approach would still be inviting, with the more public program elements located along the School Street side of the property. In order to maximize daylight access inside the facility, the southwest portion of the massing is two stories high, while the northeast side is three. This allowed sunlight to enter the courtyard spaces on both the second and third levels of the facility. The facade is also shifted along a central massing that cuts through the main form, allowing the classrooms and counseling rooms direct southern exposure adjacent to the second level courtyard. The roofs are flat in the main massing, but shift into a slight pitch along the central building section in order to allow more light into the core of the building. A grand stair shaft also cuts through each floor plate in this central massing, further improving the opportunities for sunlight in the center of the building. Glazing is limited to use for facilitating improved passive heating and for creating intentional views and fresh air access for residents. Non-glazed facade elements are treated with wood (renewable resource) and aluminum panels, and would be well-insulated to allow to building envelope to mediate the fluctuating New England site conditions.

CHAPTER 6.
A NEW MODEL FOR THE TRANSITIONAL PHASE

Scholarly research over the past several years has brought attention back to the importance of rehabilitation, rather than mass incarceration. Roget and Roger Guy help to illuminate some of the issues that have stunted more exploration of rehabilitative methods of re-integration in their article, “Applied Sociology and Prisoner Reentry: A Primer for More Successful Reintegration”. Guy and Guy discuss a sociological consensus that suggests that “incapacitation” in prisons and jails reduces an individual’s ability to take advantage of opportunity in society. Instead of focusing on each individual offender, Guy and Guy implore that we look at the bigger picture and help to repair social capital from a more holistic neighborhood perspective. They are interested in identifying community-based solutions. They even advocate for some degree of inmate self-governance (while living in prison) as a way to restore their active participation in their futures.

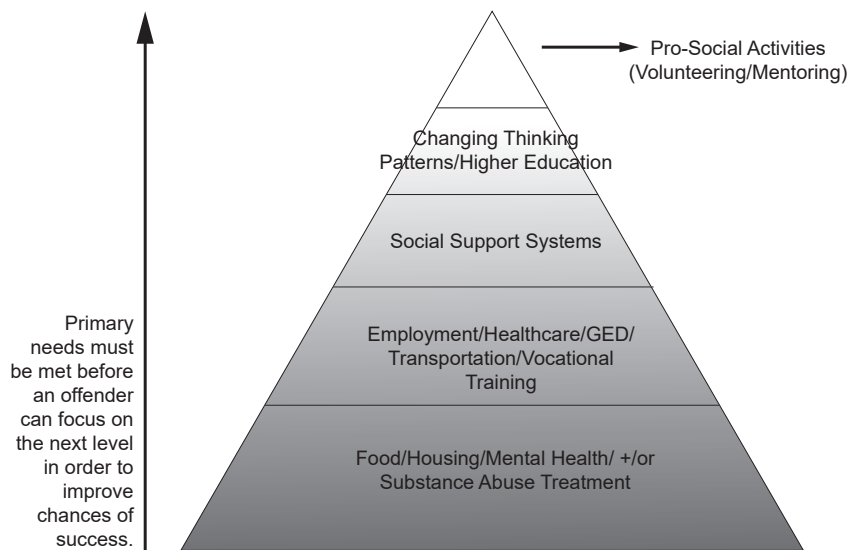


Figure 26: Hierarchy of prisoner needs (Adapted and reproduced by author)

This approach comes from an understanding of recidivism as a result of many

symptoms. Instead of looking at an at-risk individual in isolation, it is necessary to see their neighborhoods as part of the equation that contribute to cases of repeat crime. Sociologists use the term “collective efficacy” to describe a system in which informal neighborhood social controls engender trust.⁷² In this model community members are more likely to intervene to report and prevent neighborhood disruptions, reducing crime.

There are several existing models for transitional support, many of which have achieved great success. The following precedents provide a foundation for understanding the current efforts to heal the United States system of incarceration, release, and re-arrest.

6.1 Boston Reentry Initiative

The Boston Reentry Initiative (BRI), which officially began in 2001, provides a tested model for re-integration that specifically targets young male offenders. It was formed as a collaboration between local, state, federal and non-profit agencies. This community collaboration is crucial to its success and traction. With so many dedicated parties, the program is able to work with individuals while they are still incarcerated to better prepare them for the transition to the community. Originally a collaboration between the Boston Police Department and the Suffolk County Sheriff’s Department, the program provides a good example of how law enforcement needs to be part of the solution.

Like the successful parole programs of the early 20th century, the BRI provides supporting services, but also emphasizes individual responsibility and accountability. The program accepts 20 individuals each month and begins working with potential

⁷² Roget Guy and Roger Guy. “Applied Sociology and Prisoner Reentry: A Primer for More Successful Reintegration” (Journal of Applied Social Science 5.2, 2011), 44.

candidates 45 days after they are admitted to a corrections facility (in this case usually Suffolk County House of Correction). Inmates attend panel presentations that provide an overview of what prisoners can expect from the program and the likely consequences of traditional incarceration and release.⁷³ Those who choose to participate are assigned case workers from the jail staff, as well as mentors from the community (often from faith-based organizations), who together form a reentry support team. The program uses a risk assessment test similar to those used in the remaining parole programs, but which also incorporates a Transition Accountability Plan.

BRI specifically targets men between the ages of 17 and 30 with a documented history of violent crime, particularly gun and gang violence. The participant must also be planning to return to one of Boston's three highest crime neighborhoods. The program includes job training and employment programs, substance abuse and mental health treatment, financial assistance, housing assistance, transportation and educational programs.

Funding sources and program evaluation are important resources for communities looking to expand these models to new locations. The BRI receives its primary funding from the Bureau of Justice Affairs Second Chance Act grant, which provides a total of \$750,000. It also receives secondary funding from the Serious and Violent Offender Reentry Initiative, and support from several non-profit partners.⁷⁴ The collaborative model for this program is the reason for its success as it (like many other existing programs) relies primarily on grant funding. Data analysis of the program is an important

73 "Overview of the Boston Reentry Initiative (BRI)." Endhomelessness.org. National Alliance to End Homelessness, n.d. Web.

74 "Overview of the Boston Reentry Initiative."

part of its continued longevity as well. In order to continue to expand such models, the broader community needs to see actual figures to indicate program success in terms of cost savings and community crime reduction. A study conducted in 2008 (Braga, Piehl, and Hureau) found that BRI-participants were 30 percent less likely to be re-arrested for a violent crime even after three years.⁷⁵

The BRI is a successful model for many reasons. First, it provides a working, integrated, community solution that involves law enforcement, local agencies and the offenders themselves in a participatory process. It is also an important model because it targets the highest risk, most violent offenders. This is in contrast with existing parole programs that tend to provide services to those who (statistically) are the least likely to violate the terms of their probation. Instead, the BRI is addressing the problems that other programs won't, and have successfully proven that they can make a difference in the lives of the most dangerous offenders, through a process that is grounded in rehabilitation. In turn, they are able to make a difference for their communities, reducing crime, homelessness, health epidemics and other consequences of the prison population.

6.2 FUSE

In addition to programs like the Boston Reentry Initiative, which specifically targets inmates and provides a working model for their transition through prison and into society, there are other successful programs working on a broader scale to provide housing to the homeless community. These efforts are also often dealing with individuals who are involved in a cycle of crime and incarceration, or visits to the emergency room.

⁷⁵ The Corporation for Supportive Housing started a permanent supportive housing
“Overview of the Boston Reentry Initiative.”

program called Frequent Users System Engagement (FUSE) as part of their Returning Home initiative. According to their website, this program aims to reduce a cycle of homelessness and criminal justice involvement through supportive housing:

CSH's Returning Home Initiative is based on the premise that supportive housing helps the thousands of people across the country trapped in a cycle of homelessness and criminal justice involvement. This subset of men and women often has chronic health conditions, including mental illness, substance use and other persistent health challenges and communities spend taxpayer dollars on services that bounce people between shelters, hospitals, jails and prisons—with limited positive human outcomes.⁷⁶

A January 2016 article published in the Atlantic, titled, “How to end Homelessness in New York City,” discusses how NYC mayor Bill de Blasio is buying into CSH's model to reduce homelessness and associated social and economic costs. He has pledged to add 15,000 units of supportive housing over the next 15 years (1,000 units in the next year) to end homelessness in New York City.⁷⁷ The mayor also explained that dedicated units would be specifically set aside for the homeless contingent that frequents the jails, health facilities and shelters.

The program might seem expensive, however, Alana Semuels, author of the Atlantic article, points out the proven benefits of such an approach. In one particular case study of Brooklyn Community Housing and Services (BCHS), a part of the FUSE initiative, the program saved \$15,000 per participant in reduced jail time and reduced costs for inpatient- and crisis-health services. The program reduced costs associated with the average chronically homeless person in New York City by 76 percent, from \$38,351

⁷⁶ “Returning Home Initiative.” CSH. Corporation for Supportive Housing (CSH), n.d. Web. 14 Apr. 2016.

⁷⁷ Alana Semuels. “How to End Homelessness in New York City.” The Atlantic. (Atlantic Media Company, 4 Jan. 2016), 3.

spent over two years in shelter and jails to \$9,143.⁷⁸ BCHS, as an off-shoot of the national CSH program, used data to identify which target individuals would have the greatest positive impact on the community when placed in supportive housing. Initial participants were admitted if they had at least four jail and four shelter stays in the five years prior to program participation.⁷⁹ Like the Boston Reentry Initiative, FUSE focused on the people who might seem the most unlikely to achieve success, those with debilitating substance abuse or mental health problems. Semuels argued that it worked because it provided a stable home base and access to case workers with no “ultimatums.”⁸⁰

Financial savings are not the only benefit of the FUSE model. Just as importantly, it provides stability for people who have lived a life of uncertainty, poor health, and crime. A follow-up study showed that 91 percent of FUSE participants were still housed in permanent housing after one year (compared with 28% in a comparison group) and were also incarcerated for 19 fewer days. Frequent drug use had decreased to half as many cases as the control population. The FUSE model also had a positive influence on health and results indicated that participants spent half as much time hospitalized for psychiatric reasons and had half as many ambulance rides.⁸¹ This data is critical to demonstrate the positive program outcomes and provide measures for further developing similar future efforts.

6.3 Adapting an Iterative Model

Guy and Guy’s holistic community approach and an understanding of the successes and failures of precedents for re-integration were important to the design

78 Semuels, “How to End Homelessness in New York City,” 4.

79 Ibid., 5.

80 Ibid., 6.

81 Ibid., 5.

development of this thesis. However, this project is unique in that it uses an integrated model where the architecture serves to bring together collective efforts for reentry under one roof. In addition to providing a physical architectural model, this project hopefully achieves a “social architecture” that engenders connectivity and contributes to building a community level solution to a problem. Such a collective approach would address individual needs through a model that relies on key groups to work cohesively towards a common goal. The system would employ staff (contributing to job creation) who would act as the formal control and support, with positions that would be responsible for checking in (and out) guests and residents, and others who would act as mentors and informal teachers, in the kitchen to train residents in food service, for example. Still other formal teachers and counselors would be resources to the residential community to help them address issues of substance abuse, or build skill sets that might pertain to future career paths.

In addition to employing staff, the facility would also function on a system of community engagement within the residential group. The timeline for progression through the facility helped to determine three groups of residents who progress through three phases that represent different stages in the rehabilitation and reentry process. Each group is situated around its own distinct community space, with corresponding degrees of mobility and responsibility.

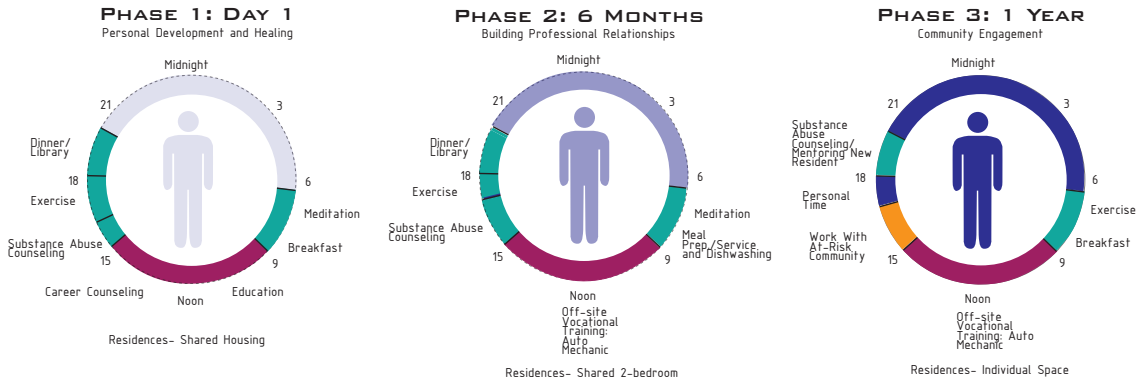


Figure 27: A day in the life of a resident, progression timeline (Created by author)

Figure 28 provides a sample day in the life of a resident during each phase. In phase one, residents are focused on identifying career interests, building social capital, and addressing health issues, such as addiction. During this phase they spend the majority of their time inside the facility, with a shared bedroom where they each have some personal space for their belongings. They participate in community meals in the dining room and share a community space where they have access to a small kitchenette and tables and couches where they can spend time with their fellow residents. In addition to their indoor community space, they also have a designated outdoor courtyard, which provides the opportunity for fresh air “inside” the facility.

Phase two begins after the first six months, when new residents have gotten settled and formed social connections with other residents. Phase two residents move into units where they have their own bedroom, but still participate in the shared dining experience. At this point, they might work to prepare meals and supervise other residents in one of the on-site workshops, or they might have a work agreement that they maintain outside the facility.

After one full year residents move into phase three housing. As noted earlier, recidivism reduces significantly when an individual has stable housing for over one year. For this reason, residents in phase three can choose to remain in the facility. During this phase they are granted the greatest degree of freedom, but also have the greatest responsibility. They live in individual units with direct access to the street, and can come and go as they please. In order to move into phase three, residents must demonstrate growth and success through the other two phases. They must hold steady employment off-site and serve as mentors for new residents. They might also work with at-risk individuals in the community outside the facility, such as youth from ROCA.

This model was developed in response to research including Guy and Guy's findings that suggest there is great value in creating a system of accountability that mobilizes residents to care about and engage within a community group. It is also a system premised on reward, rather than punishment. This holistic approach creates an inclusive community where residents can define and pursue personal goals as part of a supportive cohort of peers and facilitators.

CHAPTER 7. DESIGN APPROACH/METHODOLOGY/PROGRAM

In order to address reintegration in depth, this project focuses on a specific population of reentry subjects. The clients are middle-aged men who have been incarcerated. Although women's reintegration is of equal importance, this project focuses on reducing recidivism for a population that could have the greatest impact to reduce the prison population (men account for the greatest percentage of the incarcerated population) and reduce future crime in our communities (a greater percentage of violent crimes are committed by men than women).

The architectural language of the building developed in part as a response to the social program that grew from the research for this project and in part in response to the needs of each group of users in the space. Each decision needed to answer two initial questions: Who is this space serving? and How is it addressing a need identified during the research phase for this project? This approach manifested required sequences of movement for the three residential communities, as well as a directive for how the residential spaces could relate with the public realm of the building. The necessary spatial relationships ultimately needed to contribute to and foster positive community development and individual growth as a result of residents' participation in a dynamic, integrated community.

7.1 Defining Program Needs

The architectural program developed in response to an analysis of population needs grounded in initial research of the prison population. Needs were assessed and broken down into five primary categories: housing, employment (and education), social

capital, reliable transportation, and physical and mental health services.

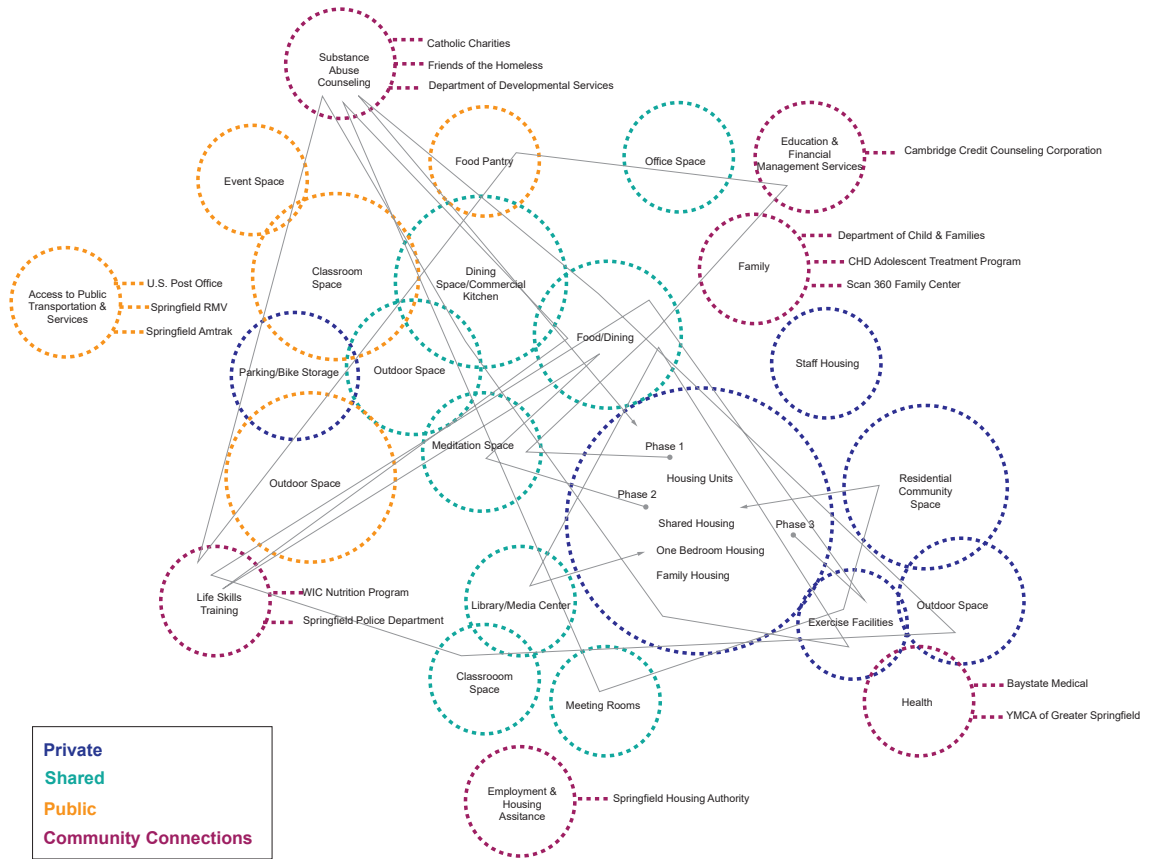


Figure 28: Making connections: Initial spatial relationships exploration (Created by author)

Housing was the first need, and residential areas evolved in the architectural program to respond to the three residential phases (discussed in previous chapter). Residents in the first phase have the most secure units. Spatially, they are located on the third level in 4-person units. Each person has some personal space, but the majority of activities take place as part of the group. Meals are shared and there is no in-unit kitchen. However, the common room, which they always have access to, has a kitchenette, where residents can use a microwave, fridge and small cook top. The program is based on a

positive system of reward for accomplishments, helping to instill responsibility and pride.

Phase two residents move into units on the second level of the facility. Here, they have their own bedroom and share the common spaces of their units with one roommate. Phase two residents still participate in the shared dining experience, but have a kitchenette in their units as well. Centrally located, they are less secluded from activities of the common spaces, and live on the same level as the classrooms and library, where they would be working to build skill sets and identify career goals. In phase two, residents still use the main lobby entrance and check in at the front desk. They have access to the large second level courtyard and are adjusted in the facility to act as a resource for new residents.

Residents in the second phase might also work in the kitchen prepping meals and learning service skills or dish washing (discussed in previous chapter). Residents who have graduated to phase three have their own unit on the street level. This is the transitional period just before they might be able to move on and find their own permanent housing. They have created social bonds within the residential community and with others outside the project, they have identified skills and held steady jobs for 6 months to a year, and they have participated in healing programs for issues such as substance abuse. Phase three residents have units with their own private entry and full working kitchen. Most are individual units, but there is one unit programmed with a spare bedroom so that a resident's family could potentially join them there too. Although they have the most freedom in this phase, they also have the greatest level of responsibility. Residents must be able to purchase their own food with the money they earn at their off-site jobs, prepare it and take care of a household. They must also work with phase one and

two residents as mentors, and provide mentor services for at-risk community members as well. Phase three residents might also host workshops or share their experiences in the public lecture space. They might become supervisors in the kitchen or work shifts in the bicycle repair shop.

This sequential spatial progression through the facility is an important part of residents' recovery and rehabilitation. The architecture is meant to protect and guide them through each stage and act as support for the program at each phase.



Figure 29: Apartment Plans: Phase 1, 2, 3 from left to right (Image created by author)

A successful housing program was about more than a roof and a bed. Research has shown that community development and involvement are crucial to successful healing and re-integration. Programmed community spaces reflect this need. A shared dining space, outdoor courtyards, and residential community rooms offer opportunities for residents to meet and share meals together, or watch a movie or play pool. As their space, the community rooms serve as multi-function rooms where residents might

coordinate residential community events. The spaces are meant to facilitate community engagement and residential interaction.

To address education and employment, there are classroom flex spaces that can double as meeting rooms. A double height library with books and computer stations, as well as gathering tables and comfortable informal seating areas is located on the second level. There are also workshops where residents might learn construction skills, metal work, or other trades. The outdoor courtyards are multi-functional as well, and can potentially serve as outdoor learning classrooms, where inmates might gain skills in agricultural food production, tending raised vegetable gardens that provide food for the kitchen.

Healing, both physical and mental, is central to successful re-integration for inmates. As discussed earlier, many suffer from health issues ranging from substance abuse to depression, to physical disease. Low education levels and little access to services often contribute to offenders' exacerbated conditions. The architectural program for this facility creates spaces to address these concerns. There is a physical education center with gym equipment where residents can participate in fitness classes. The fitness space includes a large multi-purpose meditation or fitness class space with access to a designated outdoor deck for private reflection and fresh air access. The fitness center would also house trivial nursing services on-site (the building site is also located in walking distance to Baystate Medical Center). In addition to spaces that facilitate good physical health habits, the building also has spaces programmed for counseling, which are intended to provide privacy and a comfortable atmosphere, with views to the outside that bring in southern sun light.

Finally, access to transportation is critical to released inmates' autonomy. Site selection for this project was part of the design solution to address issues of transportation. Figure 19 in Chapter 5 shows the surrounding businesses and bus stops adjacent to the site. In addition to existing transportation infrastructure, this project also has a bike repair shop and storage area at level one, for residents who own bicycles. This space serves multiple functions, including providing a street level public interface and another skills training space for residents to learn bike mechanics and work in the shop.

In addition to providing spaces specifically for residents' needs, the public interface is critical to developing and fostering positive partnerships with the community and local organizations. Public spaces are located on the first level and the formal building interaction with the street was important to the development of an aesthetic. A lobby (also the primary residential entrance) is situated at the intersection of School and Temple Streets and leads into a sequence of spaces on the first level, including the office spaces, family and guest dining room, workshop spaces, and a large event space. A guest visiting the facility to attend a talk by a phase three resident, or participate in a workshop or food drive hosted by the residents, would be able to check in with the front lobby monitor and be readily directed to the appropriate space.

7.2 Formalizing Spatial Relationships

The form began as a response to the needs of the residential community and its subsets, dictated by the three phases for residents' progression through the facility. Initially, the conceptual goals were born from the idea of creating a building that would help the residents grow from the inside out, to mimic their personal growth and healing.

Initial massing studies used circular forms (figure 31A) to represent the holistic outward growth of the individual. Residential community spaces were centrally located to act as a hub that would orient residents and bring them together in joint experiences. Residential spaces were located on the building perimeter to ensure daylight access and views in each residential unit. Conceptually, such a massing would allow an “inside out” progression towards self-realization in the community outside the transitional housing project. As actual square footages adjusted the proximities of programmed space, the form shifted towards a more realistic expression of the goals embodied in the circular form.

In figure 31B, the residential spaces remained oriented to the perimeter of the building, with distinct community space still located at the center of the form, and public spaces on the first level. This massing provided the opportunity to test program configuration. It served as an intermediate exploration in program development before returning to the massing from a more spatial perspective.

The final massing (figure 31C) further clarified spatial relationships according to the original model, while also addressing major massing decisions from an aesthetic perspective. This massing demonstrates how the phases of residential units were physically re-organized, with phase one residential units on the third level, phase two residential units and community program on the second level, and phase three residential units on the street, with private access that responds to the residential neighborhood adjacent to the project on Temple Street. The original conceptual massing remains embedded in the final spatial realization, but was re-arranged to develop an architectural language that would further direct nuances of interior and exterior design decisions.

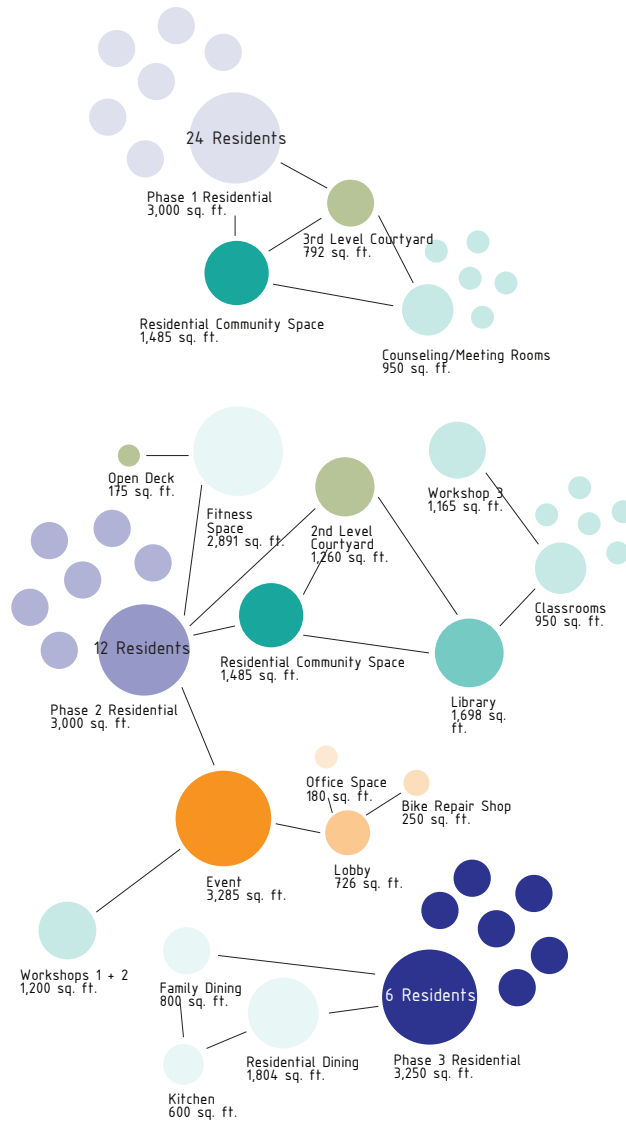


Figure 30: Final program diagram (Image created by author)

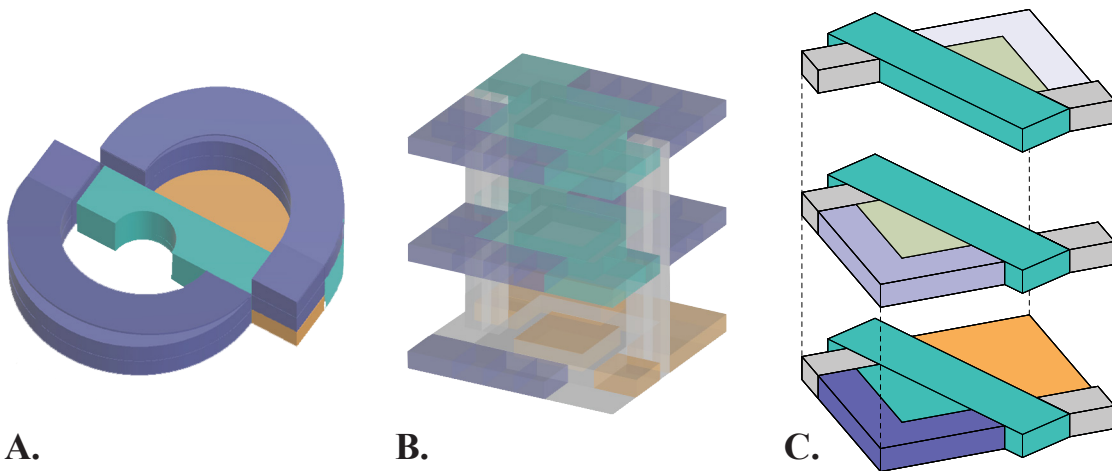
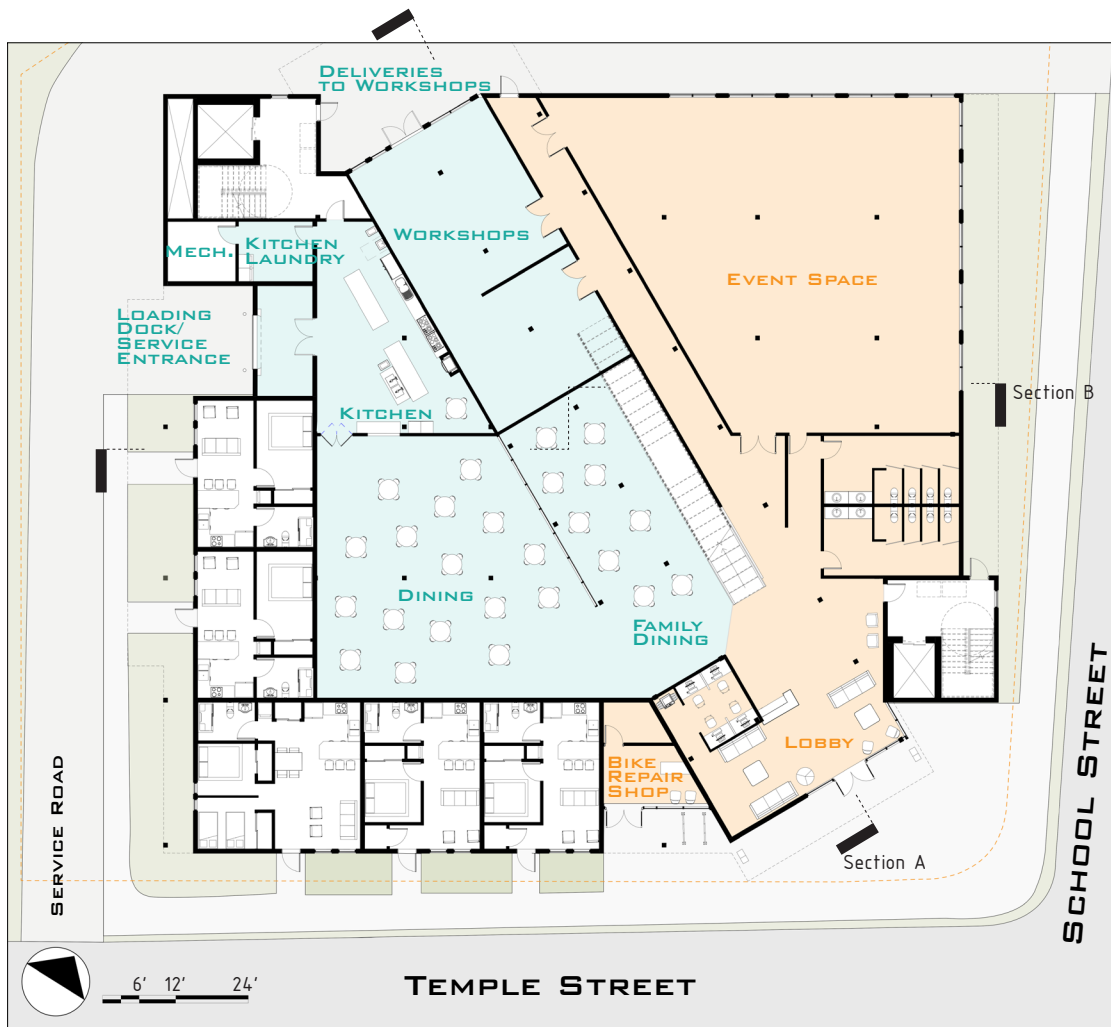


Figure 31: “Inside-Out” process: Developing mass from programmatic needs (Images created by



LEVEL 1 PLAN

Figure 32: Level 1 plan (Image created by author)

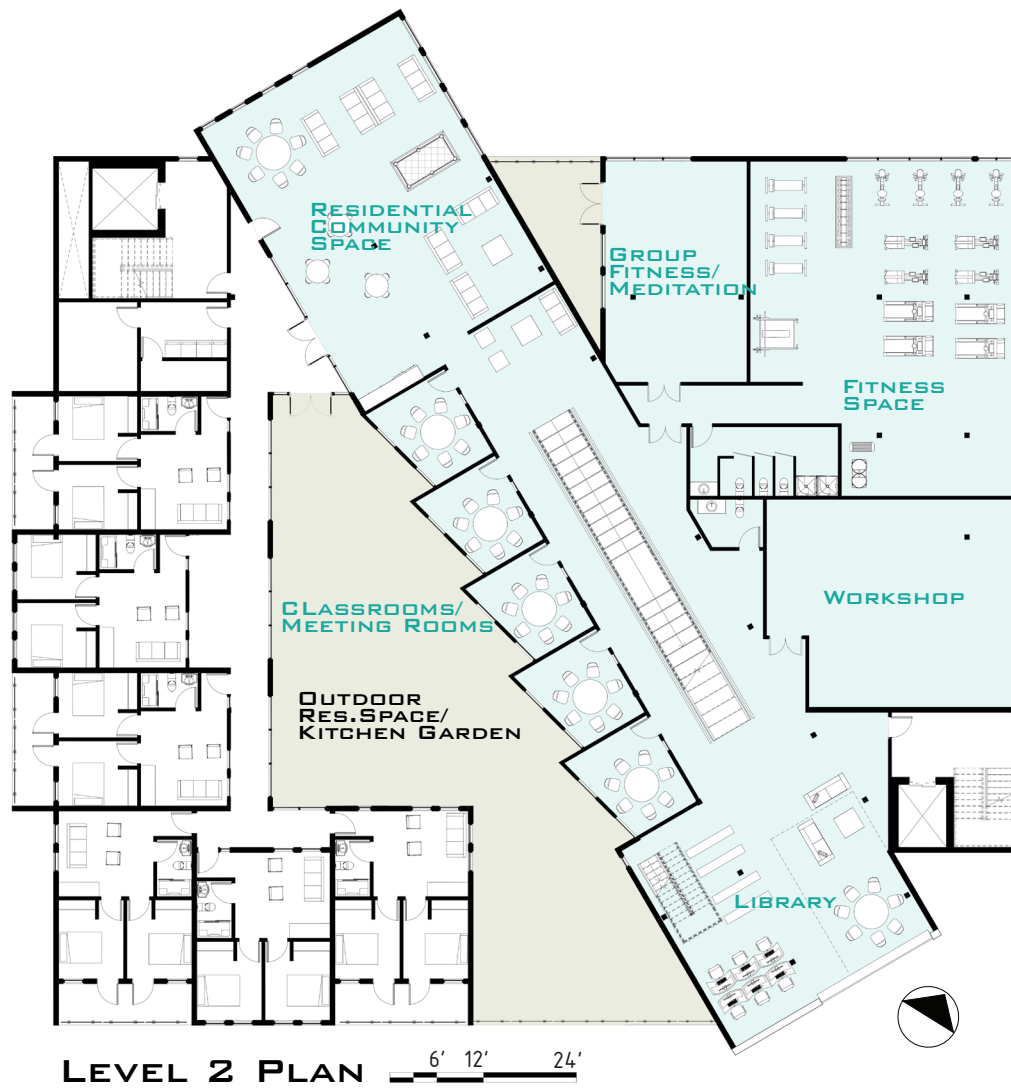


Figure 33: Level 2 plan (Image created by author)

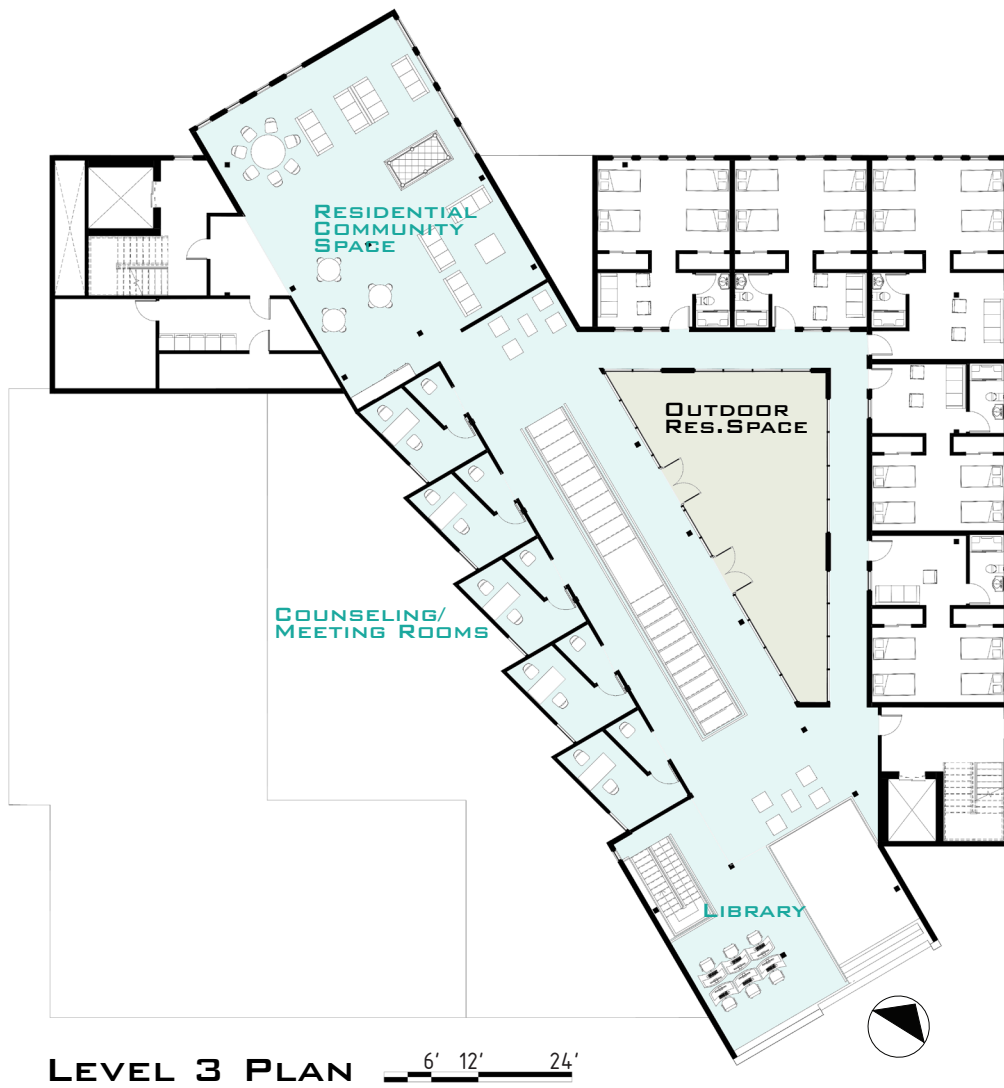


Figure 34: Level 3 plan (Image created by author)

Programmatically, the central form that cuts through the main building massing houses the shared program elements: classrooms, counseling offices and meeting rooms, a two story library and media center where residents would have access to the internet, workshops, a fitness and wellness center and circulation space. A dramatic stair brings the residents up to the second and third levels, acting as an architectural element that unifies the space and brings the community together in an open, central, experiential movement.

As the program and massing studies developed simultaneously, circulation patterns played a guiding role in dictating formal spatial organization. Security, access, and thoughtful separation and integration of public and private space were important considerations.

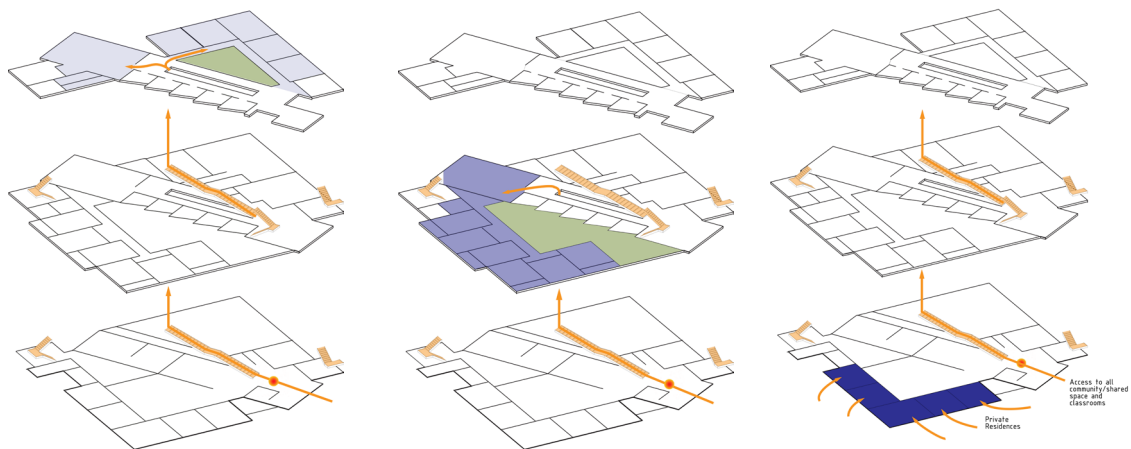


Figure 35: Circulation patterns for each residential population (Images created by author)

Public spaces are located on the first level, separated from the residential communities. A resident who enters the lobby, can check in with the monitor and ascend the grand central stair to the residential units on the upper levels, or any of the connected

community spaces. The stair acts as the unifying element and symbolically represents the pathway out of the facility as the healing process progresses. Residents also have access to practical stair cores and elevators located on diagonal corners of the building, one adjacent to the lobby and one adjacent to the service entrance on the northwest corner of the facility. These would be available for use during move-in and to move any equipment to the upper levels. They would also be used by physically handicapped residents or as egress in the event of an emergency.

7.3 Passive Design Strategies & Facade Treatment

Program needs dictated spatial proximities by use type, but site conditions and sustainable design strategies were equally important to formal development of the project. The massing models (see figure 25, Chapter 5) helped to address site conditions, such as pedestrian approach and spatial organization for maximum daylight potential. The form developed with two stories on the southern side of the massing in order to allow sunlight into the second level courtyard, with three stories along the School Street facade.

The diagonal massing that cuts through the main form programatically houses community spaces and circulation. However, its design development was informed by environmental conditions as well. The roof is angled gradually upwards from the building entrance, with clerestory windows under the eaves that serve to bring daylight into the core of the project. The grand stair provides a break in the floor plate that supports daylight penetration as well. In addition to daylighting strategies, the project would also include operable windows under the eaves to take advantage of the stack effect and promote natural ventilation.

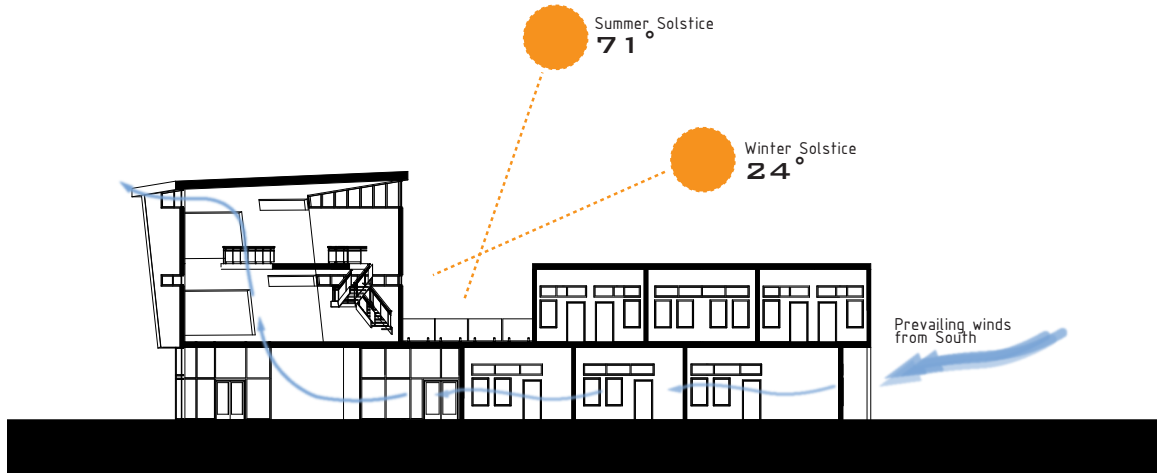


Figure 36: 2nd level courtyard: Winter and summer solar exposure (Image created by author)

Glazing is limited to creating specific views, creating connections with the street, or to bring in daylight. Residences all have operable windows to help provide natural ventilation and personal control of the interior environment. Public faces of the building utilize a glazing pattern that meaningfully resonates with the corresponding interior space use. For example, the library has large panels of glazing facing the approach to the front entrance on the southeast corner of the building, but the computer area intentionally has no glazing to help address potential issues of glare. In contrast, smaller, more intimate spaces, such as the counseling rooms on the third level, have tall, slender windows that bring in southern light and provide passive heating in the winter, but are strategically placed in the view pathway from the door to the room so that the meeting area around the corner is hidden from view from the outside. By maximizing the potential for natural daylight, the design minimizes the need for electric lighting during daylight hours, contributing to a reduced energy footprint for the facility.



Figure 37: NE building elevation: School street (Image created by author)

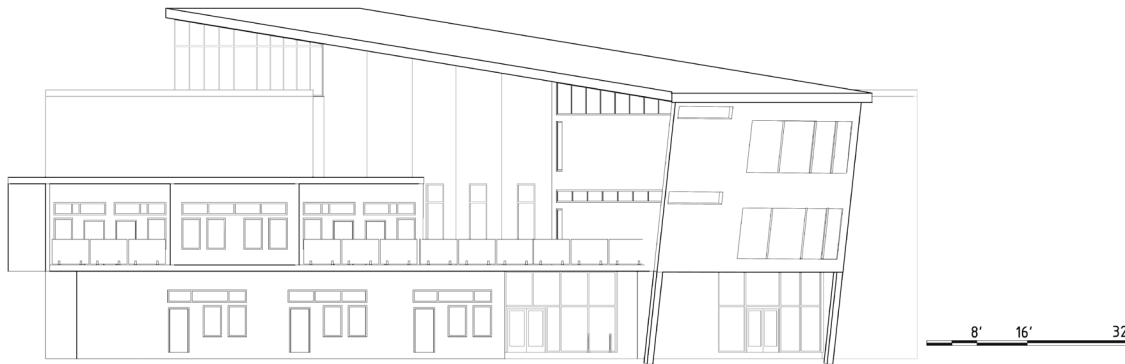


Figure 38: SE building elevation: Temple street (Image created by author)

Material choices were deliberate and intended to highlight formal elements of the building. The diagonal massing would be clad in vertical wood siding and the surrounding massing would be clad in aluminum panels. The wood was chosen for several reasons. First, it would help to bring the building into a dialogue with the smaller scale residential units across Temple Street, as well as with the traditional wood clad New England style buildings (previously residential) that house some of the businesses between the project site and State Street. Wood is also an environmentally viable option and would create a comforting aesthetic for residents. The aluminum panels covering the rest of the exterior would be arranged to highlight the circulation cores and horizontal massings with shifts in material orientation. They also help to connect the building

visually with the public program elements and the commercial buildings on State Street.

Due to the relatively small lot size, the proposed building essentially fills the space, with limited landscaping opportunities. Several trees exist around the site, and the project proposal would include the introduction of additional small native tree species, at the human scale of the sidewalk, that could be planted alongside the service road and in between the site and the parking lot of the food pantry (Open Pantry) on the northeast side of the site. Permeable hardscape would be used at the building entrance to create a physical connection with the existing sidewalk and the street corner.

7.4 Healing Components as Design Drivers

The design resolution aims to address formal spatial considerations and the physical manifestation of social program, while also introducing “healing system components” and responding to environmental and site conditions in a thoughtful and efficient way. As a result of the neuroscience research discussed in chapter 2 (see figure 4, Chapter 2), design development was critically influenced by the components which could have a positive effect on healing and productivity outcomes, or peace of mind.

Several design factors influenced the formal development. Scale is one of the ways that people process experience of place. Human perception of scale can be used to create a sense of welcome, a monumental entrance can create a grandiose experience, or a cozy reading nook can instill a sense of calm. The approach to this facility developed with these things in mind. The front entrance of the lobby employs curtain wall glazing to create visual connections with the street. The entrance is set back, providing a covered transitional space between the sidewalk and the building. Overhead, the double height

library facade is mostly solid with two large curtain wall sections that provide the guest at street level with a visual connection to the building activity of the upper levels. The form also projects outward as it rises vertically, in order to add to the sense of comfort and enclosure at the building entrance.



Figure 39: Approach to lobby (Rendering by author)

In addition to scale, a connection between indoor architectural spaces and “nature” outside has been well documented as beneficial to building inhabitants. The courtyard spaces and glazing are optimized in the design for this purpose. Since security was an important consideration throughout the design process, courtyards serve as a solution to provide residents with the freedom to spend time outside, while still within the confines of the project. The kitchen garden also provides a venue for interaction with nature as a healing activity and learning opportunity for residents.



Figure 40: Second level rendering of kitchen gardens (Rendering produced by author)

Personalization was important to design development as well. For inmate reentry, support to help individuals regain a sense of self-worth and responsibility is one of the most critical efforts. Experts (see Chapter 2) have found that giving residents editable environments grants them an outlet to develop creativity and establish a sense of stewardship and pride in the space. The flexible nature of classrooms, community spaces, and residential units provides the opportunity to re-arrange furniture and gives residents the opportunity to take ownership of the space.

Daylighting was critical to design development for sustainable design concerns as well as human experience of space. Natural lighting has been proven an important element to improve the healing environment (for example, Aalto's Paimo Sanitorium, Chapter 2). As discussed in the previous section, the facade was developed to provide natural lighting to the entire facility. Public interior spaces were left relatively open to the circulation paths at the core of the building in order to allow light to filter in from the

exterior and from clerestory windows overhead. The library, for example, is inserted in the southeast end of the diagonal massing, and uses smaller intimate group work spaces and reading areas to informally divide the space. With no solid floor to ceiling walls between the library and the central stair and circulation to classrooms and workshops, daylight is maximized in the space (see figure 41).



Figure 41: Rendering of library at 1 pm (Rendering produced by author)

These examples demonstrate how neuroscience played a role in contributing to the design development. Architects have long been thoughtful about the design choices they make and how those decisions will influence human experience of space. However, neuroscience provides an exciting field of data to prove the successes and failures of design outcomes. As research in this field continues to expand, architects will increasingly be held accountable for the outcomes of design and can help to drive real changes in human health, happiness, and productivity.

CHAPTER 8. CONCLUSION

This project serves as an exploration in human-centered design and employs architecture to provide one potential solution to address human healing and productivity, as well as personal and community development. The national epidemic of failures in the corrections system provided a case study to explore the intersection between social program, human perception and the potential of architecture as a mediator of experience.

Design development required an integrated process that could serve as a model for how to address the challenges of the incarcerated population after prison. Although many programs are returning to a rehabilitative approach and gaining traction across the country, they are still few and far between. Continued evaluation and reporting will be necessary to prove the viability of a given test case to truly address and ameliorate the challenges we currently face.

This is also an exciting venue to explore architecture's potential to play a valuable role in human outcomes (discussed in Chapter 7). Looking to the future, this project could further explore resident experience and the specific living arrangements with the most successful outcomes. Critics of this project also addressed areas that could be further developed in the design to increase the community interface of the building. For example, the event space could be further developed with smaller spaces at the street level (on School Street) to activate the pedestrian corridor with retail or other shops (like the bike shop programmed on Temple Street) that would provide further on-site employment and skills development opportunities for residents.

As a working model, the primary goal of this project was to bring attention to the

potential power architecture can have to influence human experience. Buildings, as places that we interact with daily, necessarily play a mediating role in our experiences. With an integrated, collaborative, and informed design approach that restores accountability in design, architecture can become a powerful tool to mediate experience. It might even provide specific, directed solutions to repair the interconnected web of broader social, economic and environmental issues that contribute to unhealthy people and places.

APPENDIX A. PRESENTATION BOARDS

The following are images of the Thesis Defense boards that were presented on April 1, 2016. The actual dimensions are 36”x60”.

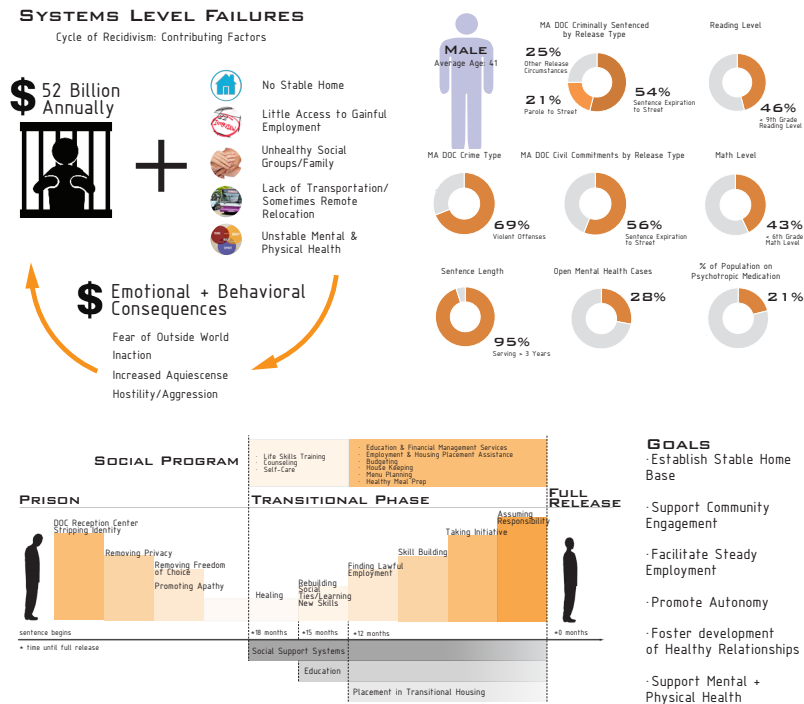


Figure 42: Board 1 (Produced by author)

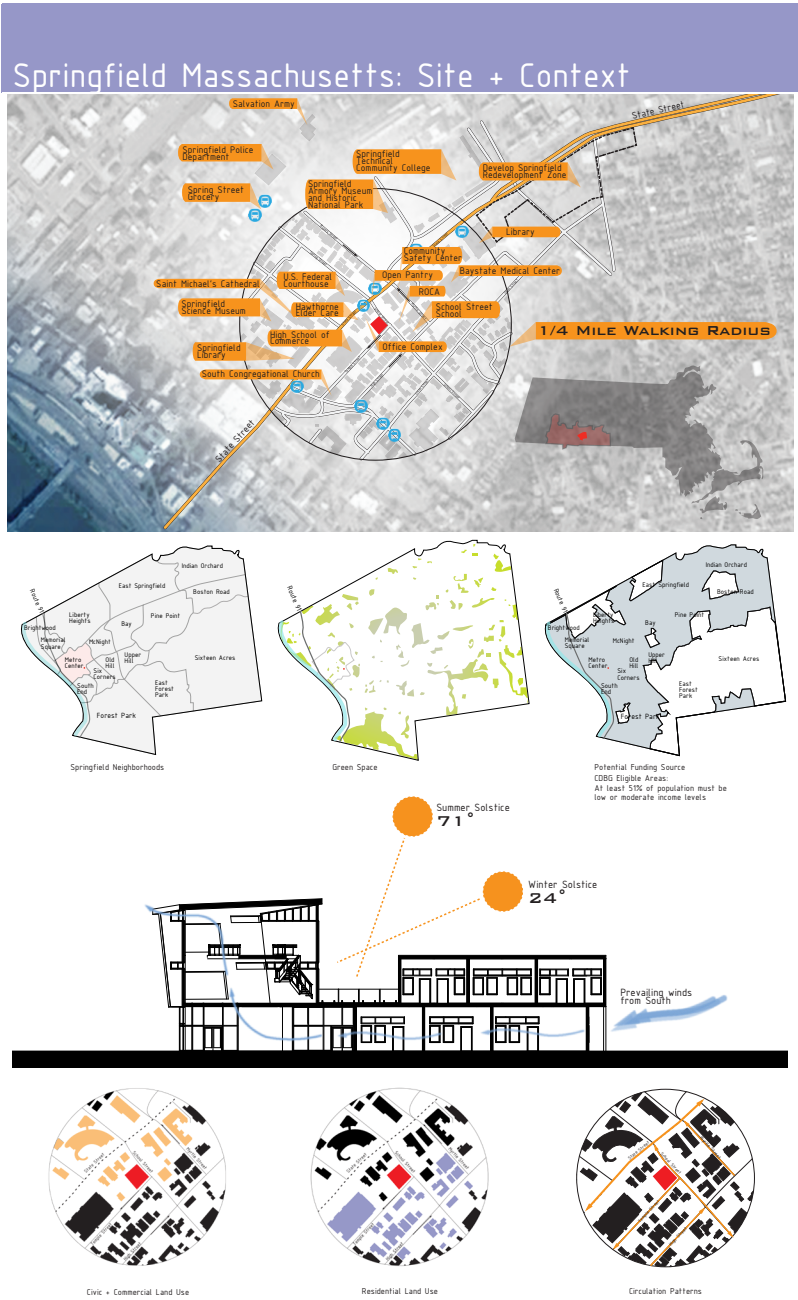
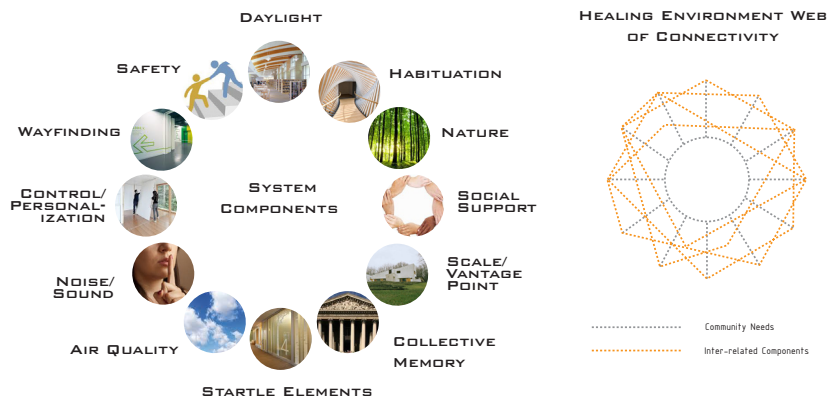


Figure 43: Board 2 (Produced by author)

Neuroscience: An Architectural Response



LEVEL 2 LIBRARY

Figure 44: Board 3 (Produced by author)

Integrated Development of Form + Program

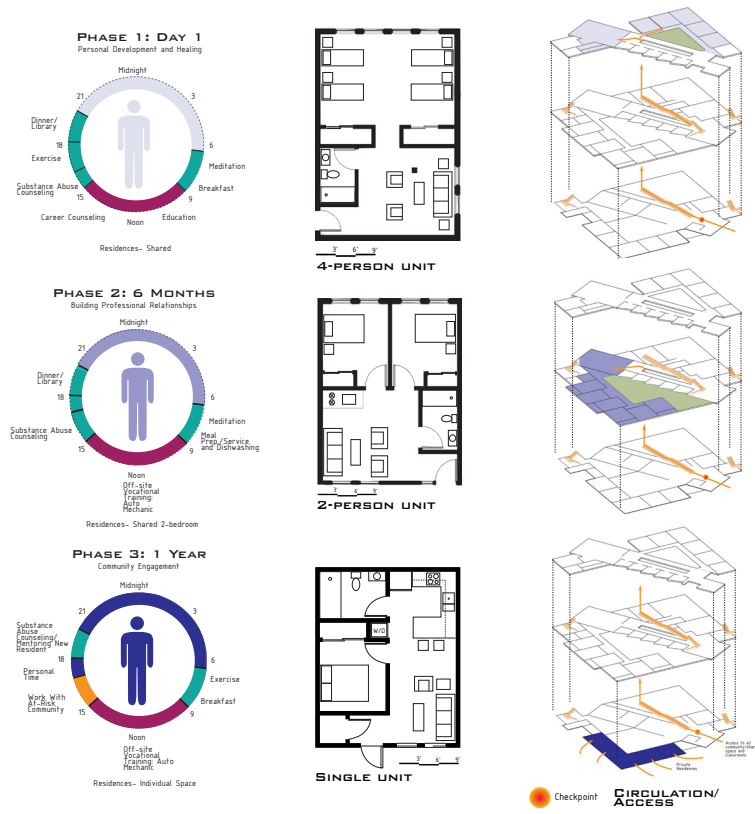
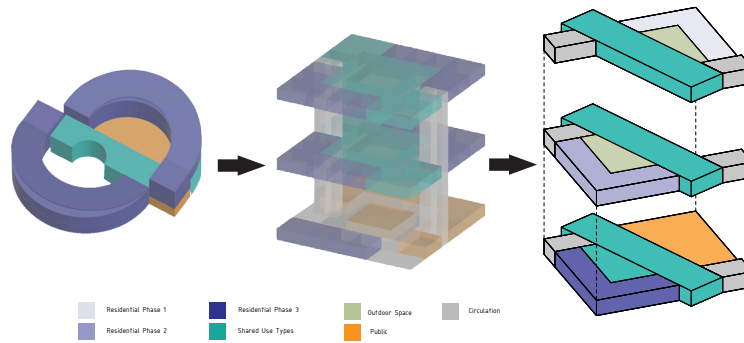


Figure 45: Board 4 (Produced by author)

Spatial Realization

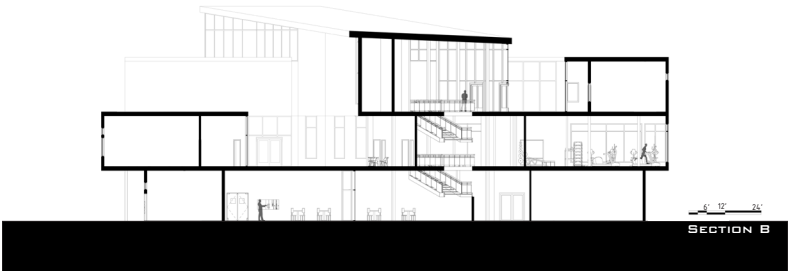
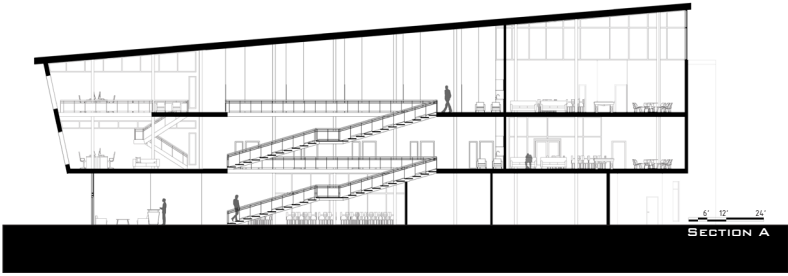
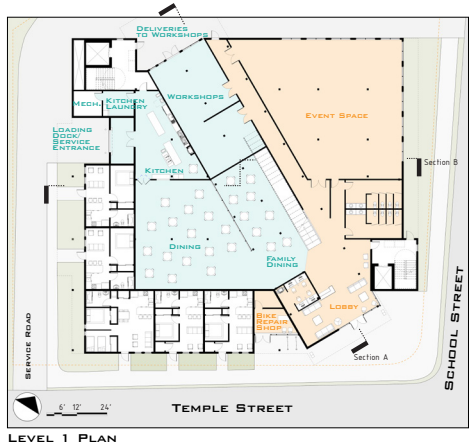
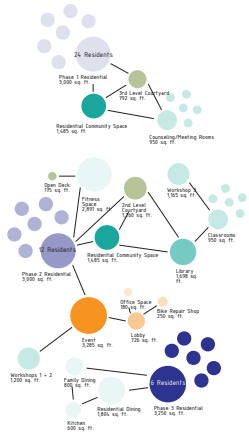


Figure 46: Board 5 (Produced by author)



LEVEL 2 COURTYARD/KITCHEN GARDEN



Figure 47: Board 6 (Produced by author)

APPENDIX B.
PHYSICAL MODEL

The following are photographs of the physical model taken by author.



Figure 48: Approach view from above (Model built and photographed by author)

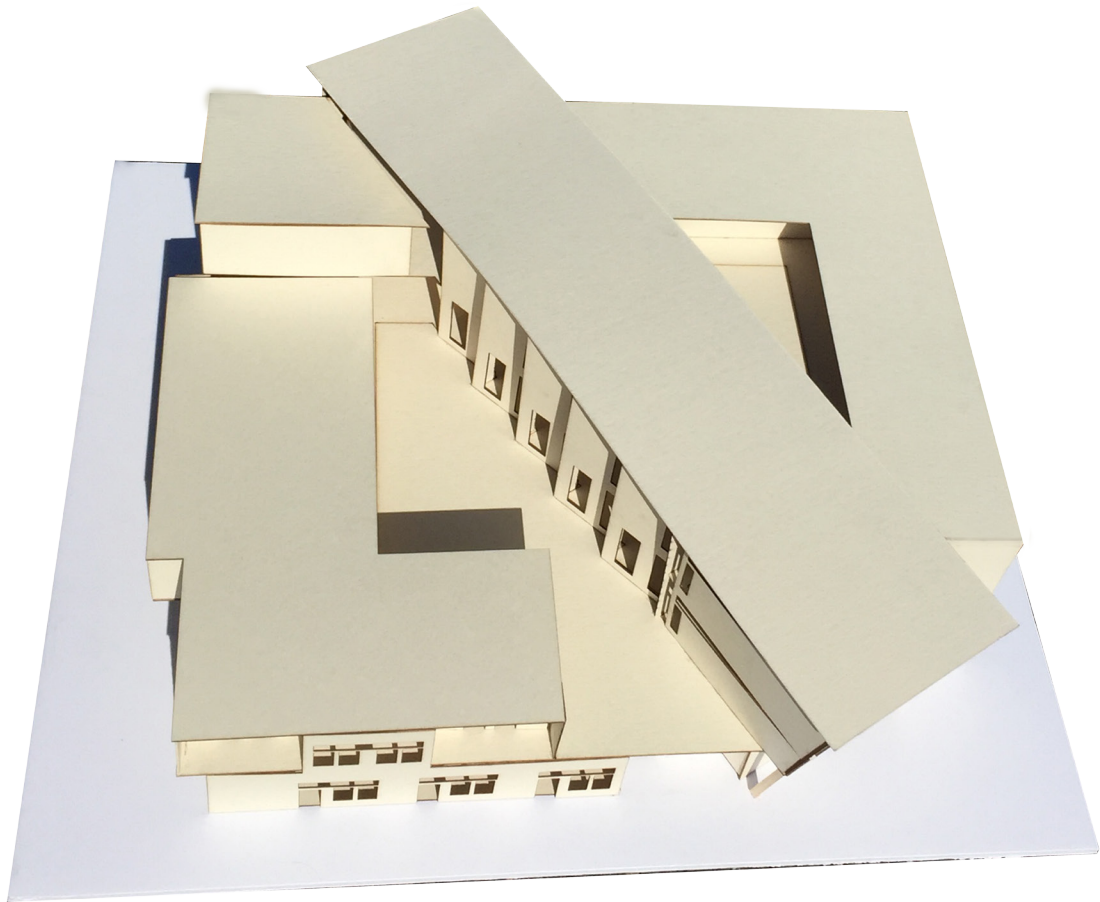


Figure 49: Level 2 courtyard from above (Model built and photographed by author)

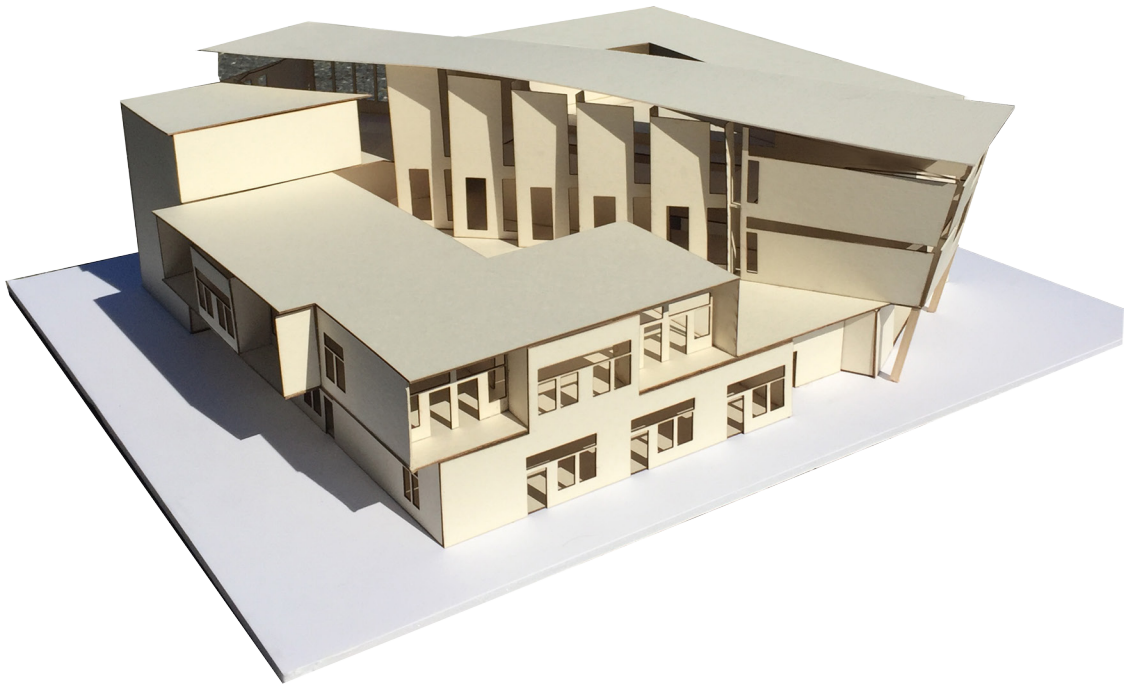


Figure 50: Phase 2 residential facade on Temple Street (Model built and photographed by author)

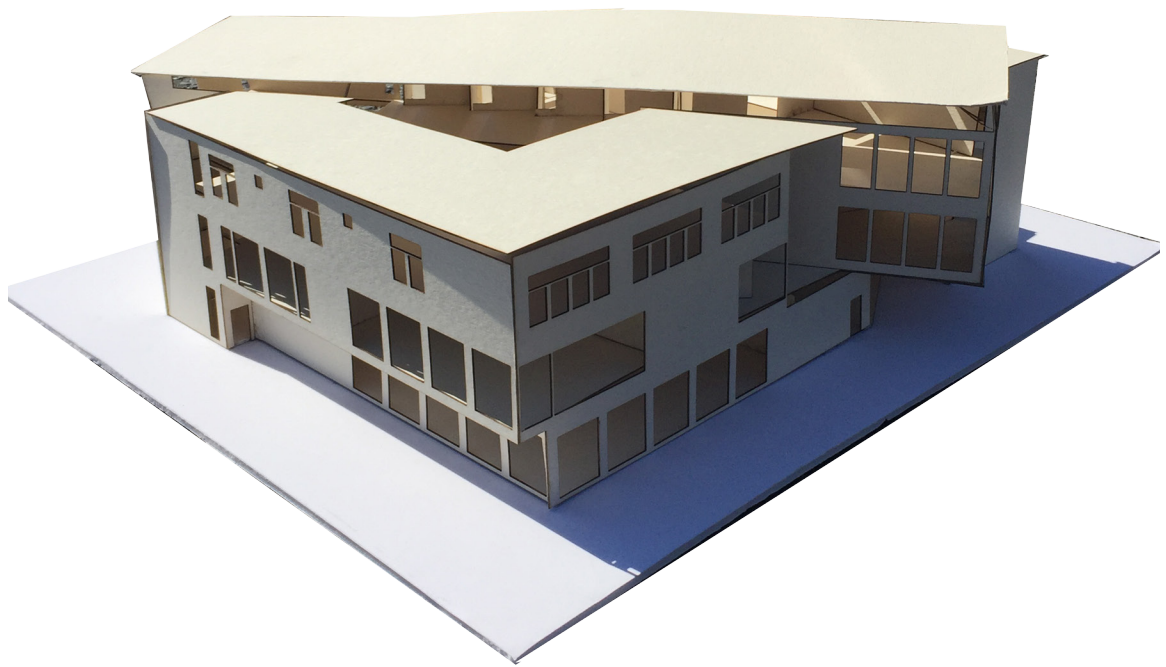


Figure 51: View at School Street + service road (Model built and photographed by author)

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