

ARCHITECTURE AS PROSTHESIS

A Cultural Reimagination of Disability on Boston Harbor

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A Cultural Reimagining of Disability on Boston Harbor

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By
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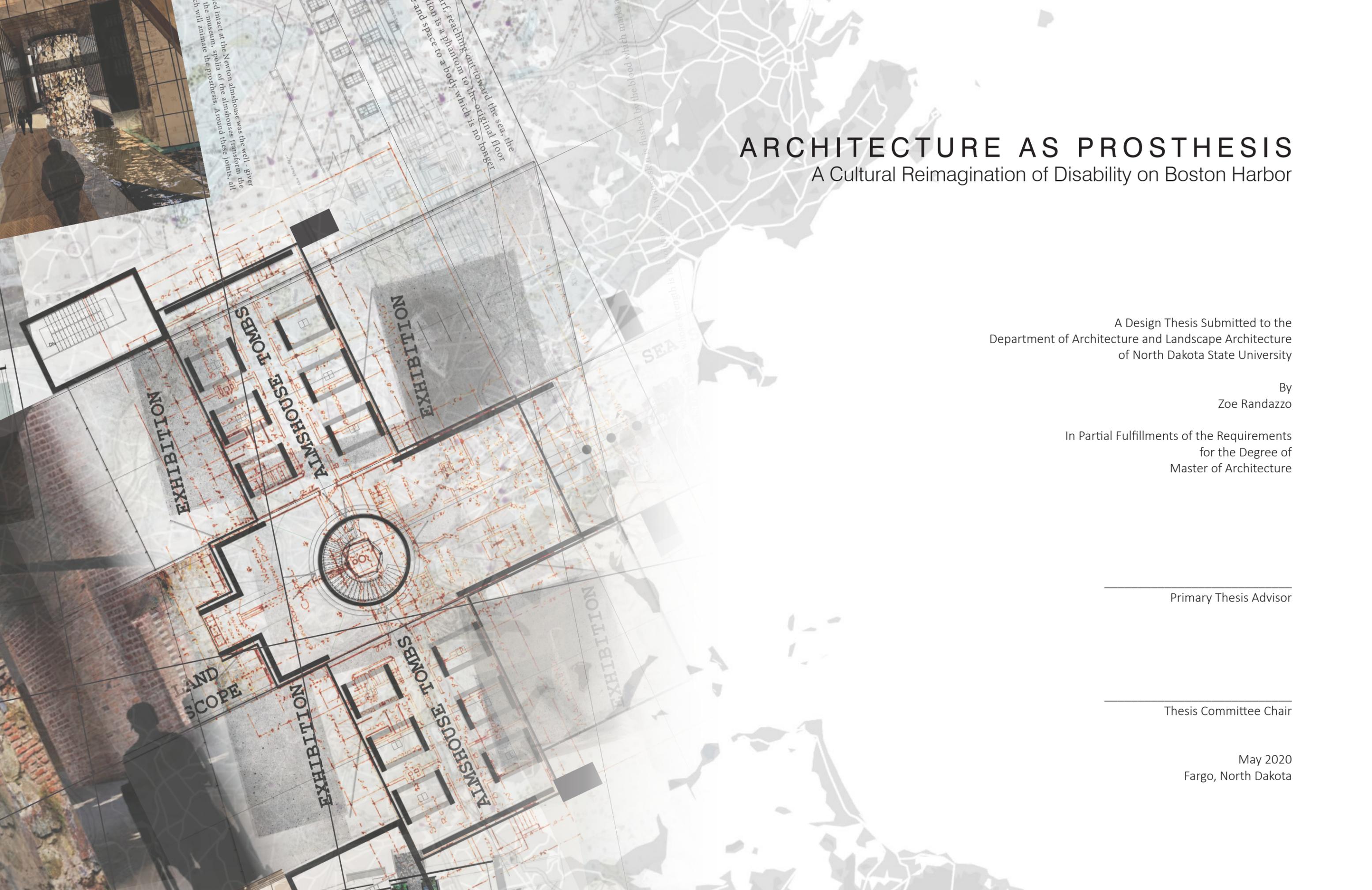


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THESIS PROPOSAL

THESIS ABSTRACT

How does architecture approach disability? Might this play a role in forming our cultural beliefs? Increasingly specialized attitudes of the modern era, critiqued by Hans-Georg Gadamer, move us to approach disability with afterthought accessibility formulas, often displacing these “other” bodies to the margins of cultural life rather than constructing them into it. As the prosthetic extension of our shared cultural body, how can architecture engage bodies of all abilities to reimagine the connections between external environment, self, and others? As Federica Goffi has suggested architecture to be an inventive medium for participating in history, this thesis enlivens cultural memory in order to advance cultural perception of bodies labeled as “other.”

Boston’s Museum of Disability History and Protheses assembles historical fragments of the city’s untold transformation story along with spolia of Boston’s crumbling almshouses into an exquisite corpse on Boston Harbor. Acting as an extension of the user’s body, the museum becomes a prosthesis for the user to reimagine one’s own body image through reinterpretation of the well-known condition of phantom pain. A cubistic encounter of restorative fragments reconstructs conceptions of disability in architecture and in culture, framing a reality for the user to imagine new ways of perceiving self and others through embodied experience.

THEORETICAL NARRATIVE

The Phantom of Fragmentation

After the loss of a limb, an amputee experiences a perceptual phenomenon called phantom pain in which pain is perceived in the missing limb as if it were still attached to the body. The nervous system's perception of its fragmentation causes the nerves to fire signals to the site of amputation in search of the lost limb, creating sensations of extreme pain in their pursuit for wholeness of the body.

Although this phenomenon is one unique to the physical conditions of an amputee, our human nature acts in a very similar way to the amputee's confused nerves. Throughout the continuum of human history, perception of our fragmented nature has caused us to seek meaning and wholeness outside of ourselves, like nerves firing to a limb that cannot be perceived by sight. This knowledge of incompleteness has plagued us with a relentless longing to establish a connection between self and world. In his essay "Architecture and the Crisis of Modern Science" Alberto Pérez-Gómez argues that it is the knowledge and experience of dwelling within our own bodies that inspires us to pursue the same level of order in our surroundings as we embody in our own anatomy and composition. In this argument, he calls for the need architecture has for "reconciliation [to]... the human condition" (Perez-Gomez, 1994). This reconciliation with the world is hosted through a dialogue with the works of our own hands. Similar to the way neuroscientist Ramachandran's use of mirrors to reflect remembered body image can bring relief to the phantom pain felt by amputees, the reflections of ourselves in the works that we create can bring meaning to our fragmentation and imperfection as humans and the constant longing we have for wholeness (Ramachandran, 1998).



FIGURE 1 | V.S. Ramachandran's Mirror Box Experiments

Reconciliation through Fabrication

How can the things that we create – manmade products which do not possess literal human life- reconcile the world to our human condition? In Juhani Pallasmaa's *The Eyes of the Skin*, he states that, "Our contact with the world takes place at the boundary line of self" (Pallasmaa, 2005). By bringing thought (our cultural context, rituals, and values) and the senses (our perception of the world) into harmony with one another through the making of objects, this boundary between self and world is blurred. The things that we create allow us to see ourselves in the world and the world in us through the lens of our built creations. The encounter of architecture transforms this boundary between self and world into a gradient where we can understand how our relationship with the world is an active exchange.

Extension of Self

When architecture is regarded as a medium through which we explore the world, it becomes personified and is promoted from an entity which is inanimate to one that plays a lively, organic role in our lives. Architecture viewed in this way can be likened to the prosthetic limb of an amputee: a body not of flesh, but of physical materials which will always remain outside of oneself, yet, is undeniably a life-giving extension of oneself. It is this extension of self that liberates the user to navigate the world in ways that may not have been possible without it.

As an extension of ourselves, our architecture is unique in that it is fabricated to reflect our individual context, rituals, and values, such as the ancient Greek values of connection to the world through knowledge and theater which we can read from their ruins. Our architecture facilitates a cathartic encounter with our own tangible self-expression, which can reveal truths about our values, such as how we value disability.

FIGURE 2 | Architecture as Prosthesis



"Our contact with the world takes place at the boundary line of self."

- Juhani Pallasmaa, *The Eyes of the Skin*

Our Dissonance Toward Disability

A Cultural Critique

The Problem:

As a tangible reflection of our values, our architecture of today displays a dissonance between our cultural belief that all people are equal and our actions of inequality when designing for disabilities. The result is a phantom pain within the disabled community: the misconception that inclusivity is the same thing as equality. Current formulaic practices of designing for disability, while well-intended, often stratify more than they include, accommodating for the physical conditions of disability while highlighting differences. A common way this is manifested is in separate entrances and isolation to certain “accessible” areas within buildings.

The Opportunity:

The variety of abilities which people bring to the built environment should not be an afterthought, but rather an exciting design challenge to seek universal solutions and an inspiration which could be capable of yielding innovative results. These accommodations should be so well-integrated to our architecture that they almost go unrecognized. Architecture such as this would demonstrate, as a work of our own hands, that we value people of all abilities, and that physical disability is not an architectural burden. It’s an architectural opportunity.

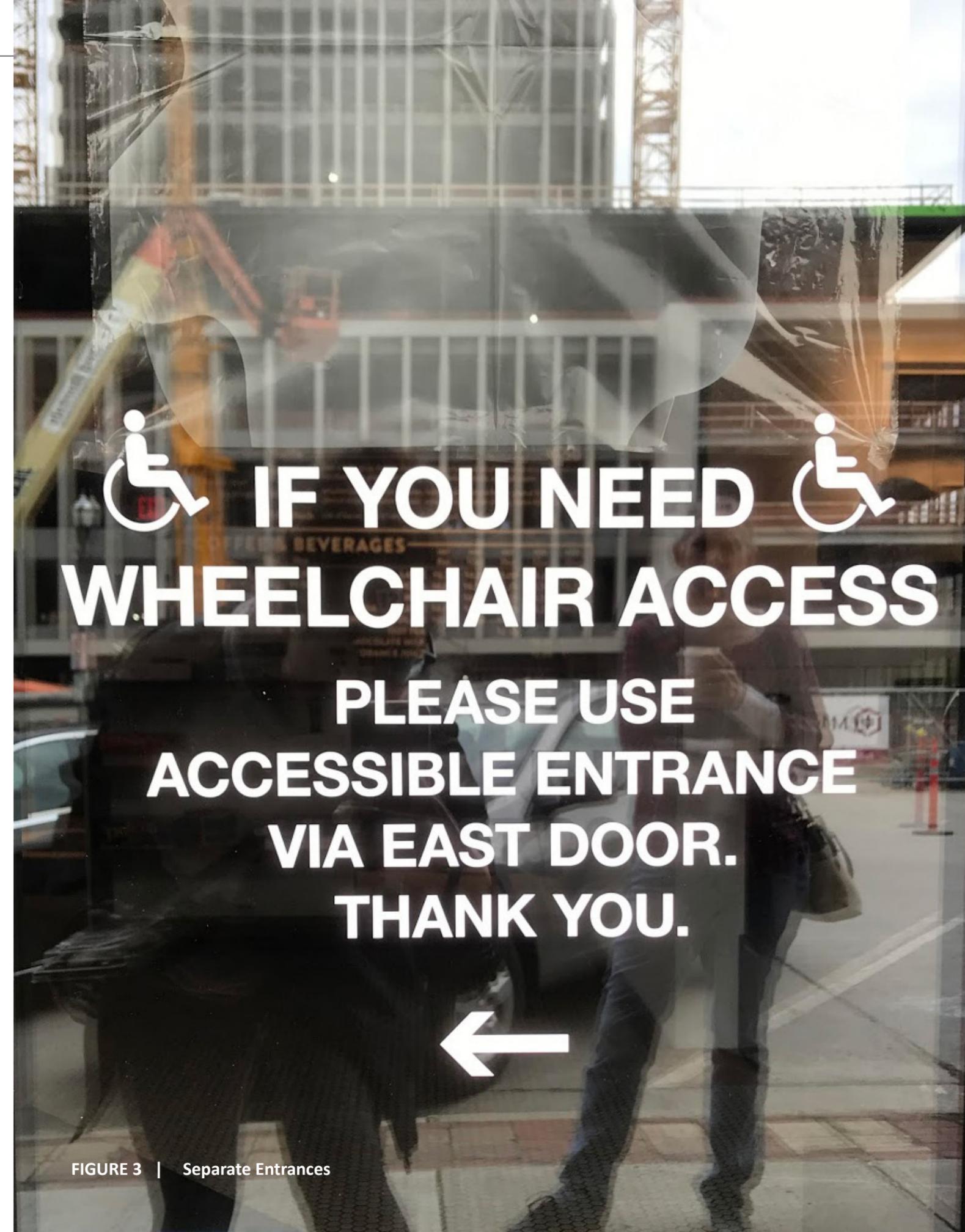


FIGURE 3 | Separate Entrances

Prosthetic Re-Imagination of an Existing Body

A Theoretical Premise

This thesis will seek to advance existing knowledge of designing for disabilities by delving into the history of how disability has been accommodated in architecture and in culture in the city of Boston over the course of our nation's history. Through the reassembly of previously used architectural elements, or spolia, from buildings significant to disability rights and medical innovation in Boston, this thesis will investigate how ideologies and building elements of the past can be reimagined in new ways to reflect who we have become as a society over the course of time. This approach is inspired by the adaptability of the human body, specifically the body of the amputee, which is always evolving by an act which we ourselves have initiated. In this way, architecture is a prosthetic extension of self, of flesh beyond the flesh. Reimagining an existing body of architecture in this context may be capable of impacting not only the way that disability is approached in architecture, but also how it is perceived in culture.

PROJECT TYPOLOGY

For my project I plan to turn over the meaning of the colonial almshouse, America's first architecture for the disabled, into a museum of restorative fragments which reimagine and reconstruct our approaches to disability in architecture and in culture. I plan to uproot traces of remaining foundations of the forgotten almshouses near Boston, Massachusetts and reassemble their spolia alongside new materials in the place where they can be remembered by the public: in the city of Boston. As symbols of the social rejection and banishment of the disabled and undesired, it is important that these fragments of history not die a quiet, overlooked death, but rather experience an intentional restoration into the modern era. The goal is to bring the Almshouse to the memory of broader culture, integrating disability into everyday life through a prosthesis to our current practices.

The museum will house exhibits which tell the story of Boston's history of caring for those with disabilities along with various other program elements that will enhance the user experience. Incorporating an active prosthetic fabrication lab within the museum along with a fully-accessible maker space will allow visitors to take part in the spirit of fabrication. The addition of a presentation hall, gallery, and meeting rooms will provide space for human rights groups or social programs within the city to be hosted.

TYOPOLOGICAL RESEARCH

RUSSELL MUSEUM OF MEDICAL HISTORY & INNOVATION

Leers Weinzapfel Associates Architects

TYOPOLOGY: Museum
LOCATION: Boston, MA
YEAR: 2012

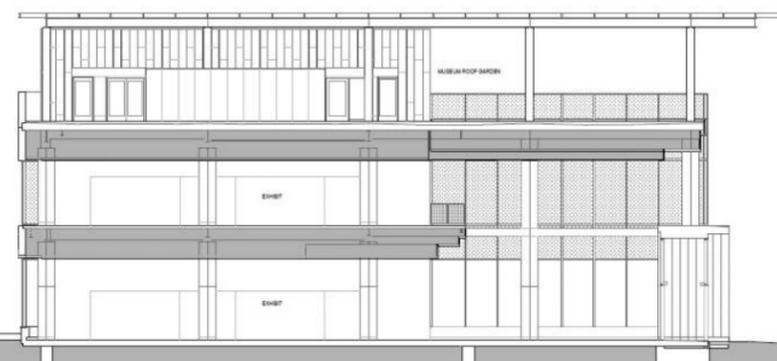
Project Introduction

Located on the south of Boston's Massachusetts General Hospital campus, the Russell Museum of Medical History and Innovation was established to celebrate the 200th birthday of MGH and provide a public place for the hospital to share its accomplishments (World Architects, 2012). The building houses 8,000sf committed to exhibition galleries, a hands-on learning lab, a flexible theater space, and administration space. The building serves as a beacon of information concerning the history of medical innovation, specifically as it relates to Massachusetts General Hospital.

Program Elements

- Core Exhibition Gallery
- Changing Exhibition Gallery
- Media and Theater Space
- Hands-on Learning Lab
- Administrative Space
- Occupiable Rooftop Garden

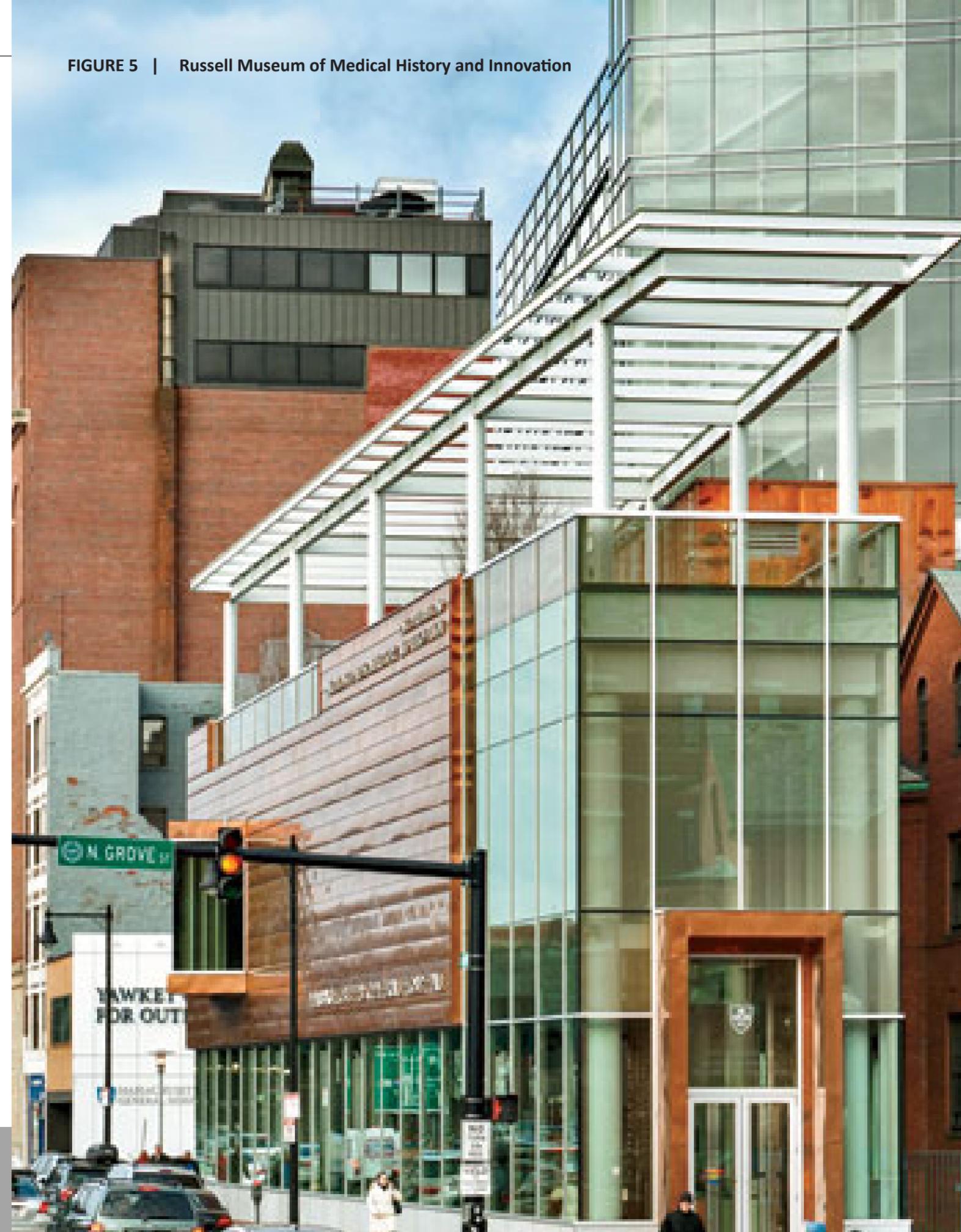
FIGURE 4 | Russell Museum Section

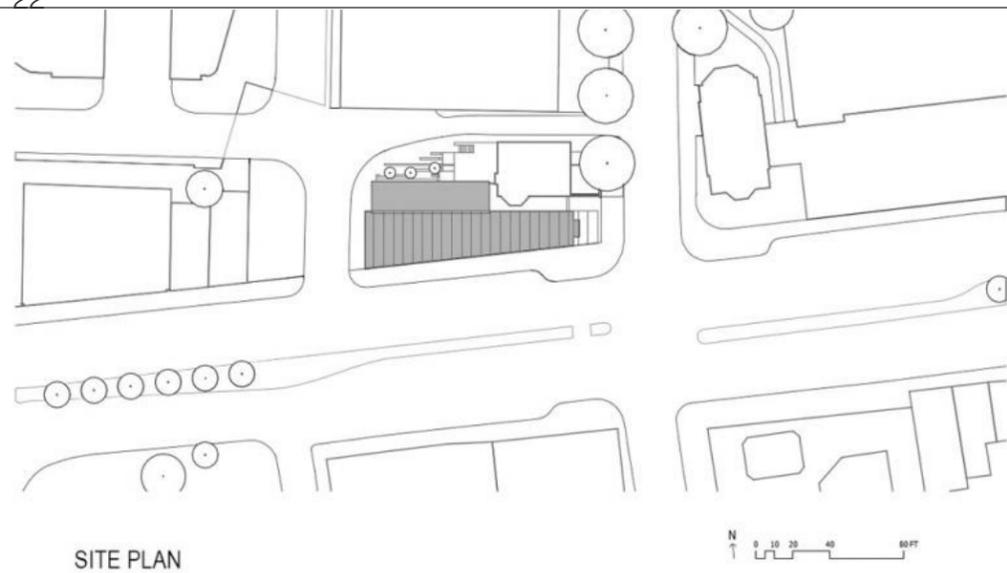


SECTION AA

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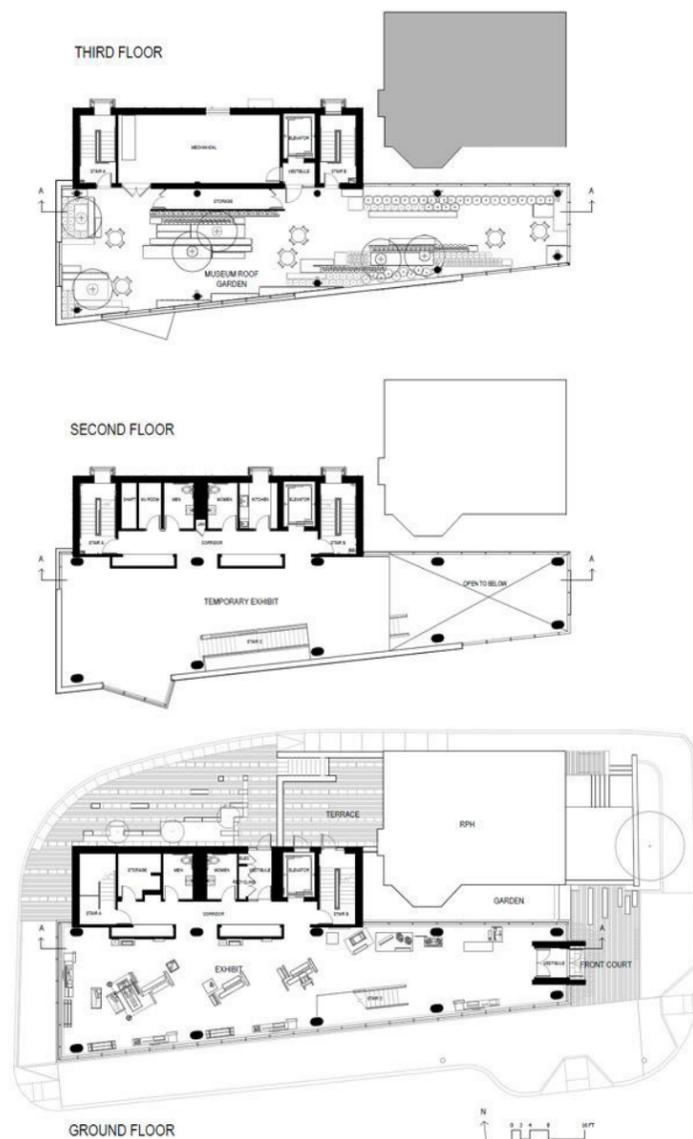
FIGURE 5 | Russell Museum of Medical History and Innovation





SITE PLAN

N
0 10 20 40 60 FT



THIRD FLOOR

SECOND FLOOR

GROUND FLOOR

N
0 2 4 6 8 FT

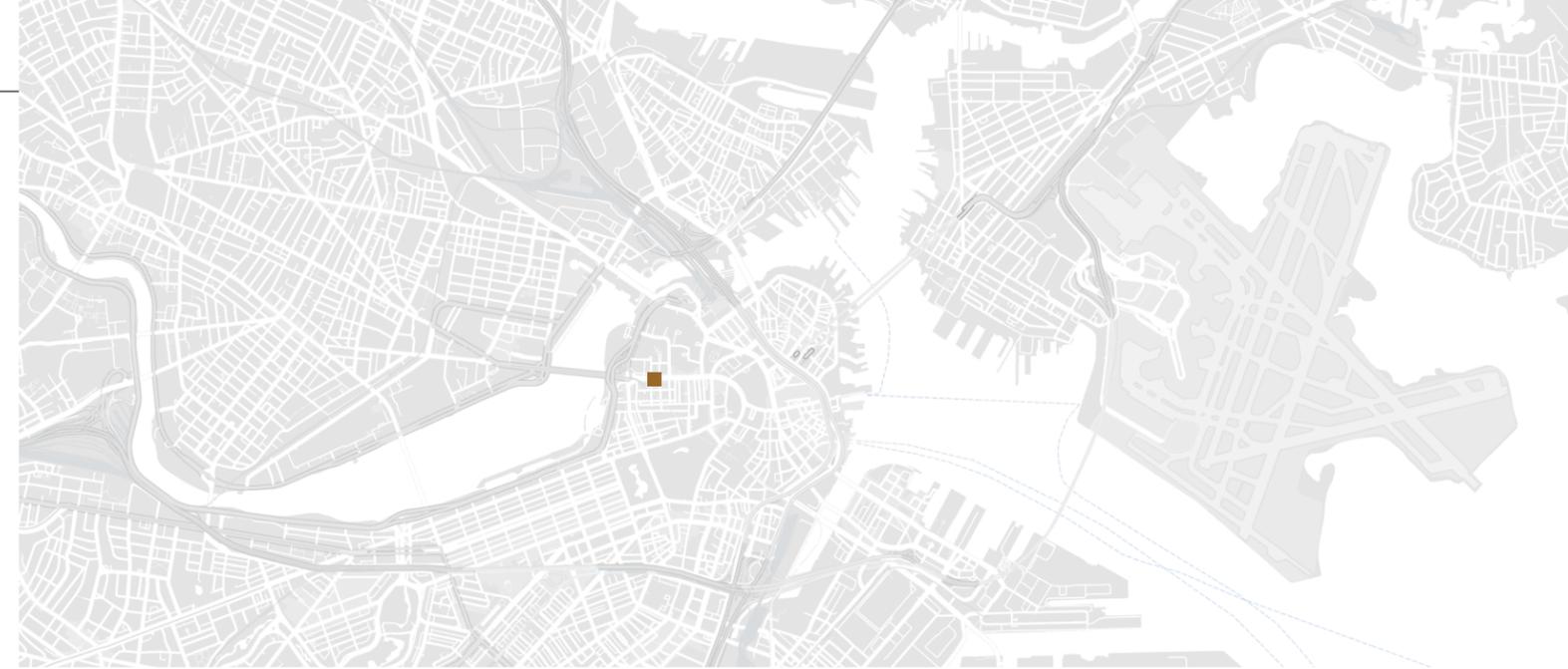


FIGURE 7 | Location Russell Museum of Science in Boston, MA

Research Findings

My initial reaction upon discovery of the Russell Museum in Boston was disappointment that a project so similar to mine already exists within the city. However, the more that I investigated, I found some very important differences to note, as well as some very strong aspects to remember for my own design. I had a chance to visit this building during my site visit to Boston in November. Most of these notes are from that event.

The building had some unique challenges on such slender site. The result was a very long building which consists mostly of two public floors of exhibitions – the bottom one fixed and the top one flexible. The spaces that exist within the museum feel appropriate to its use, which is mostly for public exhibition and fundraising events.

My biggest critique of this building is the fact that it exists on the Massachusetts General Hospital Campus and not a more public location. Though it is in a busy area, I was the only person inside during the hour that I spent inside the museum. I believe that this can be attributed to the building's location. Located on the hospital campus, the only people who encounter the museum are doctors, who already know most of the information presented in the museum, and patients, who would likely prefer a different form of entertainment that allows them to escape the clinical setting rather than be reminded of it on an excursion outside. It feels like this building is preaching to the choir – the only groups that actually know what illness and disability are about – rather than to an audience that may not have this prior knowledge or experience. The unexperienced group is the outlet for social change. In the Russell Museum's defense, the purpose of the museum is not to incite social change, as in my project, but rather to recall the accomplishments of MGH.

FIGURE 6 | Technical Drawings of Russell Museum of Science



Distinguishing characteristics

This building is a gorgeous piece of architecture with clean finishes and details, luxury materials, and cozy spaces within. Windows around the perimeter of the building provide views to interesting points nearby, such as a window ledge which orients the gaze over the main street. The lighting warms the space and gives it a glimmer as the sun starts to set. The exterior materials are equally as beautiful, flaunting copper panels and large panes of blue-green glass.

The artifacts housed within the display cases are very compelling and well-preserved, offering a full overview of a 200-year history. These fragments of the past point the user toward the marvel of medicine and boast of MGH's involvement in these activities. The boasting is fair. However, I do feel that this project lacks philanthropic element, which will be an inseparable part of my building.

Case Study Conclusions

A few critiques of the museum are that it was very small and the exhibits could have been more engaging. Being an 8,000sf building, this helps me to establish a range for what sort of square footage I will be looking to achieve. After my visit to this space, I feel that my building seeks to be somewhere around three times the size, landing just over a 20,000sf target. The exhibits were very interesting, housing artifacts from throughout the hospital's 200 year history, but I wish there would have been even more opportunities for bodily engagement. This is a goal that I will have for the exhibits housed within my building. Being that this building is also on a very small site, there was hardly any space left uncovered by building onsite. However, the Russell Museum makes up for this with a rooftop garden. This is a beautiful design solution, but it does not provide any greenspace to the public. For my project, maintaining greenspace that is publicly-accessible will be a very important aspect.

FIGURE 8 | Photos of Russell Museum of Science





FIGURE 9 | Window Detail Overlooking Street

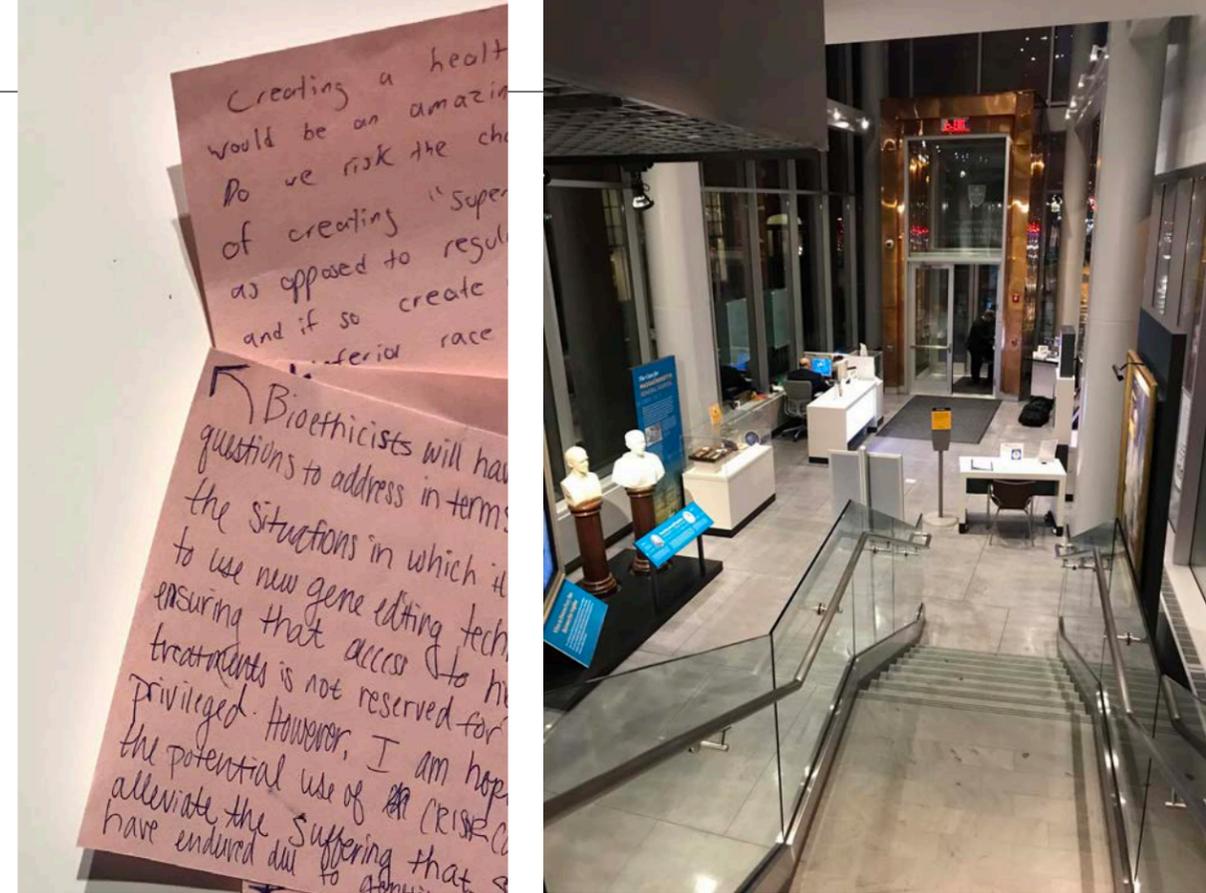
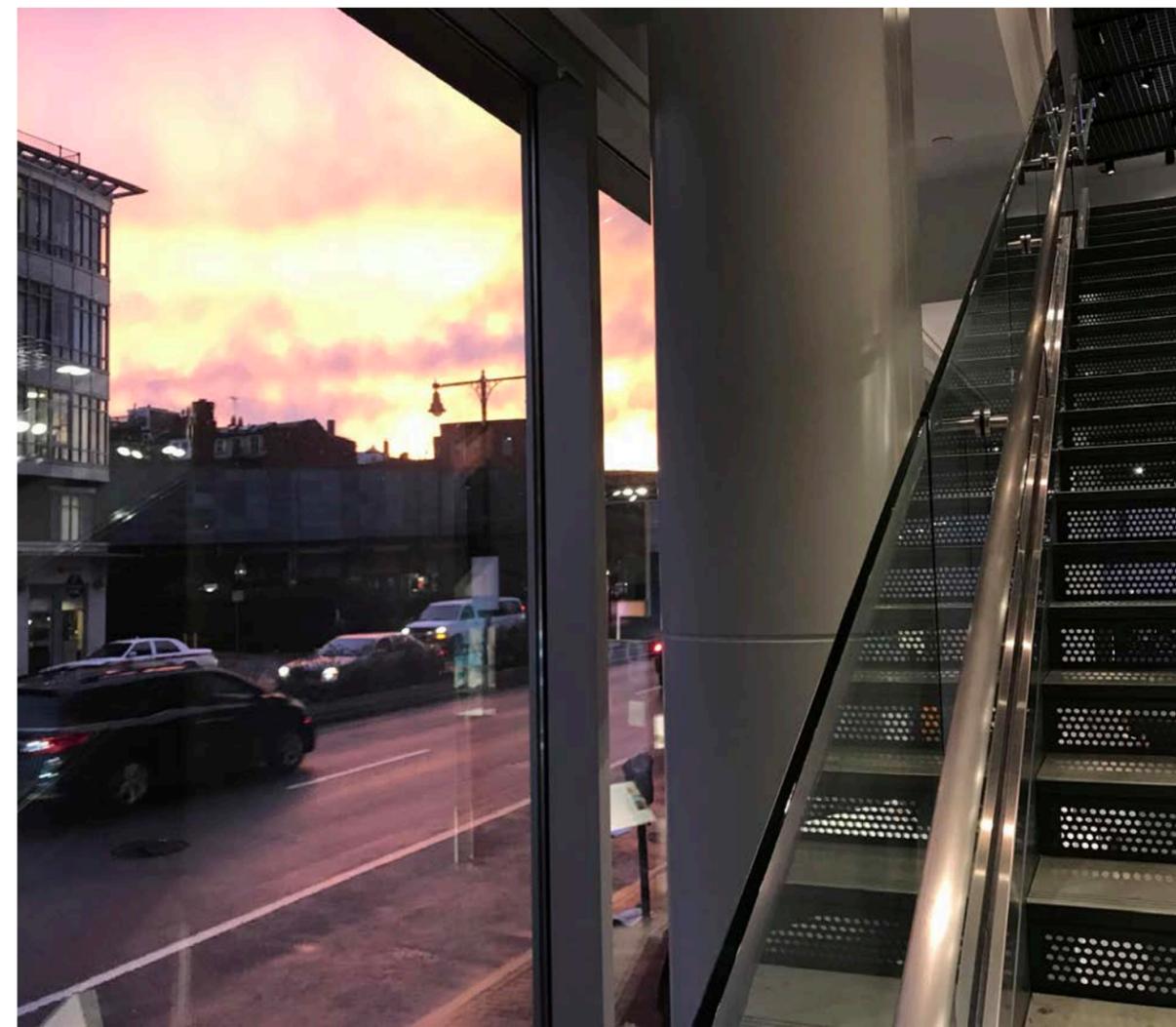


FIGURE 10 | Photos from Site Visit to Russell Museum of Science



GC PROSTHO MUSEUM RESEARCH CENTER

Kengo Kuma and Associates

TYPOLOGY: Museum and Research Center for Prosthetic Teeth

LOCATION: Kasugai, Japan

YEAR: 2010

Project Introduction

Located in the city of Kasugai in Japan's Aichi Prefecture, this Museum and Research Center was designed by Kengo Kuma and Associates for a company that produces prosthetic teeth. Between the building's three floors, which total around 7,000 sf, it supports a gallery for the exhibition of the company's past products, a space for research, and a collection of offices (Caroli, 2011). While unique in its program, the true distinguishing characteristic of this building is its novel wooden structure, which employs traditional Japanese joinery methods while creating a stunning latticework that connects each of the facility's spaces in a seamless, flowing manner.

Program Elements

Basement

- Communal Space
- Archive
- Dry Area

First Floor

- Electricity Room
- Gallery

Second Floor

- Bureau (Office)

Third Floor

- Laboratory

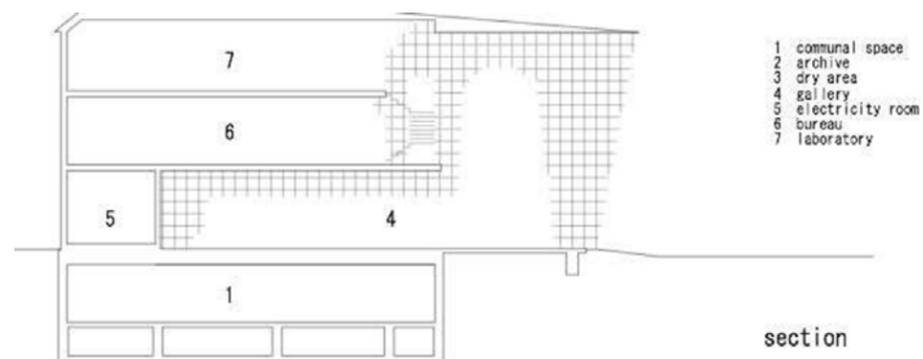


FIGURE 11 | Section Drawing of GC Prosthodontic Research Center

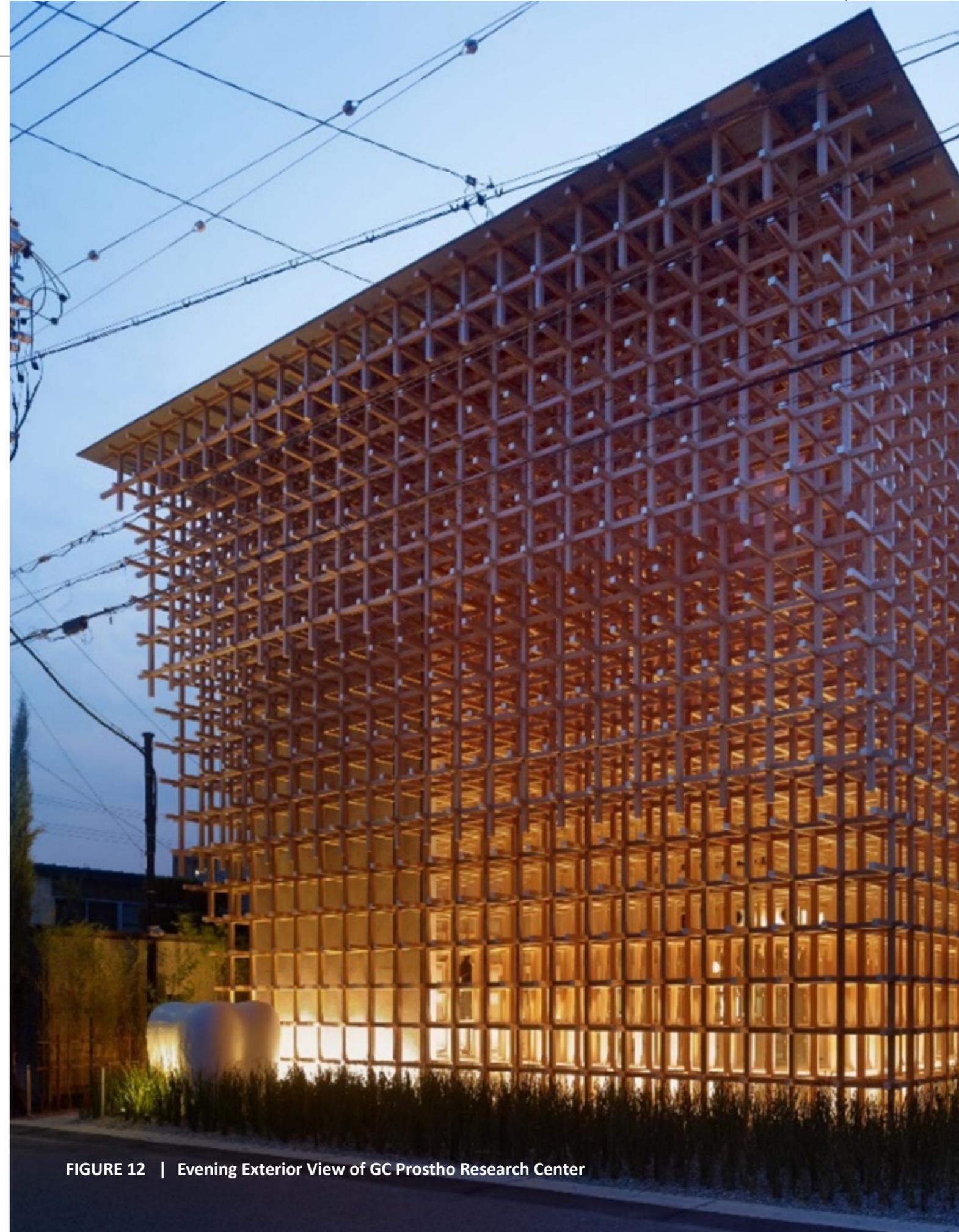


FIGURE 12 | Evening Exterior View of GC Prosthodontic Research Center

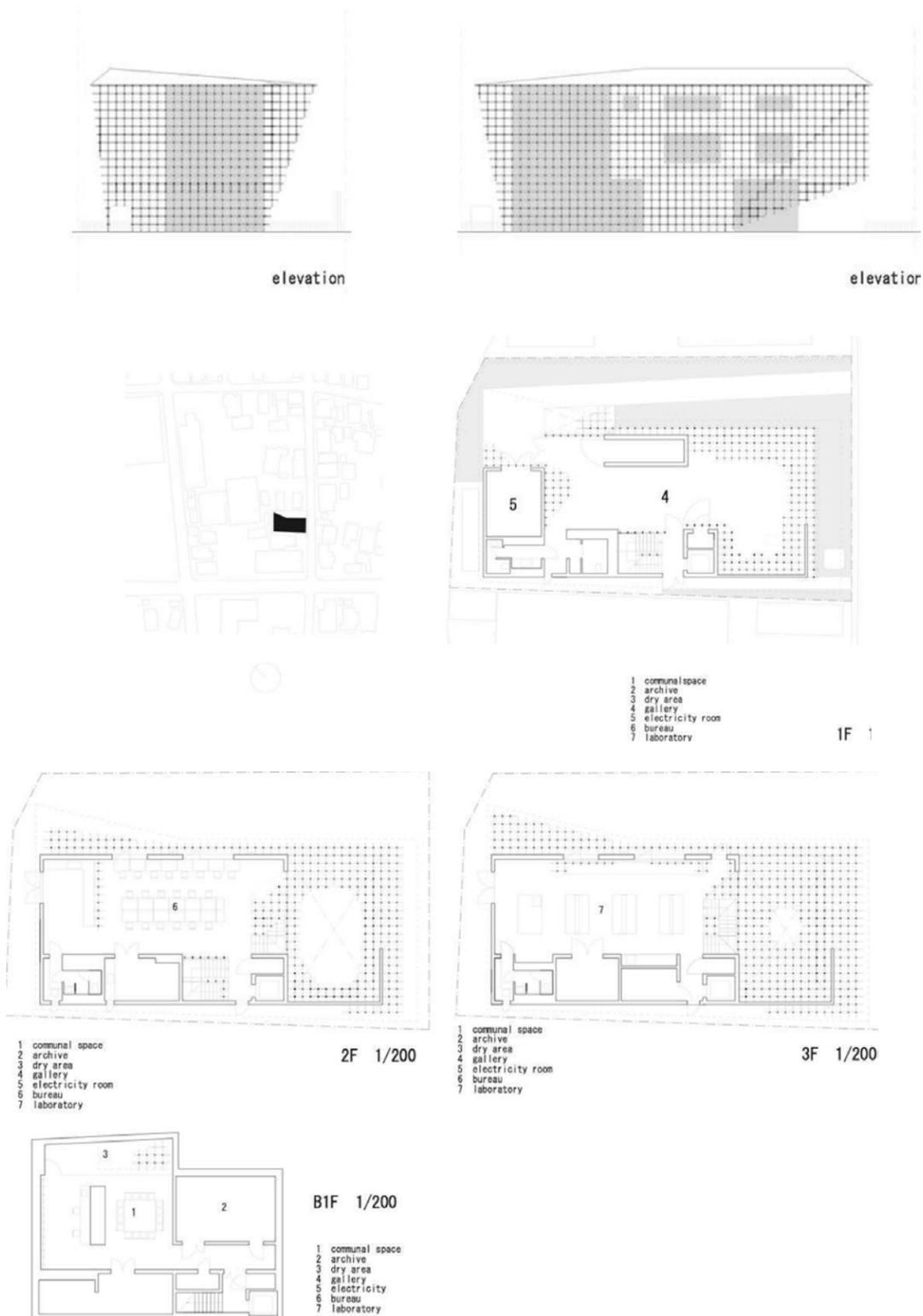


FIGURE 13 | Technical Drawings of GC Prosth Research Center

Research Findings

This case resonates strongly with my project in its production of prostheses. Even for a prosthetic lab, this project challenges the norm. With an integrated program which houses the necessary operations, the most principal part of this building – its gallery- has also been reserved for the exhibition of historical prostheses fabricated by the company. What really makes this space celebratory of innovative fabrication is its one-of-a-kind structural system.

The case stands out within its site in form, scale, and visual impression, surrounded mostly by two-story residences. It also stands surprisingly close to its neighbors, as this is a very densely populated area of Japan and of the world. The Japanese joinery structural (and aesthetic) system which it employs anchors it in place within its cultural context.

Distinguishing Characteristics

“I much prefer a scale that is close to the human body’s, that possesses the delicacy and strength of arms and legs.”

-Kengo Kuma, Architect

This is what Kengo Kuma had to say when asked about the structure he employed at the GC Prosth Museum Research Center. The project caught international attention through the innovative use of an unexpected structural system: a traditional Japanese toy, the cidori. The cidori system can create lattice structural networks using wooden sticks that are carved into square modules which connect to one another by twisting and locking into place. This method does not require any additional fasteners to hold each piece of wood in its place, making it a modern interpretation of the traditional joinery methods which have been used in Japan for many generations. The structural system employed in this building is its most identifiable characteristic, and the system makes for impressive interiors as well. There is an interesting connection to be drawn between Kuma’s choice to use small building elements in the design of a building which focuses on prosthetics, and a similar connection is reflected in my project with my choice to use spolia as building elements. In both cases, the fragments which are assembled are also very specific to site.

Within the building, the lattice network softens the exhibition spaces and adds depth. It creates comfortable spaces which feel protected from the outside world yet connected with them through the daylight that floods the building. One can imagine that these wooden members have been smoothed and sanded to have a finish which is sleek to the touch. The mind's eye paints a space which is filled with the aroma of cypress wood, flooding the air with its authenticity. What is more difficult to imagine, but is likely affected by this system, is the way that sounds bounces off the cidori members and that air moves through them.

Case Study Conclusions

This case study incorporates program elements which I will also be working with: both an exhibition space as well as a prosthetic laboratory. The organization of spaces within the building aligns with my goals as well, placing an intriguing gallery space near the ground and reserving more private areas of the building for the prosthetic lab, in this case the top floor. The section drawings help to display this relationship, and will be an essential communication method for me as well if I choose to pursue a similar arrangement.

This case study will be a great reference for the use of smaller building elements, the spolia. The use of structure as ornament is a strong, bold move, and it resonates well with my theoretical framework of a functioning prosthetic which has a look of function as well: an honest architecture. The structural and aesthetic emphasis are placed on an element whose perception cannot be removed from thoughts of its fabrication. The concept of Japanese joinery pushes this idea further: a custom architecture which can be built and rebuilt over and over again, just as prostheses need to be constantly updated and rebuilt and as we are constantly reimagining our fragmented values as well.

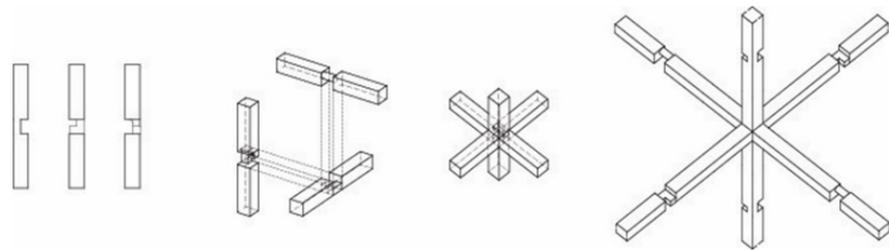


FIGURE 14 | Cidori Joinery Diagram



FIGURE 15 | Interior Photos of GC Protho Museum Research Center



NEW LAB, RESEARCH AND MANUFACTURING CENTER

Marvel Architects

TYPOLOGY: Research and Manufacturing Center

LOCATION: Brooklyn, NY

YEAR: 2016

Project Introduction

Located in Brooklyn's Former Navy yard, this former hangar has found its way onto the National Register of Historic Places and has been converted into the New Lab, a research and manufacturing center. The 2016 renovation by Marvel Architects introduced office and fabrication spaces into the building. It now houses around 82,000sf dedicated to innovation in the industries of robotics, 3D printing, urban technology, architecture, nanotechnology and many others (Maggiore, 2019).

Program Elements

Workspaces

- Office Pods
- Permanent Office Space
- Flex Office Space
- Private Studios

Public Space

- Mezzanine Lounges
- Catwalk Circulation
- Event Space
- Exhibition Space

Fabrication Space

Prototyping Spaces For:

- Woodshops
- 3D Printing
- CNC Machines
- Electronics
- Metals
- Plastics

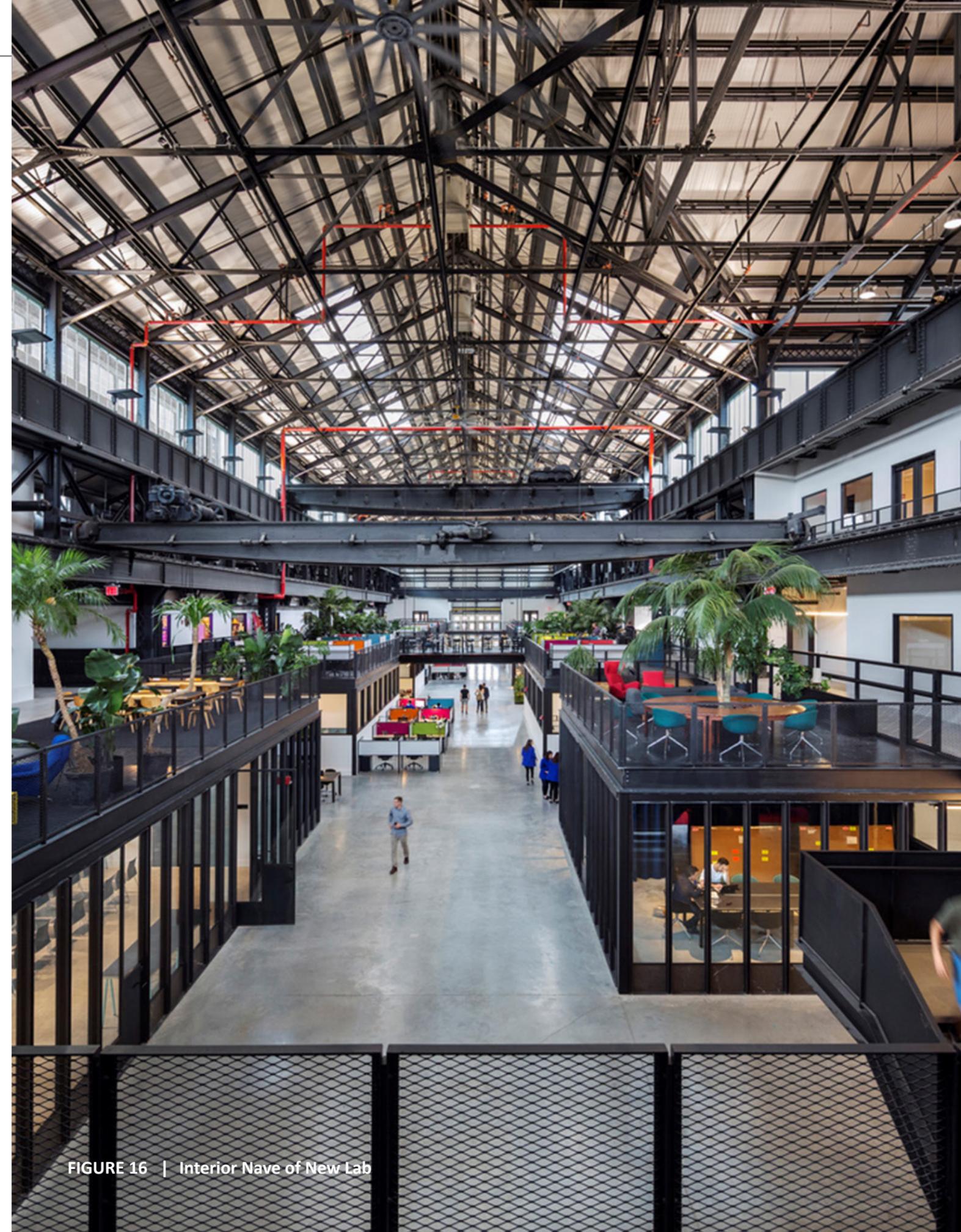


FIGURE 16 | Interior Nave of New Lab

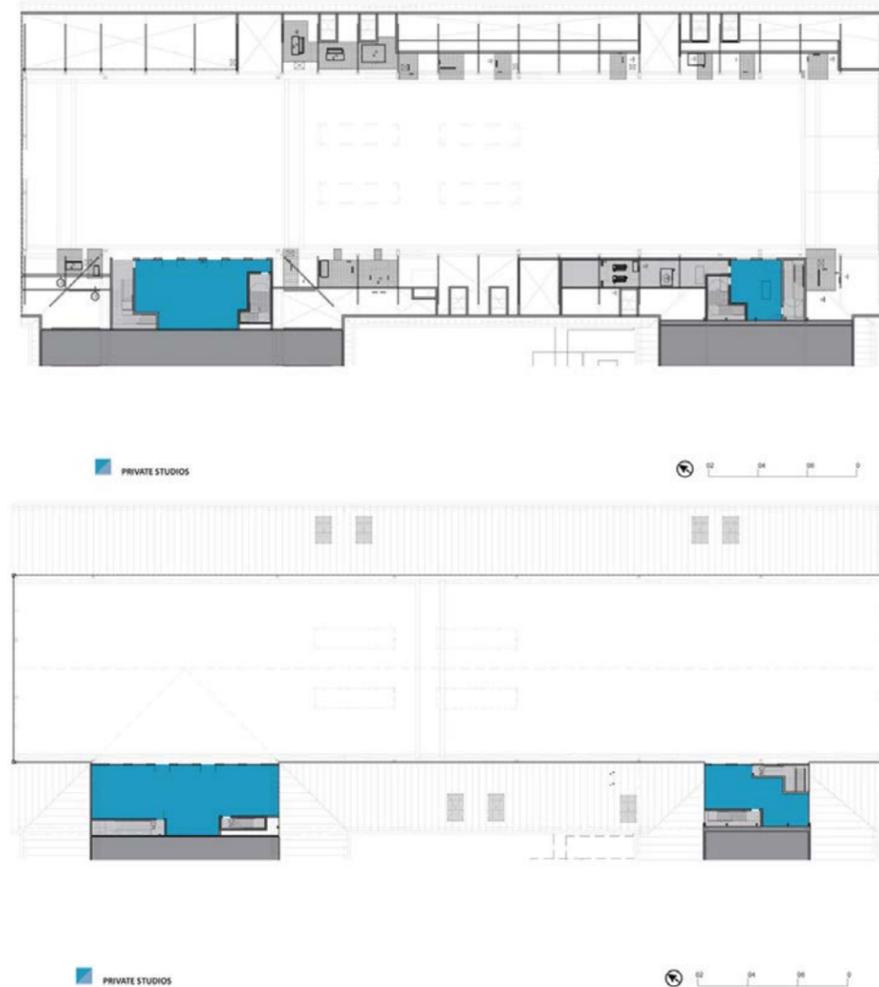


FIGURE 17 | Technical Drawings of New Lab

Research Findings

This project is the largest of the case studies and is larger than I expect my project to be, but I find it unique in that it is a multidisciplinary fabrication space housed in a historic building which is on the National Register. Brooklyn's Historic Navy Yard is being revitalized in many ways, and developers saw this renovation as an opportunity to create an innovation hub amidst the excitement. There are plans to repurpose two other buildings in the Navy Yard into similar facilities.

There is also a parallel to be drawn with my project in that this site is in a former navy yard, and my site is on an active harbor. In addition, many design considerations had to be made based on this building's status on the National Register of Historic Places. My site is not on the National Register, but some of the spolia does lie in a National Park. Historical regulations would likely need to be followed in either case.



FIGURE 18 | Maker Space and Catwalk in New Lab

Distinguishing Characteristics

What is so unique about this project is the fact that it ties many industries together through their common link: fabrication and innovation. Its occupation of a historic building also makes it an intriguing project. A former place of industry now houses contemporary industries.

My trope seeks to establish a similar troping of the familiar, in this way, and a similar overlapping of industries. Within my building, the paths of medical professionals, engineers, prosthetists, social rights activists, artists, carpenters, students, and the general public will all come to an intersection. For this reason, I will need to include common areas in my building, just as the New Lab has included common spaces in its program to accommodate the crowd it draws in.

Case Study Conclusions

This project brings many industries together through the act of making that they all have in common. My theoretical framework is deeply rooted in man's need to fabricate and innovate, and this project serves as a great example of how these qualities can unite disciplines which may seem unrelated. This facility does not house a prosthetic company, but one would certainly fit in here. In addition, the building's history enriches its story and required innovative design solutions to retrofit the necessary spaces. In this same way, I aim to create a design which addresses historical elements in an innovative way.

MAGGIE'S CANCER CENTRE BARTS

Steven Holl Architects

TYPOLGY: Cancer Drop-In Centre

LOCATION: London, UK

YEAR: 2017

Project Introduction

The winner of an AIA Healthcare Design Award, Maggie's Centre at Barts is located on a historic site in London and is dedicated to caring for cancer patients and their families. At 6500sf, this small gem stands out among its neighbors with a stunning semi-transparent glass façade and surprising interior bamboo elements.

Program Elements

- Patient Drop-In Areas
- Office Space
- Social Lounges

Research Findings

Maggie's Centres are unique to the patient experience in that they do not serve as a classic clinical setting, but rather serve as a resource center for cancer patients and their family members to drop in ask any questions they may have or socialize with others. Maggie's is a network of cancer drop-in centers throughout the United Kingdom that is committed to providing a healing environment through architecture, which is why they hire well-known architects to design their buildings. This one was awarded to Steven Holl, who, claiming that there would be no way to replicate the historic facades which surround the site, decided to make the building a token of our own time period with a bright, smooth façade that stands out around from the others.

This drop-in attitude is what I envision occurring within my project, where amputees may drop by to get some adjustments done by their prosthetist or where members of the community may drop by to socialize and gather with like-minded individuals that they have met through the programs offered.



Distinguishing Characteristics

The architects wanted to create a feeling of being in a sanctuary, which is why they decided to approach this building as “a vessel, within a vessel, within a vessel” (AIA, 2018). They accomplished this by nestling an interior bamboo shell within a concrete shell within a translucent glass shell with small fragments of colored glass in it. The result is a building which is in every way unexpected. The cancer patient discovers upon arrival that the building is much warmer inside than it appears outside, and the onlooker from the street discovers a façade which completely alters the look of the street. And yet, the disruption to its context is not offensive, perhaps because of the softness of its diffused light through colored glass.

My thesis deals with layers upon layers of stories which will be overlaid upon one another in the exhibition spaces. This case study provides a precedent for how this layering might occur physically through the building’s elements, not just its program. If my building were to a sum of layers like Maggie’s at Barts is, this would speak to the complexity of the story and the role that we play in an ever-moving history, soon to be preserved in the strata of time like these layers of concrete, bamboo, and colored glass which Holl has composed for this center.

Additionally, I find inspiration in the fact that this building’s interior and exterior experience are wildly different. This could be a very poetic architectural strategy to implement into my project, speaking to the difference of experiencing a disability in the exterior perception of others versus the interior of one’s self. This would also aid in the response of disorientation with moments of resolution that I desire for my architecture to evoke.

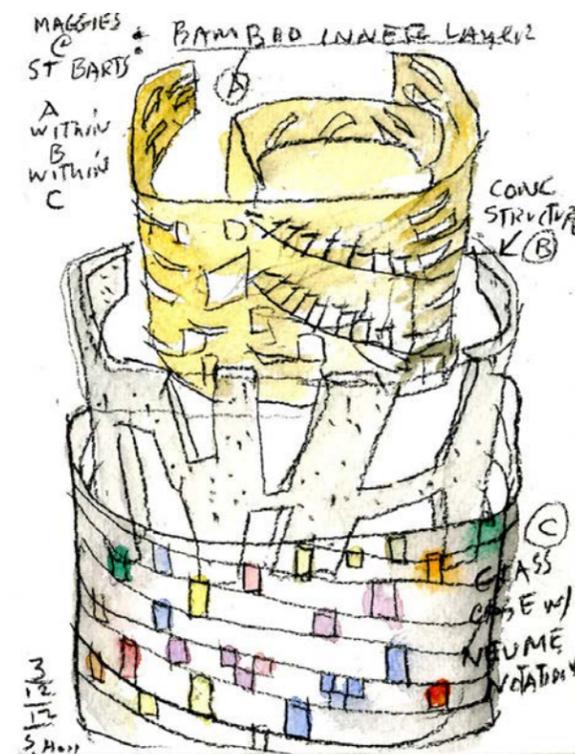
Case Study Conclusions

What I find most interesting about this project is the amount of time and resources that have been invested to create a pleasant environment for the patients. I also appreciate that the building is constructed in a historic context but does not make any attempt to mimic the likeness of the buildings which surround it. I think that this fits well with my idea of prosthesis, an extension to an existing body which is clearly not part of the original but is complementary to it.



FIGURE 20 | Maggie’s Cancer Centre Barts with Streetscape

FIGURE 21 | Process Sketch and Model for Maggie’s Cancer Centre Barts



TYOPOLOGICAL SUMMARY

Introductory Statement

A large array of case studies has been investigated in this section, all of which have relate to medicine, medical history, or innovation. This research has helped me to identify my program elements, which can be read in the section “Major Project Elements.” This research has also made me more open to a large facility than I was prior and has challenged me to consider how the varying functions housed within the building ought to overlap with one another. My theoretical premise has not changed, but rather has been strengthened by my research. These buildings got me excited to start designing!

Analysis + Conclusions

What I found particularly exciting about doing these case studies was the search for a common link with my theoretical premise. Each of these case studies is somehow related to the reimagination of an existing body, be it a building or a campus or a standard practice. Each building is a body that has been empowered to reach for the future by interventions built upon pre-existing structures or from new interpretations of pre-existing structural systems. This allowed me to see that my interpretation of the unifying idea can come to life in many ways and to realize areas of potential that I had not yet considered, such as in a structural or glazing system. I particularly enjoyed learning about the adoption of the cidori as a structural element in the GC Prostho Museum when it has a long tradition in Japan as being a toy. This implies an aspect of play within architecture, and I hope to keep excitement like this in my project too.

Each of these projects seemed to spill out into the common space of its context. Whether through dedicated interior space, as in the New Lab’s event and exhibition spaces, or through sidewalk scraping luxurious materials, as in the Russell Museum, the surrounding community was considered. I want the surrounding community to be an aspect of my project, too, as I believe that, 1) Every building should make its surroundings better, and 2) Introducing a public element into my project will prevent feelings of isolation and loneliness that can come through life-changing events or life with a disability. This community aspect will also help to solidify the underlying argument of designing for equality and will expose a larger audience to this message that this building seeks to convey.

Studying the floor plans and sections of these buildings has helped me to understand the functional and spatial relationships that related program elements may have with one another in my project. They have also highlighted specific areas that I will need to be cognizant of making accessible in my design, such as slender walkways and potentially rough surfaces. Having studied these buildings, I feel confident that I will be able to find beautiful, innovative, functional, accessible, and exciting solutions to the challenges which I will encounter throughout the design process.

MAJOR PROJECT ELEMENTS

MEMORY | Museum Exhibition Halls

Museum exhibits will narrate the story of Boston's transformation from a city which sent its disabled residents outside of the city limits to almshouses and institutions into a city which leads worldwide innovation in medicine, prosthetics, and orthotics. The museum functions will be the most critical parts of the facility, as this will be the most public program within the building. The exhibition halls will include a tribute to the almshouse, a summary of medical innovation, and a display of emerging medical technologies.

Almshouse Exhibition Hall

The almshouse exhibition hall will narrate the city's early history of sending its residents to institutions. This may include the display of old photographs and artifacts, lists of resident names from documents in the city archives, descriptions or recreations of physical living conditions, and other relevant historical information concerning Boston's early history, such as its landmaking efforts.

Medical Innovation Hall

The medical innovation hall will narrate the city's initial investment in the medical field to remedy to the poor conditions in the city's almshouses, followed by its growing prestige in medicine over the course of the last two centuries. This exhibition will look to stories from Massachusetts General Hospital, including that of the ether Dome, as well as other hospitals in the city, such as Brigham and Women's Hospital's invention of the Ewing amputation surgery.

Biomedical Technology Exhibition Hall

The biomedical technology exhibition hall will showcase mile-marking prosthetic devices that have been products of Boston, such as the Boston Arm, a cooperative project of the 1960's between Massachusetts General Hospital, Harvard University, Massachusetts Institute of Technology, and Liberty Mutual Insurance. Stories of those who lost limbs in the Boston Marathon bombings will be highlighted here, along with emerging prosthetic and assistive devices being produced in the city. This area will also serve as a rolling exhibition space for products of MIT's innovation lab, and will be nearby the prosthetic lab which is housed within the building.

EXPOSURE | Prosthetic Research Lab

A lab dedicated to the research of affordable prosthetic advancements will occur alongside the exhibition halls for the public to be exposed to the process of medical innovation. Exposure to the cases and recovery processes of many different patients will allow researchers to investigate diverse solutions for future biomedical devices. This may be a philanthropic endeavor for many organizations throughout the city to cooperate. The ability of the public to view the fabrication of these devices may help to normalize the idea of disability.

VOICE | Presentation Hall + Gallery Space

Presentation Hall

Providing an area for gathering will allow the building to be utilized as a speech platform for current issues surrounding disability or other underrepresented populations. A space like this will facilitate keynote speakers, meetings, and events that challenge visitors to reflect upon what actions must be taken in order to create a future of equity.

Gallery Space

The gallery space will serve as a rolling exhibition of the emerging work of private parties concerning equity. This may include personal projects which have been created in the maker space, personal narratives, literature, advertisements for events, and more. The space will serve as an open platform for various parties within the city to have their voices heard.

USER DESCRIPTION

The General Public

Visitors will be exposed to a story which may have the power to change the way that disability is perceived in mainstream culture. By exploring the exhibits, observing work displayed in the gallery, and perhaps overhearing a talk being given in the presentation space, these users will gain insight into the past and present of Boston's service to those with disabilities. Whether local residents or tourists from throughout the world, the goal is that the visitor will be moved to question his or her perception of disability, both personally and within one's community.

Medical Professionals + Innovators

This project will provide an opportunity for professionals that are interested in investigating new strategies to partake in research that or to observe innovation in action. This building may serve as a philanthropic outlet for many of these professionals, who may end up volunteering time to work at the facility or may succeed in convincing their organizations of sponsorship. This group is also a critical voice to be heard in the normalization of disability, as these professionals work with "other" bodies every day.

Amputees

Amputees that are acclimating to the process of getting a prosthetic limb will be accommodated in the prosthetic fabrication lab. Being exposed to Boston's history of approaching disability in conjunction with this audience's personal experiences may assist these amputees in recognizing outlets within the community within which disability is still underrepresented. This may help them in their process of acclimating to a new lifestyle and may raise up more leaders and activists in the Boston area, leading to further innovation. Additionally, the facility will provide a sense of community for meeting others in the community who are experiencing lifestyle changes or are interested in advocating for disability.

Family and Community Members

The integrated nature of the facility will assist family members in understanding the history of disability and lifestyle changes that the future may hold for their loved one. Social spaces will allow for interaction with community members who may not have a direct relationship but are interested in learning more about living with disabilities. Disability advocates may emerge from this group as well.

Students

Students of any discipline would benefit from learning in a holistic, cross-disciplinary environment such as this, particularly students of medicine, engineering, and social sciences. Exposure to the power of knowledge to lead to innovation will encourage these students to pursue innovation in their chosen field, evolving many professions and, in turn, culture.

THE SITE

Region | East Coast

The project will be located on the East Coast of the United States, as this is where the country was first colonized, and thus, where the highest concentration of almshouses were erected. Some of these almshouses have been placed on the National Register of Historic Places. However, the majority of them have fallen into ruin, being swallowed up by suburban sprawl or simply left outside of the city to decay, with little left to tell the stories of those who were housed in them.

FIGURE 22 | Regional Site Context Map within United States

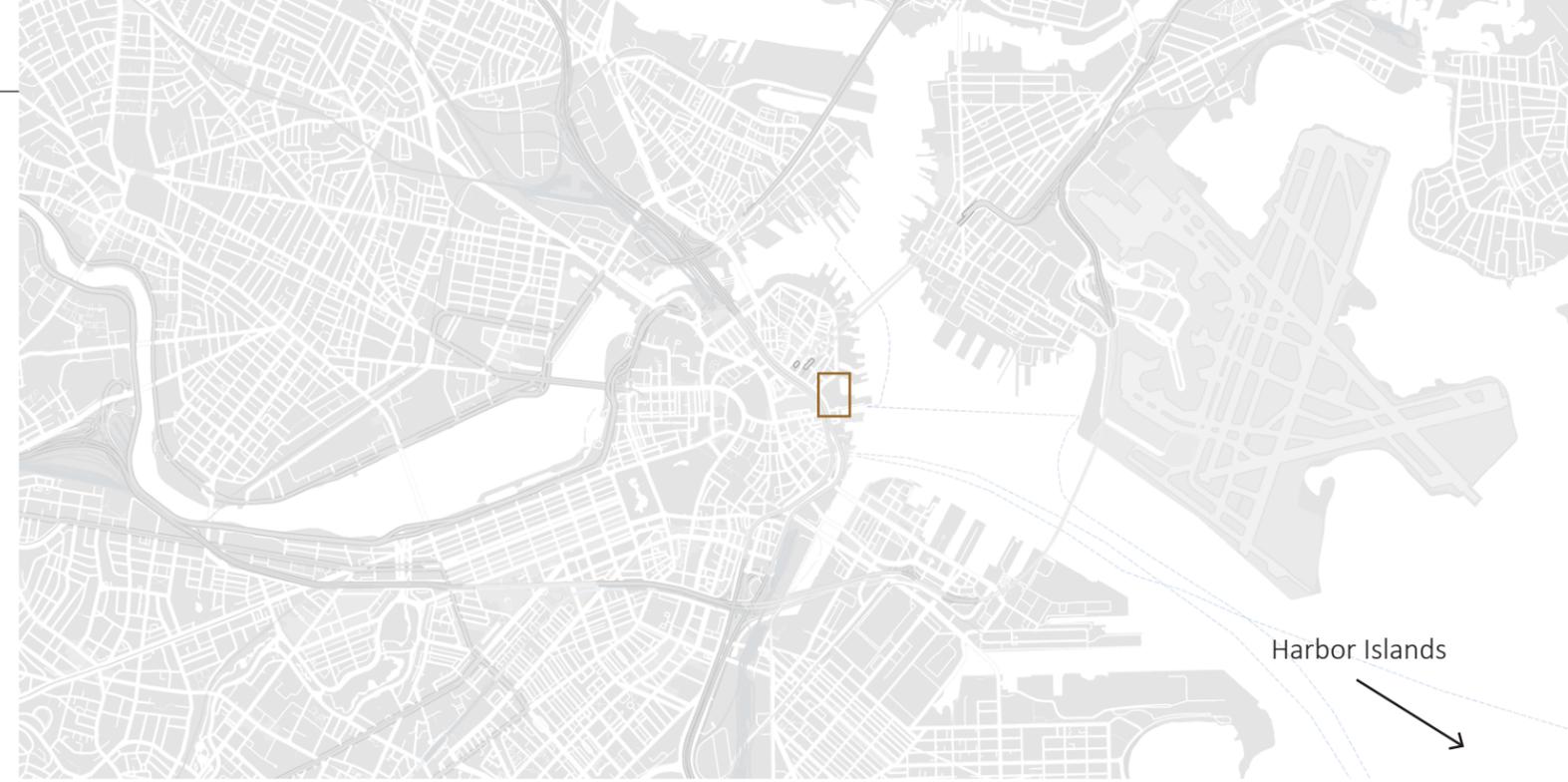


FIGURE 23 | Context Map of Site within Boston

City | Boston, Massachusetts

Founded in 1630, Boston is one of the oldest cities in the United States, and was a major contributor to the colonial almshouse. As one of the nation's oldest cities, Boston has had to reimagine and reconstruct itself a number of times to keep up with changing needs. In no way is this transformation more evident than in the city's coastline, which has been an evolving organism of infill for almost 400 years. Nearly 5,000 acres of the city sits atop wood pilings that stabilize it in what used to be the bay. The coast is a prosthetic extension and reimagining of the city's body, which is fitting since Boston is also a hub of innovation for prosthetics and medical devices.

With its major medical centers and top-notch universities, Boston's relationship with prosthetics dates most notably back to 1968, when Harvard and MIT students teamed up with Liberty Mutual Insurance Company and Massachusetts General Hospital to produce the first bionic prosthetic arm. Dubbed the Boston Arm, it is still on display at the MIT Museum. In more recent times, another eerie connection was made between Boston and the prosthetic industry when two bombs were detonated near Copley Square at the 2013 Boston Marathon, killing three people and injuring around 200 others, 16 of whom lost limbs due to the event. Boston's age and links to American History make it a major cultural center of the United States that has a history of architecture for the disabled and prosthetic reimagining.

The city is home to many museums and cultural centers, 4 million people in the metropolitan area, and hosts up to 19 million tourists each year. Its links to social change and protest, such as the famous Boston Tea Party, make it the perfect ground to start a movement for architectural and cultural change around the topic of disability.

Site | Christopher Columbus Park on Boston Harbor

My initial pursuit of almshouses in the Boston area focused mostly on the almshouse ruins in Newton, Massachusetts because the building and its ruins are surprisingly well-documented considering its abandonment by local authorities (thanks to the passion of a Boston College professor that attempted to save the last standing building in 2016, but did not succeed). Additionally, I was drawn in by the fact that the ruins are still accessible in the park and could be visited during my time in Boston.

However, the more that I sifted through the city's archives and spoke with the city archaeologists, I found a rich and scandalous history even closer to the city, yet more distant perhaps, in the Boston Harbor Islands. Three of the islands in the Boston Harbor, Long Island, Deer Island, and Rainsford Island, were home to almshouses at some point in the last 200 years. In addition, a school for disabled boys existed on an island called Bumpkin Island. The existence of these institutions in the harbor where their burden could not be felt by broader society mirrors what happened all throughout the United States as the undesired were sent outside of the city to almshouses, but nowhere in my research had I encountered a story so dramatic as in the Boston Harbor Islands.

The Harbor Islands are now a National Park, accessible by ferry or private boat in the summer months. The Harbor Islands Visitor Center exists to the southwest of my selected site of Christopher Columbus Park, in the Rose Kennedy Greenway. Additionally, the adjacent Long Wharf is where the majority of the city's ferries and harbor cruises depart from, many to visit the Boston Harbor Islands.

I selected this site because of its proximity to the mainland sites that are significant to the Boston Harbor Islands in the modern day. Sitting on the threshold of land and sea, building my project here establishes an extension, a bridge between the two, whilst also emphasizing a tension in the distance between the city and its almshouses, both in the Harbor and in Newton. Additionally, I was attracted to the site for its proximity to many other points of interest in the city, including Quincy Market, the Historic North End, the Freedom Trail, and downtown Boston – all of which drip with history of the founding of America. The combination of these factors indicate that there will be foot traffic near my site and that these people may already have an interest in Boston's history. By establishing my site in this context, my building will seek to add a new dimension to the stories which the Boston Harbor Islands are so well known for, creating a network of fragments across the city which all play into this narrative.



FIGURE 24 | Context Map of Site within Harborpark Neighborhood

FIGURE 25 | Southwest View through Site toward Downtown Boston



FIGURE 26 | Boats at Long Wharf





THE PROJECT EMPHASIS

The large, universal questions within the field of architecture that I hope to emphasize within the specific context of my project, a museum of Boston's history of serving its disabled citizens, are as listed below.

Designing for Physical Disability

I hope to emphasize the inadequacies of current approaches to designing for disability. Tacked-on ramps and formulaic approaches fail to consider the ethics of accessibility. Solutions for mobility and navigation through a space should not visually stratify the path for able-bodied people from the path for those with physical impairments. Rather, our architecture should reflect as an artifact of our beliefs that we value equality of all people, regardless of ability, seeking innovative solutions which tear down social and visual barriers.

I also hope to bring excitement to this topic in the realm of the many opportunities for design that arise when we consider varying bodily abilities. I believe that in investigating the past and revealing flaws within decisions that were made with good intent, I will bring the entire topic of how we are currently designing for disability and illness into question. I hope that this building will encourage visitors to question what negative consequences may still reside within well-intended practices of approaching disability in architecture and in culture.

Adaptive Reuse of an Existing Building

I also hope to address the topic of adaptive reuse since many of the projects that the rising generation of architects will work on will be adaptive reuse of existing spaces. My selected site has a change in incline which will present a challenge in mobility, and through this I hope to demonstrate that disability can be eloquently addressed within an existing space.

As far as building elements, I hope to provide a precedent for an alternative way that adaptive reuse can occur: through the disassembly and reassembly of spolia. These spolia are related to the thesis in nature of their past purpose, but are also representative of a way of reusing buildings which is amputated, fragmented, and other, which is appropriate to the unifying ideas beneath the thesis. To break down a building to the level of its pieces removes prior influences and biases,

representative of the reimagination of disability in culture which I aim to reconstruct from fragmented pieces of a narrative. Through this, I hope to demonstrate a way of thinking about disability which is other and to assert that no building is too far gone to advocate for eloquent solutions to problems of access or ethical design for disability.

The Human Need for Extension of Self

The last area that I aim to emphasize in my project is the lineage of the human need to fabricate things which reflect our values and to keep innovating. We have never stopped searching for ways to advance ourselves throughout the course of human history. Why should we stop now? This will occur in the form of a maker space and platforms for speech within the building. Through these incorporations to the program, I aim to establish that cultural evolution is an ongoing process which is powered by an endless flow of reimagination and creation of things which manifests our image beyond our physical boundaries.

GOALS OF THE THESIS PROJECT

Theoretical, Physical, and Social Goals

Theoretical Goals

- Employing various schools of architectural thought
- Demonstrating my personal values, especially the passion that I have for all people
- Creating a project which is altruistic in nature and would appeal to firms with similar values to mine
- Finding meaning in this event that will affect my loved ones and long after this thesis project is over

Physical Goals

- Bridging a variety of disciplines through a holistic design
- Creating a sophisticated project of which I am proud
- Demonstrating that I can manage a large body of information and synthesize it into a complete, thought-out solution
- Developing a deeper knowledge of the discipline of disability studies through my research

Social Goals

- Starting conversations about how to find exciting, creative design solutions for disability beyond ADA requirements
- Providing insight on how to approach disability with sensitivity and relevance
- Integration of personal passions and insight into working life
- Cultivating my personal experiences to benefit others by providing an insightful precedent for future design

These goals can be categorized into academic, professional, and personal goals as follows.

Academic Goals

- Starting conversations about how to find exciting, creative design solutions for disability beyond ADA requirements
- Providing insight on how to approach disability with sensitivity and relevance
- Bridging a variety of disciplines through a holistic design
- Employing various schools of architectural thought
- Creating a sophisticated project of which I am proud

I hope that this project will start a conversation about not only how we can make buildings accessible to people with disabilities, but also how we make them enjoyable to people with disabilities. I also hope that there will be an aspect of showing disability to be normal, and not something that we should fear or be uncomfortable with as a society. I hope that this project will bridge a variety of disciplines to demonstrate the collective, interdisciplinary knowledge we must continually gain as architects in order to design for our clients. I want to consider a variety of perspectives within the field of architecture as well. I also hope that this will lay the grounds for new conversations and experiments among architecture faculty and students. Ultimately, I hope that when this project is finished, it will be my proudest one yet.

Professional Goals

- Demonstrating my personal values, especially the passion that I have for all people
- Integration of personal passions and insight into working life
- Creating a project which is altruistic in nature and would appeal to firms with similar values to mine
- Demonstrating that I can manage a large body of information and synthesize it into a complete, thought-out solution

I hope that this project will allow me to demonstrate the passion that I have for others. I believe that doing a project of this type will help me to channel my passions for loved ones as well as for people I will never meet, and I believe that future employers will find this to be a genuine, admirable quality. I also think that I have an incredible opportunity to practice the integration of personal passions into my working life, which I hope will be a part of my career someday, as I hope to work for a firm which is strongly led by philanthropic endeavors. Additionally, I believe

this will demonstrate that I am capable of thinking creatively in a variety of ways and dealing with many moving parts. This would undoubtedly be valued by future employers as a promising quality for future success.

Personal Goals

- Developing a deeper knowledge of the process of becoming an amputee through my research
- Cultivating my personal experiences to benefit others by providing an insightful precedent for future design
- Finding meaning in this event whose affects my loved ones and I will continue to live with long after this thesis project is over

I have experienced first-hand how personal encounters with disability can move a person to reconsider widely-accepted norms in comparison with reality. For me, this encounter came through my experience of my fiance becoming disabled after losing his arm and leg in a traumatic accident. This experience revealed to me my own prior misconceptions about disability and provided me with insight into what living with a disability looks like in one's personal and public life. It also made me a sudden, unexpected expert of sorts on amputation recovery and prosthetic adaptation, as well as an advocate for those with disabilities. Realizing that this insight is one that not many designers (at least of the collegiate level) possess, I felt inspired to use my experiences to start a conversation. The largest goal of mine, amongst all others mentioned, is that my personal insight into this experience of a loved one becoming disabled along with my knowledge of the field of architecture might initiate change in the way that we design for and perceive disability.

A PLAN FOR PROCEEDING

A task analysis exercise will help me to define the framework in which to progress my thesis idea and to establish goals for the completion of these tasks. In conjunction with the research I will conduct this semester, I will be fabricating an artefact to embody the ideas of my thesis project and to evoke an experience like the one that my architecture will aim to evoke.

Once I complete my proposal, research document, and artefact, I will move into schematic spatial investigations of my site. This will likely involve the creation of a site model early in the spring semester which I will be able to refer to throughout the design process. Design software used during the Site Analysis of the Thesis Proposal will also assist me in conceptual massing and spatial planning onsite.

As my direction becomes more defined through massing exercises, I will continue to refine the design through the creation of technical drawings and any specialized forms of representation that may allow me to focus on areas of emphasis. As I work through technical drawings and process modeling, my goal will be to ensure that the building will facilitate all necessary functions, that its structure and materials will resonate with the project aesthetics and organization, and that its passive strategies will be effective.

Once the design has been solidified and I am pleased with its solution, I will move into the creation of presentation drawings, models, and manuscripts so that my idea can be communicated clearly at my presentation and through my materials for years to come.

Definitions of Research Direction

Research will be conducted in the following areas:

The Theoretical Premise/Unifying Idea

This will be researched through investigation of the body's response of phantom pain after the loss of a limb, which will be largely aided by Ramachandran's precedent experiments. Additionally, other resources which investigate a similar alienation from oneself, such as Susan Kozel's performance in *Telematic Dreaming*, will be referenced and interpreted in the relationship of disability and architecture. Literary works that discuss imaginative historic preservation, such as Federica Goffi's *Time Matter(s): Invention and Re-Imagination in Built Conservation*, and Marco Frascari's *Monsters of Architecture: Anthropomorphism in Architectural Theory* will be read and reviewed. Dalibor Vesely's writings on restorative fragment will be investigated in relation to the turning over of the almshouse spolia.

Project Typology

Project typology research will be conducted through case studies of centers similar to this which are effective as well as some that are not. The majority of these case studies will occur through onsite observation of Boston's museums during my site visit November 21-25, 2019. In addition, case studies of other projects which reimagine convention will be conducted to identify effective strategies and highlight areas of consideration.

Historical Context

Historical Context of the topic will be researched largely through the lens of architectural theory and the continuum of how human thought has changed over time, especially regarding disability and architecture. Historical context of the site will be researched with the use of archival data as well as onsite findings and various literary sources.

Site Analysis

The site will be investigated via a site visit to Boston November 21-25, 2019. This will be supported by current qualitative and quantitative data from databases, archives, and analysis software. This may include maps, floor plans, prior uses, etc.

Programmatic Requirements

Programmatic requirements will be defined with the aid of case studies and the research of theory, medicine, and societal social values.

Plan for Design Methodology

This project will employ mixed researched methods. Methods to develop the theoretical premise and artefact will include:

Historical Research

This will include historical research into the human tendency to fabricate objects and architecture to manifest ideas into material, the social approach to designing for disability, and the significance of the site in relation to these two concepts. The theoretical framework will be developed through a narrative which is guided by context and prior knowledge.

Logical Argumentation

Rhetoric tactics and interdisciplinary knowledge will be employed to develop the theoretical narrative to implicitly address the issue of designing for disability through a program and design which will highlight the issues in existing, formalized and formulaic approaches. My goal is that the argument will slowly unravel to reveal the many ways in which disability is inappropriately addressed by the built environment and that my design will provide an eloquent, positive precedent to advance knowledge in this area.

Mixed research methods to develop the program and design will build off of the research gathered through historical research and logical argumentation but will also incorporate:

Qualitative Data

Qualitative data will be gathered from direct observation, prior experience, and historical resources such as literary works and museum visits. This data will help to inform the building program and to generate a list of existing approaches which are effective or not effective.

Quantitative Data

Quantitative data will also help to inform program and a list of “do’s and don’t’s.” This quantitative data collection may include statistical data, measurements, or medical principles that will help to inform design decisions.

Literary interpretation, graphic analysis and digital analysis will be employed where needed to interpret information which may come forth from any of the aforementioned research methods. This may include, but is not limited to, hand sketching, hand modeling, computer modeling, computer simulation, graphic diagramming, or other methods which may assist in research interpretation.

Plan for Documenting the Design Process

Final Document Compilation: Adobe PDFs Stored in NDSU Repository May 11, 2020

Design Investigation & Development: As needed, Spring 2020

- Hand Sketching
- Hand Modeling of Artefact and Building Design
- Collage

Design Software: As needed, Spring 2020

- Autodesk Revit
- Rhinoceros

Representation Software: As needed, Spring 2020

- Adobe Photoshop
- Adobe Illustrator
- Adobe InDesign

Process Preservation Methods: As needed, Spring 2020

- Research documented through Thesis Proposal and Research Document
- Documented feedback from advisor meetings
- Compiled sketches in sketchbook
- Photography of all working models
- Digital drafting of representation

Presentation Media: April 4, 2020

- Powerpoint / PDF Presentation
- Presentation Boards
- Presentation Models
- Script

Publication of Material: May 11, 2020

- NDSU Repository
- Submit to Thesis Instructor

Specific Schedule for the Project

Adhering as closely as possible to the project schedule will help to ensure a full, timely completion of the project. The project schedule is defined at right.

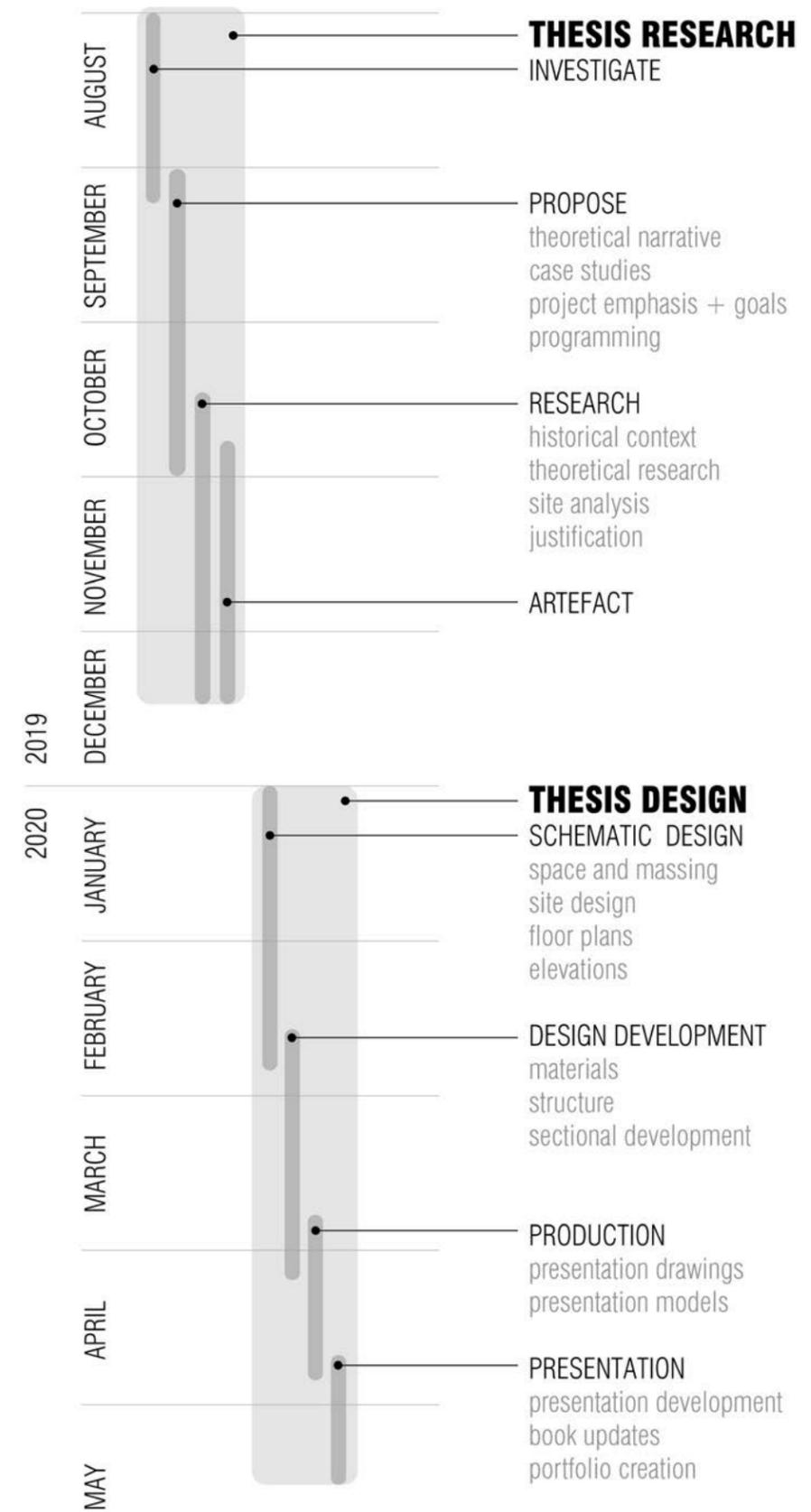


FIGURE 28 | Project Schedule

THESIS RESEARCH

RESULTS FROM THEORETICAL RESEARCH

THEORETICAL PREMISE RESEARCH

Overview

Combined research strategies, beginning with historical research and logical argumentation, have been met by qualitative research to achieve the body of knowledge summarized in this section. I begin by laying out the philosophical framework for my research, which is essentially a cultural critique of current practice, followed by the proposal of my thesis question and a short historical summary. The next section is the theoretical framework. This is the largest section, as it is where each unifying idea comes to meet, resulting in the culmination of the theoretical premise: the reimagination of an existing body through architecture as prosthesis. This is followed by a discussion of strategies, which looks to precedents that have been capable of powerful reimagination. Finally, I discuss the tactics for my plan of action.

Philosophical Framework

As a tangible reflection of our values, our architecture of today displays a cognitive dissonance between our cultural value of equality and our actions of differentiation when designing for disability. Modern culture boasts of its inclusivity, but our architecture highlights differences. We have become so specialized and systematic in our design for disability that our methods of accommodation have become methods of differentiation between varying abilities. In Hans-Georg Gadamer's *The Enigma of Health*, he critiques this clinical, specialist attitude of the modern era, saying: "[What] touches each and every one, is the silent form in which more and more areas of human life are subjected to technical domination" (Gadamer G. , 1996).



FIGURE 29 | Plato's Symbolon

Current practices of designing for disability, while well-intended, lead us to apply top-down, accessibility formulas to our designs as an afterthought. This often leads to solutions which divide rather than unite, resulting in a separation of disabled bodies from “able” bodies. An unnoticed but visible dissonance in our built environment is revealed: a silent statement that those with disabilities are an architectural and cultural burden.

This brings us to a timely question that we as architects must ask ourselves: **How can reimagining the way that disability is approached in architecture influence the way that disability is perceived in culture?** To seek an answer to this question, I have been investigating how changing perceptions of the body are preserved in the memory of architecture and how these may be turned over through a reimagination which propels cultural evolution into the future.

Historic architecture gives us very few clues as to how disability has been accommodated throughout human history, leaving us to look to language to carry on these stories. While the pyramids themselves do not hint at how disability was handled, hieroglyphics depict Ancient Egyptian dwarfs and denote that deformities were sometimes seen as signs of celestial gifts from the gods. The Greek theaters bare no traces of the infanticide with which they addressed disabilities at birth, yet texts speak of many leaders who sustained injuries and were able to become respected leaders despite this, such as the disabled god of blacksmiths, Hephaestus. During Roman rule, cultural texts tell of the outcast lepers. Similar approaches of banishment from society were taken during the Middle Ages and the Renaissance, in which hygiene was a large issue for public health, and became more and more systematized with the Enlightenment.

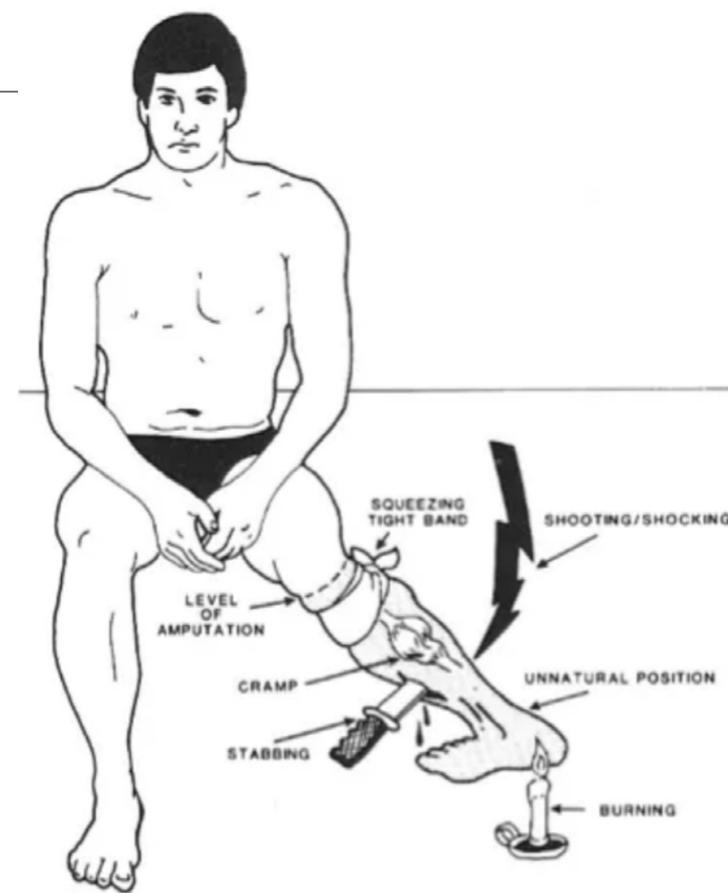


FIGURE 30 | Phantom Pain Perceived Sensations

From looking at the way that earlier cultures approached disability in culture, we know that cultural attitudes toward disability are not fixed, but are always changing and being reimagined.

Theoretical Framework

The Phantom of Fragmentation An Ache for Wholeness

In order to reimagine, we must remember. The memory which I seek to conjure is one housed in each of us: a legacy of imperfection, of incompleteness, of lacking the wholeness that we so desperately desire. This legacy is a phantom which has haunted our entire human lineage, weighing on the shoulders of our earliest ancestors, and is still the gnawing force which moves us to seek reconciliation with the world today. In Ancient Greek thought, this constant longing was explained by Plato's story of the Symbolon, which theorizes that we were originally spherical creatures with two heads, four arms, and four legs who were separated in half by Zeus. Now fragmented, we are left to search for the other half of ourselves to find wholeness. Incomplete and unsatisfied, we are plagued with a relentless longing for meaning which manifests as a desire to establish a connection between self and world. Alberto Pérez-Gómez speaks of this longing we have for the outside world to be “reconciled [to]... the human condition.”

Our fragmentation leads us to a search for wholeness which is similar to the phantom pain that an amputee experiences in which pain is perceived in the missing limb as if it were still attached to the body. The nervous system's perception of its fragmentation causes the nerves to fire signals to the site of amputation in search of the lost limb, creating sensations of extreme pain or discomfort in their pursuit for wholeness of the body. Though this phenomenon is unique to the physical conditions of the amputee, our fragmented human nature aches for wholeness and reconciliation in a similar way.

FIGURE 31 | 2019 Fire at Notre Dame



In Juhani Pallasmaa's *The Eyes of the Skin*, he says that, "Our contact with the world takes place at the boundary line of self" (Pallasmaa, 2005). Like the nerves of the amputee, in our persistent longing to be whole, we seek to extend the boundary of self beyond the physical boundary imposed upon us by the body. We turn to the outside world, projecting ourselves onto things outside of the body and crafting objects which we believe may reconcile us to our surroundings. This can be observed in Susan Kozel's performance in the installation *Telematic Dreaming* by Paul Sermon. In the installation, a projection of Susan's body was shown on a bed in a room away from her, where a participant of the experiment violated the projection. Kozel perceived the violation from across a distance, demonstrating that consciousness is not contained to the physical body (Sermon, 1992).

This implies that our body image and consciousness actually extends beyond the physical boundary of self, which is true of our collective, cultural body image as well. Cultural body image is embodied not only in culture but is also projected onto the built environment, as can be observed in any city's pride for its landmarks. We have experienced this recently in the fire of the historical tower at Notre Dame, the worldwide outcry mourning its loss, the exorbitant amounts of money poured forth to rebuild it, and the conflicting opinions of whether a replacement tower should be appendaged in place of the lost one. Federica Goffi compares the loss of a historically significant building to a collective phantom pain. This illustrates how we store a sense of identity in architecture, just as we store a sense of identity in the body. If we store a sense of cultural identity in the built environment, then the environment that we as architects create is of immense importance because it is the canvas onto which society projects itself. It is our responsibility to reconcile the world to our fragmented, human condition, especially in the realm of the user's perception.

Prosthetic Extension of Self

The Flesh Beyond Flesh

"The thickness of the body, far from rivaling that of the world, is on the contrary the sole means I have to go out into the heart of the things, by making myself a world and by making them flesh." - Merleau-Ponty, *The Intertwining-The Chiasm*

From the identity that we store in the built environment, we can see that architecture serves as an extension of ourselves to resemble us within the world to which we long to connect. Architecture becomes a medium through which we explore the world and our relationship to it. When architecture is regarded as a

FIGURE 32 | Susan Kozel Performing in *Telematic Dreaming*

medium through which we explore the world, it is promoted from an entity which is inanimate to one that plays a lively, transformative role in our lives. Architecture viewed in this way can be likened to the prosthetic limb: a body of flesh beyond the flesh, of manufactured materials which will always remain outside of oneself, yet, is undeniably a life-giving extension of oneself. Architecture is crafted as a prosthesis to our own fragmented human nature, something which we fabricate to reflect our own image in an attempt to reconcile the human condition to the world in which it dwells. Reaching beyond the physical boundary of the body yet embodying our own image across a distance in time and space, it is an extension of self through which we adapt to the world.

Body Image, Embodied
Reflection of Remembered Self

In the crafting of such an extension of self, a vessel is birthed which echoes back to us a truth we rarely encounter: that of our own body image, the way that we perceive ourselves. Gadamer says that, “Everything we see stands before us [like a mirror] which addresses us directly as if it showed us ourselves.” In the 1990’s, neuroscientist V.S. Ramachandran discovered that the phantom pain experienced by amputees could be temporarily alleviated by positioning a mirror perpendicular to an amputee’s body to reflect the remaining limb, making the missing limb appear to be present. The mirror restored an image of bodily wholeness in the reflection, allowing the nerves to forget the body’s fragmentation.

Just as one’s individual perception of self matures with life experience, our collective body image is also subject to change and evolve as we continue to adapt to changing cultural conditions and technological advancements. Through the works of our hands, such as architecture, this cultural image of self emerges unapologetically. Similar to the memory evoked by Ramachandran’s experiments, these reflections of ourselves in the works that we create can reveal to us the things which we have forgotten or perhaps were never even aware of. Seeing our thoughts manifested in material facilitates a cathartic encounter with our own tangible self-expression, which can reveal truths about our own cultural values and biases, such as how we value disability.

Since the turn in thinking of the 17th century, the value of efficiency in modern thinking has brought us to a dissonance with our cultural value for all people to be regarded as equals. This manifests in a dissonance between our thought and practice which can be read from our architecture which treats disability as a burden.

While we desire more now than ever to cultivate a society which sees and treats all people as equally valued, we also have a desire to efficiently regulate the ways that we approach such issues. If we desire for all people to feel valued, we have to put in the time and effort to reimagine and rebuild our own perceptions and practices toward designing for disability to better resemble the cultural values that we want to embody.

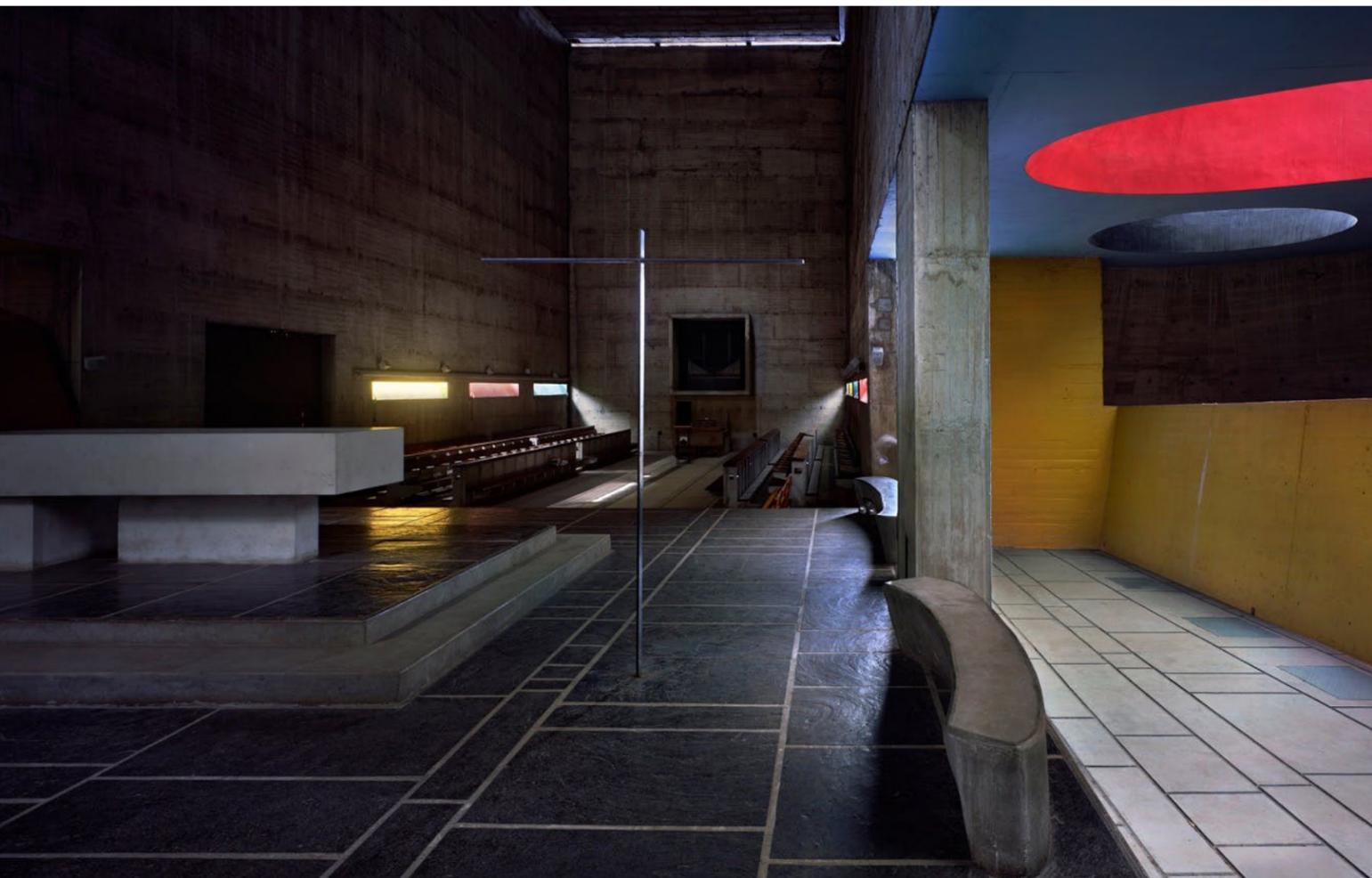
Restoration through Fragmentation
The Overturning of a Cultural Dissonance

As the driving force behind our creation of objects, our fragmentation is the reason that we are able to identify our own values and biases and thus can be the grounds for reimagination. This is demonstrated through Marco Frascari’s *Monsters of Architecture* discussion of the Greek trope which was connected to the trophy on the battlefield. “Trophies were built on the battlefield on the site where the tide of the battle turned in favor of the winner. [They] were built using the spoils of the slain enemy... to appease their souls and prevent the gods’ punishment of the victors. The enemy casualties were thus... troped from murders into sacrifices” (Frascari, 1991). While this is rather gruesome, we can see how for these people, these trophies represented the turning over of something negative into something restorative.

This speaks to the possibility of being reconciled to the world through the fragmentation which makes us seek reconciliation in the first place, as failures inform evolution. Thus, our innate fragmentation is turned over, or troped, from something which is negative into something which has the power to be restorative. This is what Dalibor Vesely calls “the restorative fragment.” The restorative fragment “relies on a sequence of stages bringing together individual phenomena and universal ground in a process that may be described as the restorative mapping and articulation of the [latent] world” (Vesely, *The Rehabilitation of Fragment*, 2006). It allows us an opportunity to see something old in a way that is new, troping our fragmentation into an opportunity to reimagine.



FIGURE 33 | Le Corbusier's La Tourette Monastery near Lyon, France



Strategies

Reimagination Precedents *Changing the Way we See*

Federica Goffi illustrates fragment changing the way that we see in her discussion of the surrealist game of the exquisite corpse (which will be further discussed in the literature review). Surrealists sought to reference familiar fragments out of their context in order to interpret the world in new ways. In the game of the exquisite corpse, a metamorphic assembly of prior-known objects are arranged into the likeness of a human body. The result is a hybrid body which is implied by things which are not human at all. Goffi investigates the exquisite corpse through the lens of a 15th century drawing of St. Peter's Basilica before the basilica was reconstructed. The drawing, by Tiberio Alfarano, shows the old and the new alongside one another, reimagining the Basilica as an overlay upon itself, demonstrating an opportunity to reimagine an existing body. Goffi expands upon the use of spolia, which are reused building elements that are assembled in a new way. As architects, this speaks to the opportunity that we have to reimagine the existing bodies of architecture which we are handed down from history and to represent cultural ideas as they evolve over time. This reimagination yields an architectural palimpsest- a body in which traces of the original remain alongside the new - which allows us to manifest our own evolution in the self-image embodied in architecture.

We also see reimagination at work in Le Corbusier's La Tourette Monastery near Lyon, France, where architecture as a body is reimaged in a new way. Breaking with traditional precedents, Le Corbusier approached La Tourette as a reimagination of the monastery which serves as a reflection of the human spirit. Playing off of the archetype quality of a central courtyard, La Tourette de-idealizes the notion of monastic architecture, offering an alternative which is more difficult to inhabit, and is thus more reflective of the interiors in which we dwell. The complex embodies a rawness of materials and a discomfort which is meant to signify the restlessness of the human soul, contrary to the warmth most spiritual buildings aim to capture. There are many dark corners, mirroring our own darkness, met by stark interventions of light, meant to symbolize God's radical intervention into our brokenness as humans. Though the building is new, it is a reimagination of that which has preceded it in architectural practice.

Tactics

The Use of Spolia

Reimagining an Existing Body

This reimagining of an existing body may occur through the adaptive reuse of an existing building or may occur through the use of spolia, which are reused building elements in the making of something new. This reclaiming, reinvention, and reimagining of an existing body speaks to Maria Karvouni's discussion of the tekton in her essay "Demas: The Body as Tectonic Construct." Karvouni discusses the origin of the architect as "tekton," who was a master of "diairesis" (dividing) and "prosthesis" (adding) of the building or "demas" (body). In this light we can see the architect as an assembler of something very intimate, literally referred to here as a body. In this way the architect's job can be seen as very similar to that of the prosthetist: to craft a prosthetic extension/reimagining of a previously existing body.

I plan to approach this project as a reimagining of the colonial almshouse, America's first architecture for the disabled, into a museum of restorative fragments which reimagine and reconstruct our approaches to disability in architecture and in culture. I plan to uproot traces of remaining foundations of the forgotten almshouses near Boston, Massachusetts and reassemble their spolia alongside new materials in the place where they can be remembered by the public: in the city of Boston. As symbols of the social rejection and banishment of the disabled and undesired, it is important that these fragments of history not die a quiet, overlooked death, but rather experience an intentional restoration into the modern era. The goal is to bring the Almshouse to the memory of broader culture, integrating disability into everyday life through a prosthesis to our current practices.

The spolia will be transported from the sites of former almshouses and institutions on Long Island, Rainsford Island, Bumpkin Island, and mainland Newton. These fragments will be assembled along with new building materials into an appendage to narrative that currently exists at the Boston Harbor Islands Visitor Center and on the cruises, tours, and website of the Boston Harbor Islands National Park. This story currently includes little to nothing concerning the many almshouses and institutions that were housed on the islands, which means that it also makes no reference to the mainland almshouses either, though all of these things are closely linked by their history. A detailed summary of the story that the museum will tell can be found in this book's section on "Historical, Social, and Cultural Context of the Thesis."



FIGURE 34 | Almshouse Ruins at Newton Almshouse and Rainsford Island

Due to restrictions about visiting these sites and tools limitations, it will not be possible to acquire exact measurements for these fragments, but will rather be a digital endeavor. Through satellite imagery and personal photography, I will measure the spolia to the best of my ability and will design accordingly.

LITERATURE REVIEW

Summary

There are two texts which played a large role in informing the theoretical premise of this thesis: *Time Matter(s): Invention and Re-Imagination in Built Conservation* by Federica Goffi and *Monsters of Architecture: Anthropomorphism in Architectural Theory* by Marco Frascari. This section will review these literary works, which have been chosen for their relevance to the reimagination of architectural bodies over the course of passing time. While Goffi seeks to extend the meaning of architectural preservation, Frascari seeks to extend the meaning of anthropomorphism in architecture. The texts share a consistent theoretical foundation not only in a hermeneutic approach, but also in the fact that Goffi was a student of Frascari. Together, these two works investigate architecture as a body which is as alive as the ones which we as humans inhabit, providing insight into the intervention with buildings that have been passed down through history.

In the first text, *Time Matter(s): Invention and Re-Imagination in Built Conservation*, Federica Goffi investigates the role of reimagination and reinvention in architectural preservation. As an advocate for the regeneration of mnemonic buildings, Goffi brings a perspective to historic preservation which is alternative to traditional preservationist approaches. Through her work, Goffi blends the boundary between imagination and memory, establishing architecture as an essential embodiment of both. In this way, Goffi suggests, architecture is not only a means of weathering time, but also is a means of representing it.

In the second text, *Monsters of Architecture: Anthropomorphism in Architectural Theory*, Marco Frascari extends the long-held theoretical approach of anthropomorphism in architecture to include not only the human form, but also the human form which has been reimagined over the passing of time, becoming what Frascari calls an architectural “monster.” In his discussion of monsters, Frascari succeeds in not only destigmatizing the idea of something “monstrous” but also in refuting the idea that architectural bodies are too sacred to be reimagined. Through Frascari’s argument, architecture is revealed as a body which is always evolving by an act which we initiate. This evolution can change the way that we perceive the world around us.

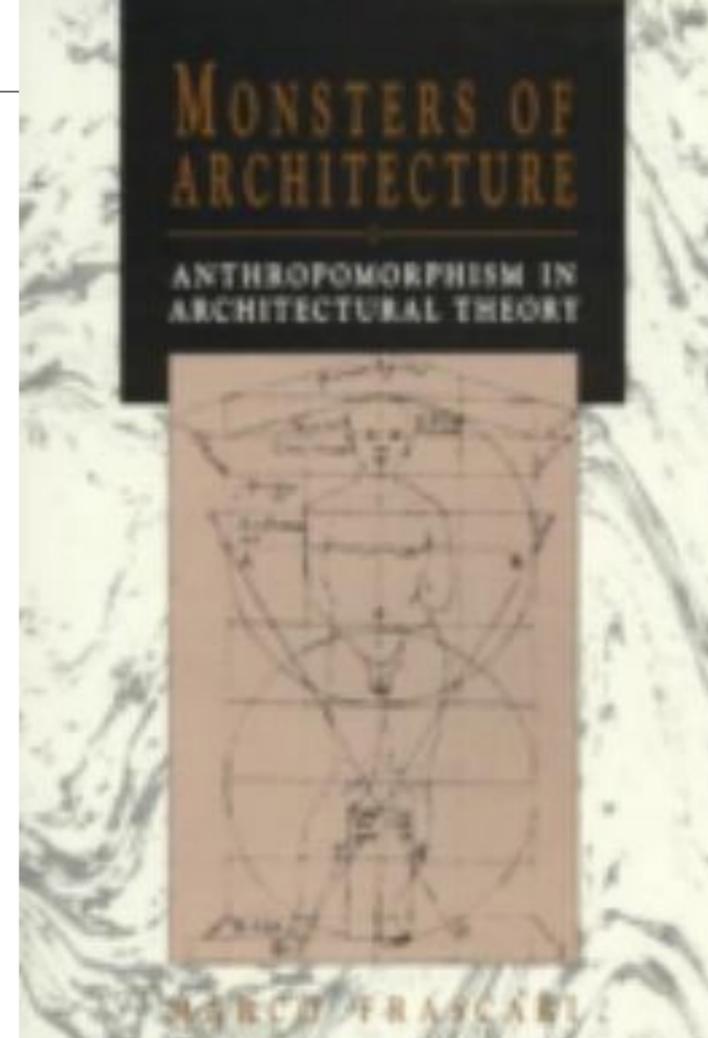


FIGURE 35 | Monsters of Architecture Cover Art

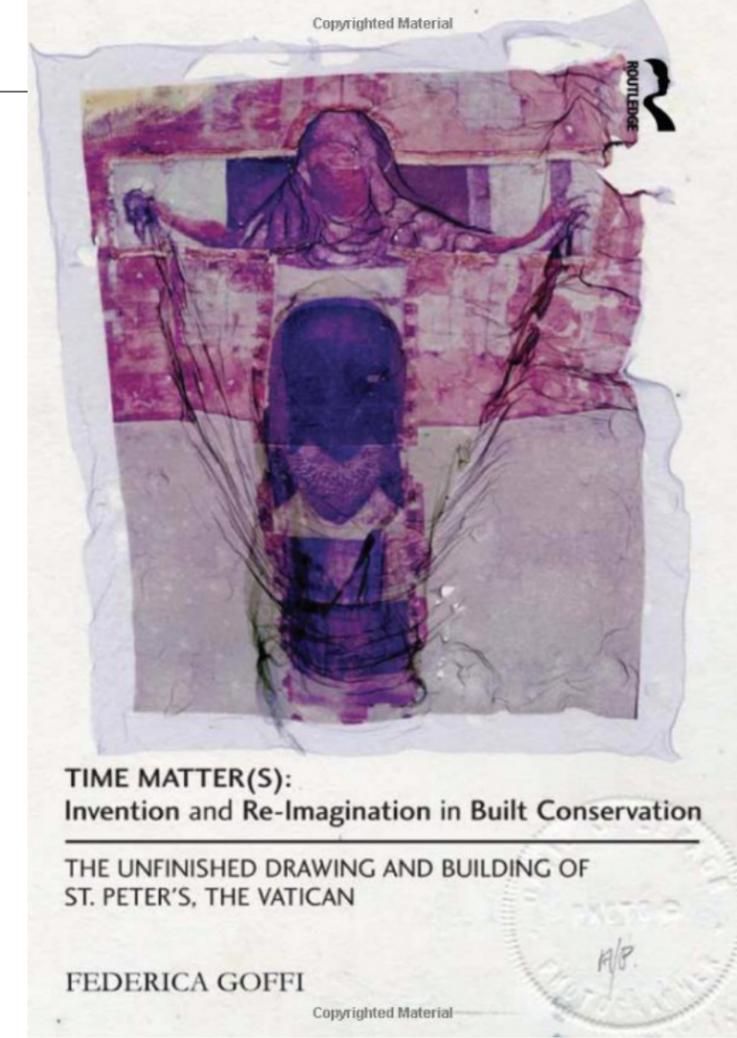


FIGURE 36 | Time Matter(s) Cover Art

Together, these texts provide a foundation from which my argument for the reimagination of existing architectural bodies through architecture as prosthesis arises. In their insistence on intervening with the past in the present, both Goffi and Frascari bring an outlook to the reader which is contrary to the conservative views of preservation which populate mainstream architectural thought. Both texts reveal a way of seeing architecture of the past in a way which models the interior human experience of being molded by historical events, responding to them, and adapting ourselves to inhabit an always-changing world. In this way, these texts reveal a way of thinking which may be the most preservationist and anthropomorphic of all, as they reflect the natural human tendency of evolution.

TIME MATTER(S): INVENTION AND RE-IMAGINATION IN BUILT CONSERVATION

By Federica Goffi

Overview

This review analyzes Federica Goffi's stance on historic preservation as an outlet of reimagination and reinvention as she articulates it in *Time Matter(s): Invention and Re-Imagination in Built Conservation*. As a scholar of architectural representation, a substantial amount of Goffi's text focuses on representation methods. This review will not address architectural representation methods of historic buildings as a practice but will delve deeply into the topic of reimagination and reconstruction of historic buildings as studied through Tiberio Alfarano's 1571 hybrid representation of St. Peter's Basilica. Through the discussion of spolia, the Janus head, and the surrealist game of the exquisite corpse, this review will seek to analyze Goffi's principal arguments of an imaginative approach to historic preservation.

Review

In *Time Matter(s): Invention and Re-Imagination in Built Conservation*, Federica Goffi addresses what she calls "a blind spot in architectural theory and practice: exploring conservation as a form of invention and (re)imagination." Goffi's discussion of imaginative conservation is relevant to mine because I desire to reimagine previously existing structures in order to explore the possibility of reinventing social perception surrounding disability. The principal arguments which Goffi presents are founded upon the idea that a building does not need to be "preserved as is" or "restored as was" to maintain its cultural significance and identity. Rather, she contends that these mnemonic buildings can be under a constant state of reimagination and reinvention, all the while only becoming more culturally relevant.

Collective Memory and Imagination

Goffi speaks of the "collective memory and imagination" which are housed within mnemonic buildings, connecting generations of people together through time and space. She makes an insightful connection of this collective memory to a collective body image, which can be affected by external factors in a similar way to the body image housed in each of us. Goffi compares this responsiveness of cultural body image to the phenomenon of the phantom limb as she states, "If a mnemonic building is lost suddenly, the result is a loss experienced by the community similar to the phantom pain that an amputee experiences after the loss of a limb." The pain of a lost mnemonic building is caused not only in the harm of the physical building itself, but also in the impact to the collective identity stored in its architectural body. Goffi's use of the phantom limb as a metaphor for lost buildings provides a framework for my argument of our human tendency to project ourselves onto the built environment in attempt to be reconciled to a world which we are within but which is outside of ourselves.

Goffi discusses this collective body image in relation to the preservationist fear of reimagination. She contends that there is a certain mythic quality to the memory of buildings, identifying the fact that mnemonic buildings have existed beyond the time frame that we can remember as the reason we regard them as important. Because of the authority of a building's age, we often feel hesitant to make alterations. Goffi argues that this tendency suggests that humans prefer myth over documented history. This nostalgic tendency, however, fails to recognize the present moment as historically significant and culture as a body which is always evolving.

Opposing traditional preservationist ideals, Goffi suggests that a building can be significantly altered without sacrificing its identity. She challenges the widely-held perception that conservation must occur as "restoration *as was*" or "preservation *as is*," criticizing the fact that change is not approached as a possible conservation endeavor. Goffi justifies her statements in clarifying that "creative change is introduced [into the argument] not to be provocative, but rather to seek meaningful ways of remembering that are alternate." This stance, along with the previously mentioned arguments, provide a framework for my assertion of the importance of reimagining architecture to reflect a community's collective body image.

The Unfinished Drawing of St. Peter's Basilica

Goffi investigates the reimagination of a mnemonic building through Tiberio Alfarano's unfinished drawing of St. Peter's Basilica. This drawing, dating to 1571, emerges from a time of change. Between the 14th and 15th centuries, elements of St. Peter's were disassembled and reassembled to expand the basilica. Many scholars perceived this as a demolition and new construction rather than a rearrangement of existing parts. Alfarano's drawing, however, shows the old and new plans superimposed atop one another, which, Goffi contends, demonstrates a unique reimagination of an existing body. The result is an architectural palimpsest where old and new exist alongside one another, reading not of one author alone, but of many over the course of time. The result of Alfarano's drawing was a palimpsest which bears traces of its original creation alongside its reimagination, telling of the many architects who have authored it and of the eras it has endured.

In the discussion of the palimpsest enlivened by Alfarano's drawing, Goffi introduces the use of spolia, which are building elements that are reassembled in a new way. Prior to reading *Time Matter(s): Invention and Re-Imagination in Built Conservation*, I had planned to approach my building as the adaptive reuse of an existing building within the framework already defined by its structure, on its original site. Goffi's discussion of spolia inspired my decision to use the spolia of the Boston almshouses in the assembly of my building at a central site instead.

Goffi's discussion of spolia in the context of reimagination is, in itself, a strong foundation for my argument. Since adaptive reuse of an existing building has become rather commonplace in our current era, the use of spolia reimagines an existing building in a way which is less expected. As a project about disability, a misunderstood and underrepresented course of life, a building approach which is also perceived as "other" feels appropriate. This act of displacing cultural building elements is also more provocative than intervening on an original site, reflecting the displacement of groups of people from broader society. Such a method introduces an alternative way of approaching architecture, just as the program introduces an alternative way of approaching disability. A reimagination such as this does not strip the almshouse spolia of their cultural significance of the past, but rather makes that significance more accessible to the public of the present era.

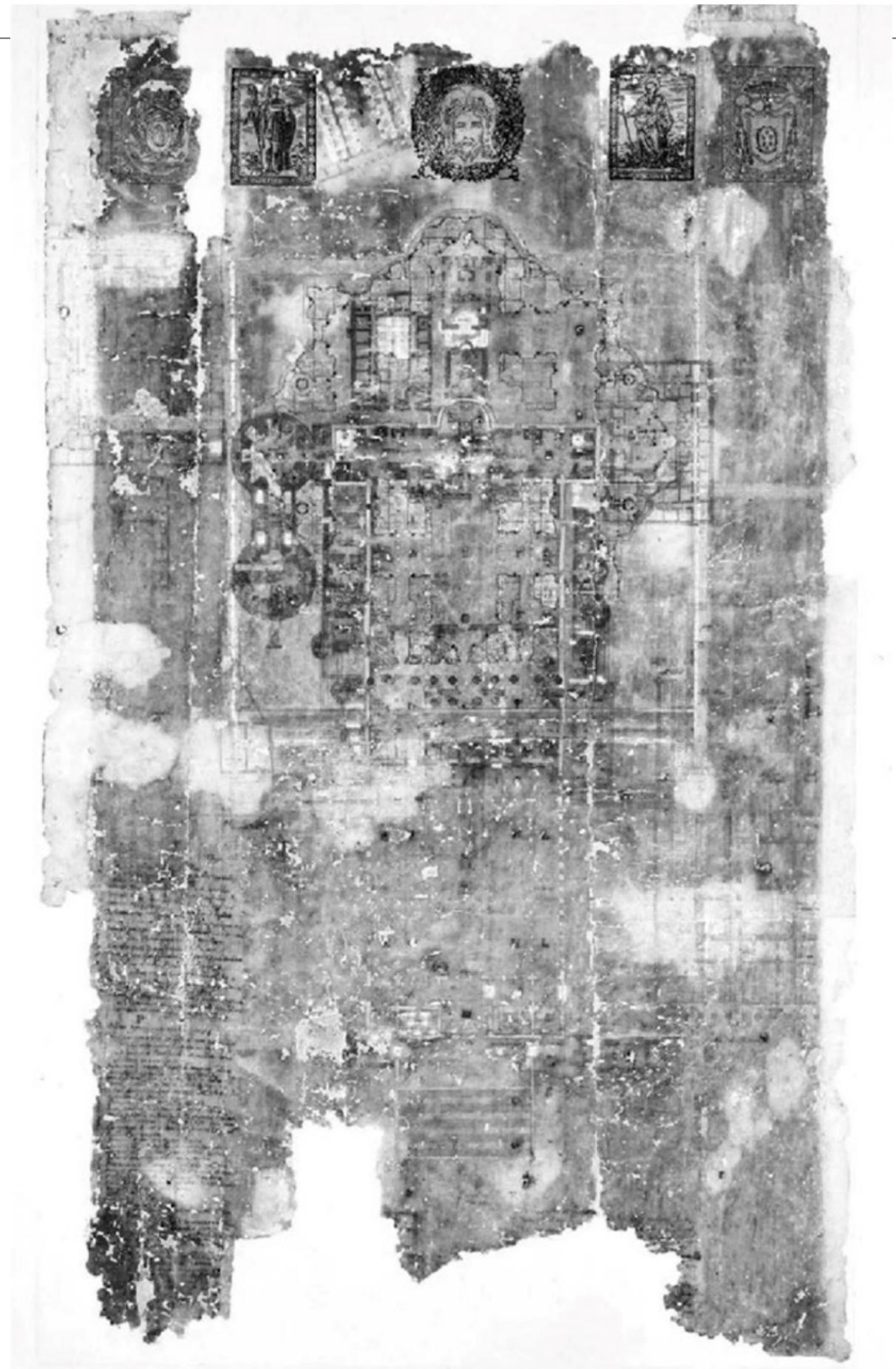


FIGURE 37 | Tiberio Alfarano's Drawing of St. Peter's Basilica, 1571 | (Goffi, 2016)

The Exquisite Corpse

We tend to regard architectural history as continuous, whereas Goffi says it is typically “a series of discontinuous interventions informing a progressive regeneration.” This implies that interventions are made by many authors over the course of time for a variety of reasons. The result is a body which is always evolving and is constantly being regenerated. This regeneration, Goffi contends, is that which gives buildings their eternal quality. A consistent identity is manifested through constant change. She relates this idea to a game that was born out of the surrealist art movement of the 1920’s and 1930’s: the game of the exquisite corpse.

In the surrealist game of the exquisite corpse, a hybrid body is assembled through the arrangement of everyday objects by various artists into a figure resembling the human form. Goffi suggests that architecture is also a body constructed by many authors, which “framed within a perspective of anthropomorphism... is modeled after man’s own relationship with time.” Goffi’s comparison of architecture to the exquisite corpse provides support for my argument that we as humans are always evolving through acts which we ourselves have initiated and are thus responsible for propelling ourselves forward into social progress through architecture.

Janus

Architecture as a means of representing time is described by Goffi to be “Janus-like.” This refers to Janus, the roman god of gates, who represents beginnings and endings, or past and future. Goffi claims that conservation is facilitated by a dialogue between the past and the future, which is what ensures continuous identity despite physical changes. As the ruler of thresholds, Janus represents a passing from the past to the future in the threshold of the present. In this way, I also strive to recognize architecture as Janus-like in my work. By operating in the threshold of the present, I hope to connect to the past of disability in America so that it may inform our future.

Goffi introduces a perspective to conservation which is alternative to the preservationist value of “restoring as was” or “preserving as is.” She discusses the collective body image which is stored in architecture, demonstrating that the design decisions that we make as architects are capable of changing social perception. Through her investigation of Tiberio Alfarano’s drawing of St. Peter’s Basilica and her discussion of spolia, the exquisite corpse, and the Janus head, Goffi presents a justification for the reimagination of historic buildings which serves as a strong foundation on which to build my own argument.



FIGURE 38 | “Cadavre Exquis” (Exquisite Corpse) by Andre Breton, 1938 | (Goffi, 2016)

MONSTERS OF ARCHITECTURE: ANTHROPOMORPHISM IN ARCHITECTURAL THEORY

By Marco Frascari

Overview

This review analyzes Marco Frascari's *Monsters of Architecture: Anthropomorphism in Architectural Theory*, investigating anthropomorphism as it relates to what Frascari calls the architectural monster. Precedents such as the *Ars Memorandi* and the paintings of Giuseppe Arcimboldo will be presented as monsters of fragmentary architecture of spoils. Through the investigation of battlefield trophies, the relationship of construing and constructing, and architecture as a theater of memory, the review will articulate how these monsters serve to substantiate changes of culture into architecture and to show us a new way of seeing ourselves and our past.

Review

In *Monsters of Architecture: Anthropomorphism in Architectural Theory*, Marco Frascari summarizes the theoretical practice of anthropomorphizing architecture and introduces his view of the built environment as a place of imagination which is created by the substantiation of events into architecture, each one articulating what he calls "a monstrous event." Frascari's text is relevant to my research in that it investigates the role of imagination in architecture, the history of troping fragments over time, the partnership of construing and constructing in architectural making, and the memory of evolution preserved in a body of architecture. Each of these fragments comes together in *Monsters of Architecture* as a testimony to architecture's evolving nature and its ability to change the way that we perceive ourselves.



FIGURE 39 | "Summer" by Guiseppe Arcimboldo, 1563 | (Frascari, 1991)

Anthropomorphism in Architecture

Frascari discusses architectural theory's long history of anthropomorphism, describing the practice as a radical procedure for the design of architecture which activates the imagination in a form to which we can relate: the human person. He states that, "Just as we think architecture with our bodies, we think our bodies through architecture." He used the widely held traditions of referring to buildings' "footprints" and even their desires as examples of the attribution of human qualities to buildings. Frascari's discussion of anthropomorphism lays the framework for my metaphor of reimagining an existing building to reimagining an existing human body through prosthesis. This corporeal language carries throughout my research, inspired by Frascari's introduction in this text.

The Architectural Monster

Frascari contends that the human built environment is a place of imagination and is created by the substantiation of contextual events into architecture. These events are portrayed in the elements of the architecture, each one articulating "a monstrous event." These are referred to as monstrous in the sense of Giambattista Vico's explanation from *The New Science* of the poetic tropes which arose from the constraints of human nature, which was the inability to abstract forms. These "monsters" articulate forms other than those imposed on us. The result, then, are "architectural monsters that make people think about their environment" and perhaps see it differently. These monsters live in the realm of perception.

This discussion of monsters comes off as a little kitschy until Frascari raises as an example the *Ars Memorandi*. These woodcut illustrations from the 15th century block books symbolize in wholeness their corresponding literature, such as the gospels of the Bible. Within one image, the entirety of a literary work is symbolized. Frascari says that "buildings, as the synoptical constructions embodied in the monsters of the *ars memorandi*, exemplify and suggest rather than determine or impose." He also brings the paintings of Giuseppe Arcimboldo into the discussion as examples of uniting fragments (represented by Arcimboldo as fruits and vegetables) together into a perceived whole. This union of fragments as "contextual events" into an anthropomorphic whole is like the composition that I aim to accomplish with the union of many sites around the city of Boston.

The Trope

At the root of Frascari's argument is the idea of turning over meaning through interventions to buildings, leading to the creation of these hybrid "monsters." One of the most interesting examples that Frascari uses is in support of this act of turning over, explaining this history of turning over meaning on ancient battlefields. At the location where the momentum of the fight turned over in favor of the winner, the winner would assemble the slain spoils of the enemies' bodies into a large trophy for the gods in order that the deaths of their enemies may be accepted by the divine as sacrifices rather than murders. This troping expresses an ancient turning over of even the most precious resource on earth – human life – indicating that anything can be troped and speaking to human's long history of desiring to construct for the sake of reconciliation. Frascari's discussion of the trope provides a historical precedent for the restorative fragment which plays a large role in this project.

His argument that "technology is based on the union of the real and the made, a Janus-like chiasm in which the *techne* of *logos* and the *logos* of *techne* rule the making of artifacts," supports my research that architecture is an intimate extension of our bodies which is culminated within the historical context of our time and place in the continuum of human history. We construct artifacts which convey our ideas and how they evolve over time, and in turn we can construe the monstrous truth about ourselves from these artifacts. Frascari's discussion of the Janus head and the grotesque body encourage the constant reimagination of these monsters to continue to evolve through our built environment.

Construing and Constructing

Frascari speaks of the union of construing and constructing to provide artifacts of nontrivial nature. He speaks of the making of architectural monsters as the "reconciliation between the art of living well and the art of constructing well." This involves what he calls a "Janus-like chiasm" between the real and the made. This argument supports my investigation of architecture as a product human interior and exterior, of thinking and doing. Our architecture is an intimate extension of who we are which is culminated within the historical context of our time and place in the continuum of human history. We construe artifacts which convey our ideas and how they evolve over time through the technology which we ourselves have innovated, and these artifacts are display our values unapologetically.

Theater of Memory

In his discussion of this meaningful making of artifacts and the architectural monsters that emerge from this, Frascari often uses theater as a metaphor for architecture. Referring to the Western tradition of the *Theatrum Mundi*, he describes the making of architectural monsters as “the embodiment of human corporeality and memory in the theatrical machine of the world.” This theater houses the drama and comedy of human events, serving as a historical artifact which is greater than the sum of its parts. Likewise, the “theater” that I will be assembling in Boston will serve as a storyteller, a chorus of the voices of many authors throughout American history.

Marco Frascari’s discussion of architectural monsters extends the theoretical practice of anthropomorphism in architecture, providing an explanation for how architectural bodies, like human bodies, can evolve and embody many historical events. The examples he provides serve as rich precedents for fragmentary architecture of spoils. In his outlining of troping fragments on ancient battlefields, the partnership of construing and constructing in architectural making, and the memory of evolution preserved in a body of architecture, Frascari lays a solid foundation on which to build my argument of architecture as the reimagination of existing bodies.



FIGURE 40 | *Ars Memorandi*, Petrus de Rosenheim

PRECEDENT STUDIES

CONVENT OF SAINTE MARIE DE LA TOURETTE

Le Corbusier

TYOLOGY: Convent

LOCATION: Éveux, France

YEAR: 1953–1960

Introduction

In “The Function of Fiction in Reshaping Reality” Paul Ricoeur suggests that fiction allows us to “make and remake the world.” Cyril and Liliane Welch support this idea that poetic works can take us beyond our usual way of seeing the world specifically by putting the imagination to work through the work. Such fictional works do not duplicate reality, but rather establish metaphors which produce new ways of seeing the interrelationship of prior known things, thus augmenting reality. Le Corbusier’s Convent of Sainte Marie de La Tourette (“La Tourette”) near Lyon, France produces a new reality through a fictional narrative which transforms one’s surroundings into an extension of the user by mirroring the character of the human spirit and placing it in contrast with the Divine. Developed as a transcription between the program for a Dominican monastery and Le Corbusier’s own paintings and writing, La Tourette augments reality by breaking with traditional precedents of religious architecture, creating metaphors out of shadows and light, and establishing the human condition as a restorative fragment in order to enliven the narrative of a soul’s search for reconciliation with the Divine.

FIGURE 41 | La Tourette Monastery



Le Corbusier's Paintings

When Le Corbusier began designing La Tourette Monastery in 1953, he was just completing his own *Le Poeme de l'Angle Droit* (The Poem of the Right Angle) which was accompanied by an arrangement of lithographs he called the *Iconostase*. Le Corbusier's authorship of the *Poeme* and *Iconostase* would bring great value to La Tourette, as each work shares a common pursuit to reimagine man's connection to the cosmos. The *Poem of the Right Angle* seeks reconciliation through seven levels of poetry: the first level concerning the cosmos (the universal) and each subsequent level becoming increasingly more specific through the mind, flesh, fusion, characters, and offering. The final level describes the instrument, a symbol which references the power of the architect to intervene in the world while also referencing the *Philosopher's Stone* - the ultimate goal of enlightenment and immortality for the alchemist. Inseparable from the *Poeme* is the *Iconostase*, which gives shape to each of the seven levels into a corresponding lithograph. The seven-row composition of these lithographs is top-heavy, resembling a cross as a recognizable symbol which has been recreated.

In Ricoeur's discussions of reshaping reality through fiction, he argues that "painting clearly shows in what sense fiction must be a labor and must be embodied in a work in order that reality in its turn be worked by it." Le Corbusier's paintings and language in the *Poeme* and *Iconostase* succeed in reworking reality in that a reading between the two works brings the beholder to what Perez-Gomez calls "a tension between words and images" (Perez-Gomez, 350). While Le Corbusier's fictional narrative lays a groundwork for the beholder to imagine the cosmos as a new reality, this narrative is fragmented, disorienting, and rather personal, requiring the imagination to work to fill in what is missing in a cubistic manner. By alluding to recognizable cultural symbols of old and new religions and philosophies, such as the alchemist *Philosopher's Stone* and the Christian cross, Le Corbusier simultaneously introduces the intersubjective unity and conflict of this universal search for Truth - an exercise of seeing "likeness in spite of the difference," as sought by Ricoeur. The space opened up by the transcription between the *Poeme* and the *Iconostase* establishes a reality with the "possibility of reconciling the ordering imagination... with the [cosmos]," while requiring the reader to imagine this reconciliation specific to oneself through the language given by Le Corbusier (Perez-Gomez, 350). This is how the work works.

Through fragments and the space between them, Le Corbusier frames a new reality for the observer to imagine the need to be reconciled with the world in a new way. In his production of the *Iconostase*, he painted each morning, and he attributed his architectural success to this practice which allowed him to reimagine reality at the dawn of each day. Le Corbusier carried this practice of reshaping reality through fiction into his design of La Tourette Monastery, bringing the same question of connecting to the Beyond to a new medium: architecture.

FIGURE 42 | Le Corbusier's Paintings and La Tourette





A Breaking with Traditional Christian Architecture

Although La Tourette brought Le Corbusier's question of reconciliation with the cosmos specifically into the context of the Dominican friars' religious pursuit of communion with God, he intentionally cut ties with precedents set by traditional Christian architecture. Traditional Christian architecture employs grand ceilings, ornate details, and precious materials to direct the gaze toward heaven - that which is beyond the human condition but which we are told is at hand. La Tourette establishes a new reality of prayer and contemplation by materializing not a Divinity that lies beyond human reach, but rather that which dwells within: the human spirit. While traditional liturgical architecture is meant to overwhelm with a sort of "Heaven-scale", La Tourette produces a reality which is meant to humble with a "human-scale." The result is a spiritual narrative that, instead of beginning with Heaven's perfection, begins with man's fragmentation. The monastery's harsh conditions frame a reality which approaches reconciliation to the Divine as bottom-up, rather top-down. In this way, Le Corbusier creates a bridge between the abstract discussion of eternal life and reality of experienced mortality which cannot exist in the realm of traditional religious architecture. Reality is augmented.

Alluding to its program and the Dominican Order, the complex introduces recognizable elements of traditional monastic architecture in a way which transforms their meaning. Playing off the archetype quality of a central courtyard, the interior walkway which typically serves as the main circulation corridor in monasteries becomes a labyrinth, disorienting its occupants with juxtaposing ramps and unknown obstacles to traverse around every corner. Though most monastic courtyards serve as a central point for wayfinding and communal life, La Tourette's is scarcely accessible, isolating its occupants. This assertion of the inward gaze is most notably found in the dark chapel of the monastery in which a bright red confessional sits at the focal point behind the altar, the position traditionally saved for the most glorious of all artefacts in the church. La Tourette, instead of exhibiting a shimmering crucifix or frescos of angel choirs in this focal point of worship, displays the sacrament whose name is Reconciliation in a veil that is burning red. This composition discloses "through the icon of a relation, the relation itself." The search for reconciliation of the soul to God here becomes a de-idealized in a way which reveals the human spirit as inherently fragmented, disobedient, and difficult to inhabit - a narrative which is evoked through embodied reality.



FIGURE 44 | Various Spaces in La Tourette Monastery

The Metaphor of Dark and Light

The principal metaphor of La Tourette is the contrast of darkness and light, standing as a symbol of the contrast of human and Divine. Dark corners mirror man's darkness. God's radical light intervenes with this darkness, spilling across La Tourette's lonely corridors splitting shadows with radiant rays of sunshine. The darkness of the shadow becomes more visible when the light from beyond floods the interior of the building to reveal the man-made boundary between God and man as shadows painted across the cold floor.

While this metaphor of dark and light provides a new way of seeing imperfect man's relationship to an ordered cosmos, the tension between man and said cosmos remains unresolved. This is indicative of a metaphor which will require the imagination to work, as Ricoeur says "in order that there be a metaphor, it is necessary that I continue to perceive the previous incompatibility through the new compatibility... a new sort of tension... between incompatibility and the new compatibility" (Ricoeur, 131). The abstract is given "a body, a contour, a face," to augment reality, yet it still requires a struggle on part of the beholder.

Just as all great fiction requires a plot climaxing in conflict before arriving at a resolution, so is the voyage of spiritual revelation at La Tourette an epic drama of communion contrasted with solitude, of the divine contrasted with human fragmentation, of light always contrasted with darkness. A symphony of asymmetrical, rhythmic architectural elements, La Tourette echoes a melody of the spiritual journey unfolding within the spirit of each of its inhabitants. The melody rises and falls as the battletune of the war within- a never-ending game of hide-and-seek in which the inhabitant reads oneself into the fiction, taking turns playing the seeker and the hider. The friars describe this environment as difficult to inhabit, testifying to La Tourette's capability of reshaping reality through embodied experience. This new reality brings the battle which is typically strictly an interior one to the exterior, where the inhabitant has no choice but to acknowledge it and embrace it.

The Human Condition as Restorative Fragment

Returning to Le Corbusier's previously discussed work reveals a further transformation of meaning one might imagine into La Tourette. When speaking of Le Corbusier's Poeme, Alberto Perez-Gomez states that "we may acknowledge the embodiment of 'the Creator' in the illusions of perception... yet the 'burden' of the body must also be embraced." Perez-Gomez describes the Iconostase as revealing "our ambiguous, mortal human condition, prone to dangers and delusions" as "our only vehicle for inhabiting and making a world" (Perez-Gomez, 355). While La Tourette submerges one in a harsh, inescapable maze of the human soul without providing any instruction as to how the imagination ought to work through it, Le Corbusier's work which shared a similar pursuit of reimagining man's connection to the cosmos hint at embracing of the human condition. In bringing this concept of embracing the "burden" of the human condition across works from the Poeme and the Iconostase, the meaning of La Tourette's principal metaphor can be transformed.

A referencing between Le Corbusier's works reveals that La Tourette produces a reality in which the burden of humanity might be troped from that which holds man back from reconciliation with the Divine into that which provides man opportunity to be reconciled to the Divine. By enveloping the user in an environment which mirrors the human interior, the architecture turns the outward search for reconciliation with the Divine inward, toward the fragmented, human spirit, suggesting that the struggle of navigating the human condition might be precisely that which brings one into closer communion with the Divine. In doing so, La Tourette remakes a reality in which the user must task the imagination with coming to see his own humanity as a restorative fragment- precisely the vehicle that will lead him to God's grace. La Tourette shows a new way of seeing reconciliation to the Divine as not beyond the reach of the human condition, but rather within the limitations and vices to which we are subjected by our mortality.

PROJECT JUSTIFICATION

Culture

Personal encounters with disability can move a person to reconsider widely-accepted norms in comparison with reality. For me, this encounter came through my experience of watching a loved one become disabled after a traumatic accident. This experience revealed to me my own prior misconceptions about disability and provided me with insight into what living with a disability looks like in one's personal and public life. Architecture plays a large role in the public life of all, and thus has a unique opportunity to make a public statement. In addition, architectural codes, regulations, and precedents have provided architects and the public with a standardized perception of what it means to be disabled and how the built environment ought to intervene. A project such as this seeks to use architecture's public nature to influence the perception of disability by seeking alternate architectural approaches.

By providing a place for visitors to be exposed to the subjectivity around which cultural body ideals are built, I hope to encourage people to question the ways that we currently approach bodies that are anything but "normal" in culture and in the built environment. From an architectural perspective, I hope to find new, unconventional ways to accommodate accessibility that are integrated into the building design and that do not separate what areas of a building a person may be confined to. Additionally, I would like to explore conventional methods of accessibility through playful, architectural simulations which highlight their flaws, sterility, and arbitrariness. I believe that these actions have the capability of making a lasting impact on those who visit the building, read this book, or attend my thesis presentation by looking at disability in culture and architecture from a new perspective, allowing each person to reimagine the way that one designs and one's own cultural biases.

Location

Culturally, Boston has made great progress in this topic. To create a museum which documents and tells the story of Boston's transformation as a city is reflective of the city's cultural maturity and disposition to innovate. Socially, this project will bring light to a history which is evident but invisible. By telling this important story, conversations about the social issue of how to approach disability can be started and facilitated in an environment which is inclusive and educational. Exposing the public to this history allows people to think about what comes next, as well as what is needed in other cities around the country.

The site is nearby many major points of interest in downtown Boston, including Quincy Market, Faneuil Hall, the Old State House, and Boston City Hall. To the north of the site a few blocks is the city's historic North End, which houses Old North Church, the Paul Revere House, Mike's Pastry, and parts of the Freedom Trail. In addition, the site is just across the street from the Harbor Islands Visitor Center. The wharf where the Boston Harbor cruises and the ferry take off are within a block's walk. All this activity near the site indicates that there will be a decent amount of foot traffic that passes through the area, meaning many will be exposed to the project's message.

Economic

Many will argue that only a small percentage of the built environment needs to be accessible to those with disabilities, given that this population is only a small percentage of the population. Disabled persons make up 12% of the U.S. population. Rates of disability also increase with age, and since lifespan is increasing, we are likely to see disability rates continue to rise. If we truly value inclusivity, as common social and political trends show, then creating a built environment which treats this 12% (and rising) of people as equal is extremely important to our progress as a nation. In addition to our community interest, we should all have a personal interest in creating an environment which accommodates disability because, unlike minority groups which people are born into, any of one of us can become disabled at any time. Funding this project can be justified not only for those that it will accommodate in the present and in the future, but also for those that society has overlooked in the past.

The funds for this project would contribute to a better cultural understanding of the area and would likely increase interest in the Harbor Islands in general as well as in the biomedical innovation coming out of Boston. This would serve as a great way for the city to demonstrate its history towards a topic which is underrepresented. Being that inclusivity and a higher accessibility rate is a goal of the City of Boston and many of its organizations, this building would highlight the city's values as they have progressed over time. Additionally, there may be many opportunities for philanthropic endeavors and cooperation with various organizations.

Funds for this project would likely be a combination of resources from the City of Boston, the National Park Service, Massachusetts General Hospital, Hangar Clinic, and various other private donors. I believe that it is a reasonable presumption that these entities would fund a project such as this, being that the land (which would be the most expensive part) is already owned by the city, and that this would increase interest in each of the other organizations previously listed.

Sustainability

In the summer of 2020, the ADA will turn 30 years old. In America, 30 years also happens to be the average lifespan of a building. While this is an alarming and unfortunate fact that is worthy of many theses of its own, this quick overturn and frequent revision of buildings places us at a critical time to create an impact by reimagining strategies of designing for disability. As infrastructure wears down and needs to be repurposed, architects have an opportunity to reimagine how disability is approached within each building. This is a critical time to advocate for exceeding codes and thinking innovatively.

Some may argue that transporting ruins from one place to another, as this project proposes, uses too much energy to be justified. While it is true that this would use a large amount of energy, this can be justified in the counterargument of building waste contributing to 1/3 of the waste that is produced in the world. While my project will require extra energy to collect and transport the spolia, it will reduce the amount of building waste which is left in the wilderness for the earth to swallow. Additionally, the invested energy in designing and coordinating the use of elements which are repurposed will serve as a precedent for future buildings as a way to reuse building elements, especially those of historical significance.

Personal

This project is important to my development as a designer because my interest that has grown in disability and architecture allows me an opportunity to pursue my passions within my education. Through my research of this topic, I will become more informed about how to approach disability in design in a way that is ethical, economical, and tasteful. I will have an opportunity to craft objects and develop design solutions that push the envelope beyond standard practice. This knowledge and experience will put me in a position professionally to be included in conversations of access and equity throughout the design process. This will provide me an opportunity to be a leader in this subject and to have an impact on creating an environment of equitable design.

Some may argue that this project could be done by someone else or perhaps may imply that I am not a qualified candidate to design this project since I do not have a disability and am not from Boston. The truth is this: If someone else was going to approach this issue, they would have done it by now. Boston is almost 400 years old and has been innovating in medicine for almost 200 years and in prosthetics for almost 60. All the fragments have been lying latent for many years, but the evidence would seem to suggest that nobody has thought to combine them in the way that I am proposing in my thesis project. While I acknowledge that I may not be the most qualified person to take on this project, an underqualified voice telling a story that has not yet been told is far better than no voice at all.

HISTORICAL, SOCIAL, & CULTURAL CONTEXT OF THE THESIS

Perception of Disability Throughout History

Changing Perceptions

In Greek mythology, Hephaestus was the god of blacksmithing and crafting. However, Hephaestus was unlike the other gods, or so they thought. At Hephaestus's birth, he was deemed ugly and he bore a deformity. His mother, Hera, finding this an unacceptable physical condition for a god, threw him from Mount Olympus to be cast away from the rest of them. From this event, Hephaestus's leg was further deformed, leaving him unable to walk without the aid of a cane. He committed himself to blacksmithing and crafting in his workshop under a volcano in Italy, away from the other gods.

In order to settle disputes between all of the gods that were fighting for the hand of Aphrodite, the goddess of beauty, Zeus decided that she and Hephaestus would be married. During their marriage, Aphrodite had an affair with Ares, the god of war and thus the ideal of male physique at the time. Hephaestus, being the master craftsman that he was, crafted a net to capture the two while they were lying together for them to be laughed at, getting his revenge. Hephaestus was the helper of artisans in Ancient Greece whose myth helps to demonstrate the importance of approaching disability within culture differently, specifically through the unique power found in the works that we have crafted with our own hands, such as architecture.

Historic architecture gives us very few clues as to how disability has been accommodated throughout human history, leaving us to look to language to carry on these stories. While the pyramids themselves do not hint at how disability was handled, hieroglyphics depict Ancient Egyptian dwarfs and denote that deformities were sometimes seen as signs of celestial gifts from the gods. The Greek theaters bare no traces of the infanticide with which they addressed disabilities at birth, yet texts speak of many leaders who sustained injuries and were able to become respected leaders despite this, such as Hephaestus. During Roman rule, cultural texts tell of the outcast lepers. Similar approaches of banishment from society were taken during the Middle Ages and the Renaissance, in which hygiene was a large issue for public health, and became more and more systematized with the Enlightenment. From looking at the way that earlier cultures approached disability in culture, we know that cultural attitudes toward disability are not fixed, but are always changing and being reimagined.



FIGURE 45 | "Mars and Venus Surprised by Vulcan" by Alexandre Charles Guillemot



FIGURE 46 | Designated Seating

FIGURE 47 | 19th Century Drawing of Boston's Long Wharf



A Contemporary Cultural Dissonance

Since the turn in thinking of the 17th century, the value of efficiency in modern thinking has brought us to a dissonance with our cultural value for all people to be regarded as equals. This manifests in a dissonance between our thought and practice which can be read from our architecture which treats disability as a burden. While we desire more now than ever to cultivate a society which sees and treats all people as equally valued, we also have a desire to efficiently regulate the ways that we approach such issues. This can be seen in many common architectural practices, such as clustering all accessible seating together in one area of a room, or in compromising for a separate accessible entrance if revising the main entrance would cost too much or would sacrifice a clean design. Design solutions like these appear when architects are not informed of the importance of exceeding codes. If we desire for all people to feel valued, we have to put in the time and effort to reimagine and rebuild our own perceptions around disability to better resemble the cultural values that we want to embody. This starts with architects.

Plato says that “We ourselves are authors of tragedy, and that the finest and best we know how to make.” As architects, we are modern-day poets - authors that, through our creations, have a unique opportunity to compose part of the drama and tragedy of human experience. If we desire to innovate beyond the tragedies of underrepresented populations and inequitable architecture, this requires a poetic reimagination. In order to imagine, we must first remember. In search of our roots in designing for disability in this nation, we find ourselves in Boston Harbor.

Perception of Disability in Boston's History

Founded in 1630, Boston is one of the oldest cities in the United States and is made up of fragments upon fragments. The city has reimagined and reconstructed itself a number of times to keep up with changing needs. This has led to the reimagination of Boston's land, infrastructure, and social institutions, all contributing to the transformation of the city's approach to disability. Over the course of its almost 400-year-old history, Boston has evolved from a city which once cast out its disabled residents into a city which leads worldwide innovation in medicine and the fabrication of prosthetic, orthotic, and biomedical devices. Our endeavor will be to connect the fragments of this story into a prosthesis which reimagines the way that disability is approached in architecture through Boston's history of designing for disability.

Prosthetic Coastline + the Harbor Islands

In no way is Boston’s physical transformation more evident than in the city’s coastline, which has been an evolving organism of infill for almost 400 years. Boston originated on Shawmut Peninsula and was only connected to the mainland by a small land bridge at its south. Over the years, the port city increased its capacity for commerce and residence by infilling land in small segments at a time, resulting in a modern-day Boston which is now hardly recognizable to the original. Nearly 5,000 acres of the city now sits atop wood pilings that stabilize it in what used to be the bay. The coast is a prosthetic extension and reimagining of the city’s original body, enabling the city to evolve as needs changed over time.

Where land meets sea, the city comes into contact with the famed Boston Harbor. Known most notably for the Boston Tea Party and the incoming of the British announced by Paul Revere, Boston Harbor played a major role in the beginnings of the American Revolution. Often recalled for its militant history, the harbor is rich with many more stories, most of which originate on the Boston Harbor Islands: a collection of 32 islands scattered throughout the harbor. Some of these islands have become part of the mainland through prosthetic landmaking efforts. Among the tales of army forts, pirates, lighthouses, prisons, and summer camps in Boston’s Harbor Islands, lie the pieces of a latent story waiting for articulation: that of the city’s almshouses and institutions.

FIGURE 48 | Map of Boston’s Harbor Islands

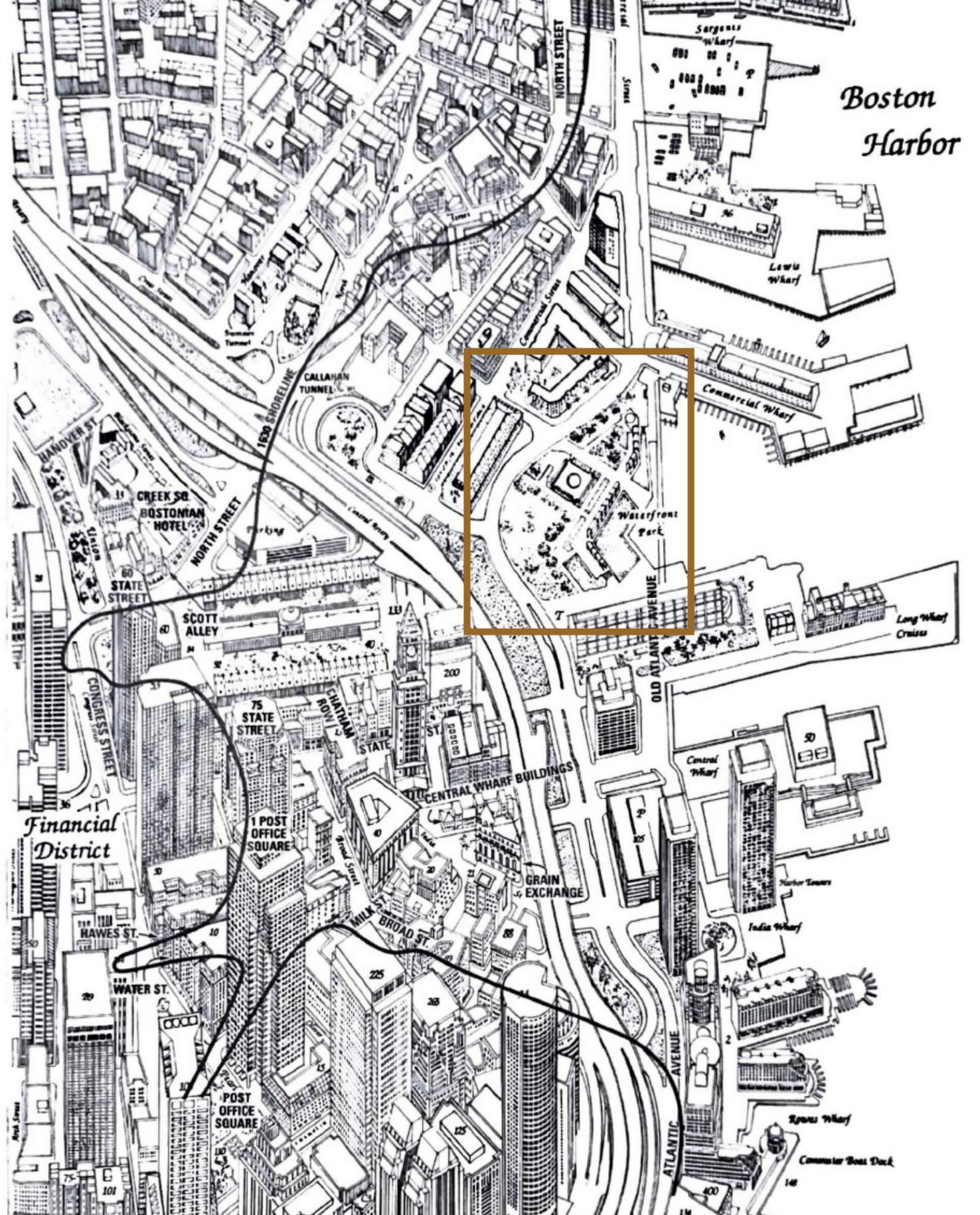
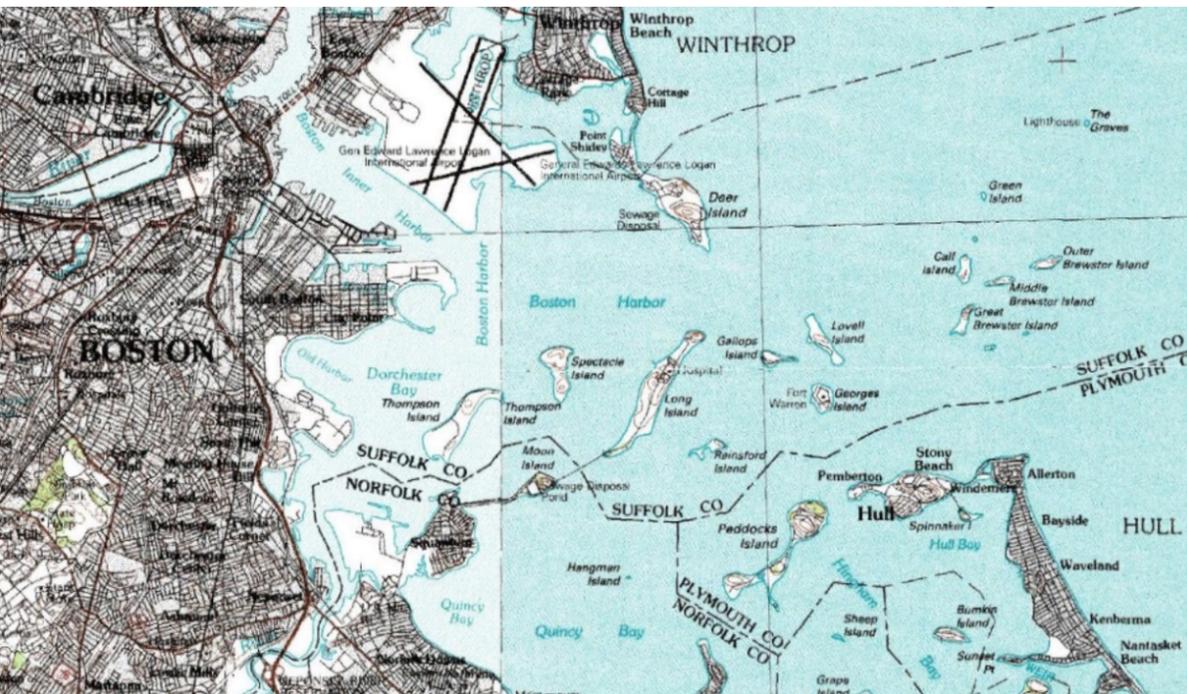


FIGURE 49 | Axonometric Drawing of Boston’s Modern Coastline vs. 1630 Coastline

The Almshouses of the Boston Harbor Islands

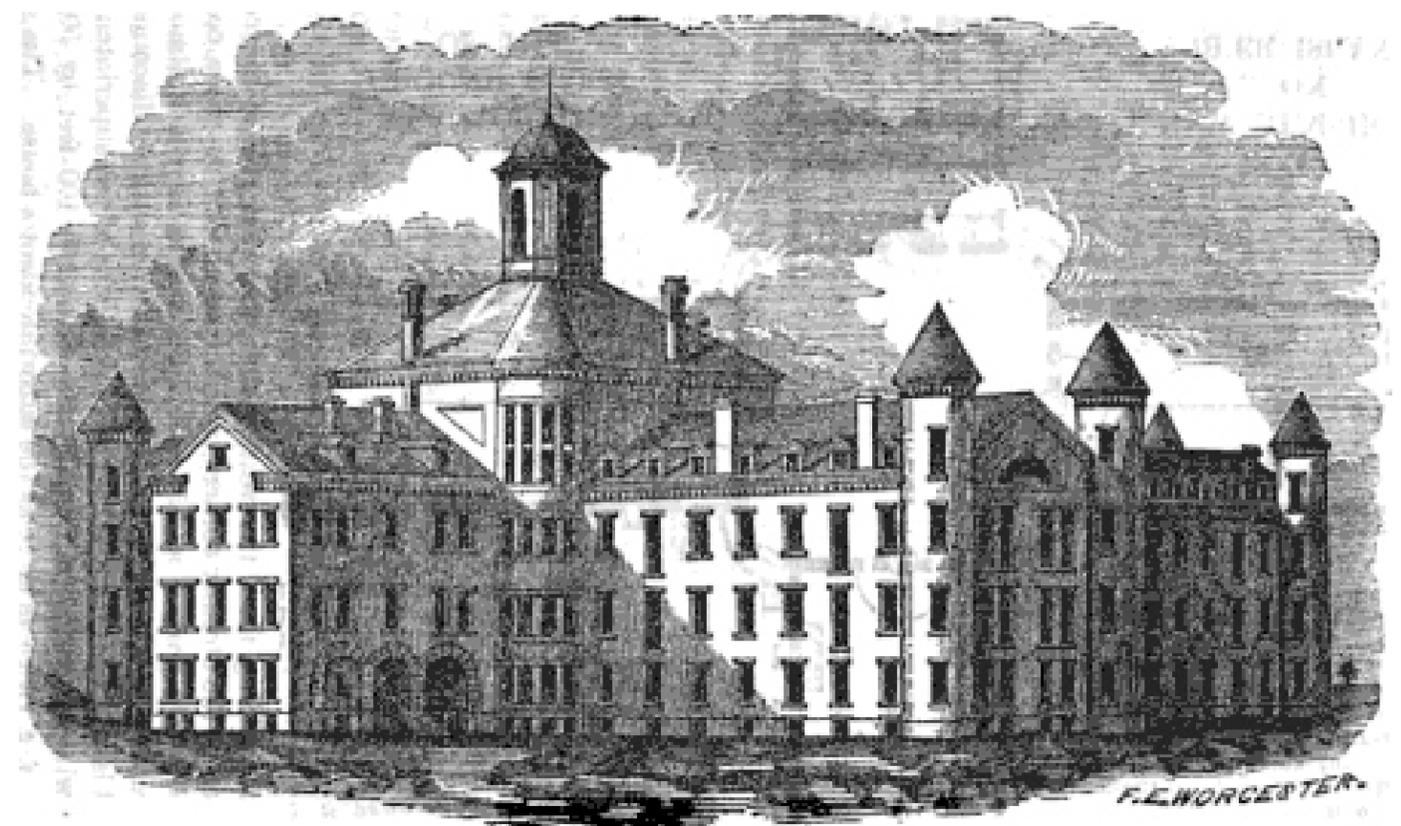
In the modern era, we seem to treat the passing of the ADA in 1990 as the birth date of American accommodation of disability in architecture, but it was actually about 300 years prior with the colonial almshouse. The Almshouse was an English tradition which was brought to America by colonists as a way to care for the vulnerable of society prior to the establishment of governmental welfare. Almshouses were typically run by charitable organizations or cities as rural farms which housed the physically and mentally disabled, the mentally ill, the elderly, and the poor. These were largely populated by those who were in need of medical attention but did not have the means to afford doctor's visits to their homes. The vulnerable of society were brought out of the city limits to the almshouses, where they could be housed and would work on the farm to fund the operation, receiving housing, food, and a small amount of medical treatment in return.

Well-intended, the goal of the Almshouse was to provide for these people in ways which other parts of society would not. However, Almshouses quickly became places of banishment, mistreatment, and horror, and became known in common culture as "poorhouses" and "pesthouses." Cast outside of city limits so that their burden may not be felt within broader culture, the residents of almshouses were referred to as "inmates." Due to lack of funding, living conditions were formidable. Though intended to provide medical treatment, there was very little expertise, even for the time. Almshouses became breeding grounds for disease, with the health of many residents actually worsening upon arrival.

Here at the Boston Harbor Islands, the city of Boston founded its Almshouses. Three of the islands in the Boston Harbor were home to almshouses at some point in the last 200 years, Long Island, Rainsford Island, and Deer Island. In addition, a school for disabled boys existed on Bumpkin Island. There was also a quarantine station on Gallops island to which a large amount of Irish settlers were sent upon immigrating to the United States to escape the Irish Potato Famine.

"The existence of these institutions in the harbor where their burden could not be felt by broader society mirrors what happened all throughout the United States as the undesired were sent outside of city limits to the almshouses, but Boston's approach to designing for disability and bodies that were thought of as "other" was particularly dramatic. As a city founded by colonists in a nation populated by immigrants, the sailing of the harbor at one point signified a new beginning for the residents of Boston or their ancestors. Thus, this rejection from greater culture

FIGURE 50 | 19th Century Drawing of Deer Island Almshouse



NEW ALMSHOUSE ON DEER ISLAND, IN BOSTON HARBOR.



FIGURE 51 | 19th Century Photograph of Residents at Long Island Almshouse

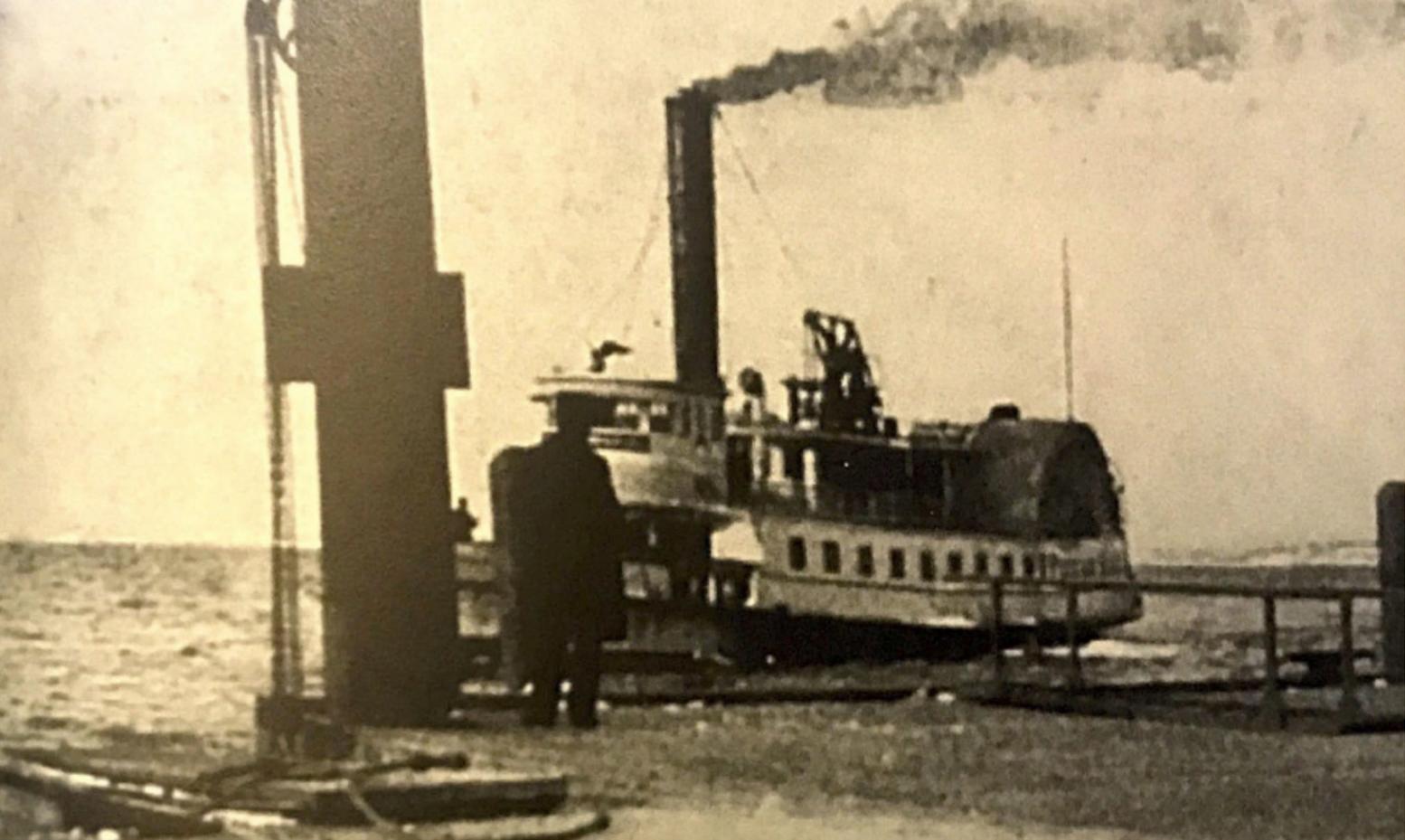


FIGURE 52 | Boat for Transporting Inmates to Harbor Islands, Long Wharf

dripped with irony as these people were shipped back out into the ocean which many of their parents or grandparents likely crossed to seek a new life in the United States, all while the city of Boston was adding infill all around its Shawmut peninsula to grow itself. The city had to become larger, but was still not large enough for all. Across the distance imposed between the city and the “others” by the harbor, one can only imagine the way that water could distort one’s perception of another.”

Today the Harbor Islands are a National Park which houses campgrounds and a few traces of the islands’ former uses. Deer Island now hosts the city’s water treatment plant, and Long Island is host to an alcohol recovery program and a summer camp. There is a mainland visitor’s center and harbor cruises available, both of which mention very little of the islands’ history of housing the undesired of society. In the summer months, ferries provide transport to a few select islands. Some also have docks for private boats. In late November, a harbor cruise was the closest I could get to the islands. On the islands themselves, all that remain to indicate the existence of these institutions are a few traces of foundations and retaining walls. These will be the first instances of spolia for my building. As far as personal anecdotes to anyone who was housed on the islands, I am yet to find one.



FIGURE 53 | Dormitory at Suffolk School for Boys, Rainsford Island, 1920 | Boston Archives



FIGURE 54 | Hillside at Deer Island, the Mass Grave for Many Irish Immigrants



FIGURE 55 | Newton Almshouse Circa 1920

FIGURE 56 | Brick Ruins of Former Barn at Newton Almshouse



Newton Almshouse

The Harbor Islands were not the only place in the Boston area that housed almshouses, though. There were also many almshouses in rural areas inland. Some of these have been placed on the National Register of Historic Places. However, the majority of them have fallen into ruin, being swallowed up by suburban sprawl or simply left outside of the city to decay, with little left to tell the stories of those who were housed in them.

In a park in Newton, a suburb of Boston, lay the remnants of the old Newton Almshouse. The almshouse was approved by the city in 1763, closing and relocating to other areas nearby a number of times before ending up in this park. One of these relocations was the famous almshouse which disability rights activist Dorothea Dix visited in 1842, igniting social reform with her accounts of the almshouse's alarming conditions. The almshouse was closed in 1964, and its buildings have all been brought down as of 2016. Ruins of foundations and traces of landscape elements now lay scattered in the trees, forgotten and unpreserved by local authorities. These forgotten ruins will also be part of my spolia, along with those from the harbor islands, brought back to the collective memory of society and turned over as restorative fragments through their reassembly and imagination in the heart of Boston.

Following my visit to the Newton Almshouse, I wrote of my encounter with the ruins: "When I stood on what remained of the almshouse foundation, I felt a pulse of energy run through my body. I felt, for the first time, close. I was close, for a moment, to the people who lived here and in almshouses everywhere. I felt that little feeling sent from heaven when someone you've lost is thinking of you. I felt a small bridge, for just a fleeting moment, to the eternal souls of these people. I felt that they were watching me from above, and that they were glad I was here to experience a forgotten part of their legacy. I felt a short encounter - a handshake - and shortly thereafter, an appointment to be their ambassador."



It may not appear much more credible than the fact above stated, that a few months since a young woman in a state of complete insanity was confined entirely naked in a pen or stall in a barn. There, unfurnished with clothes, without bed and without fire, she was left— but not alone. Profligate men and idle boys had access to the den, whenever curiosity or vulgarity prompted. She is now removed into the house with other paupers; and for this humanizing benefit she was indebted to the remonstrances, in the first instance, of an insane man.

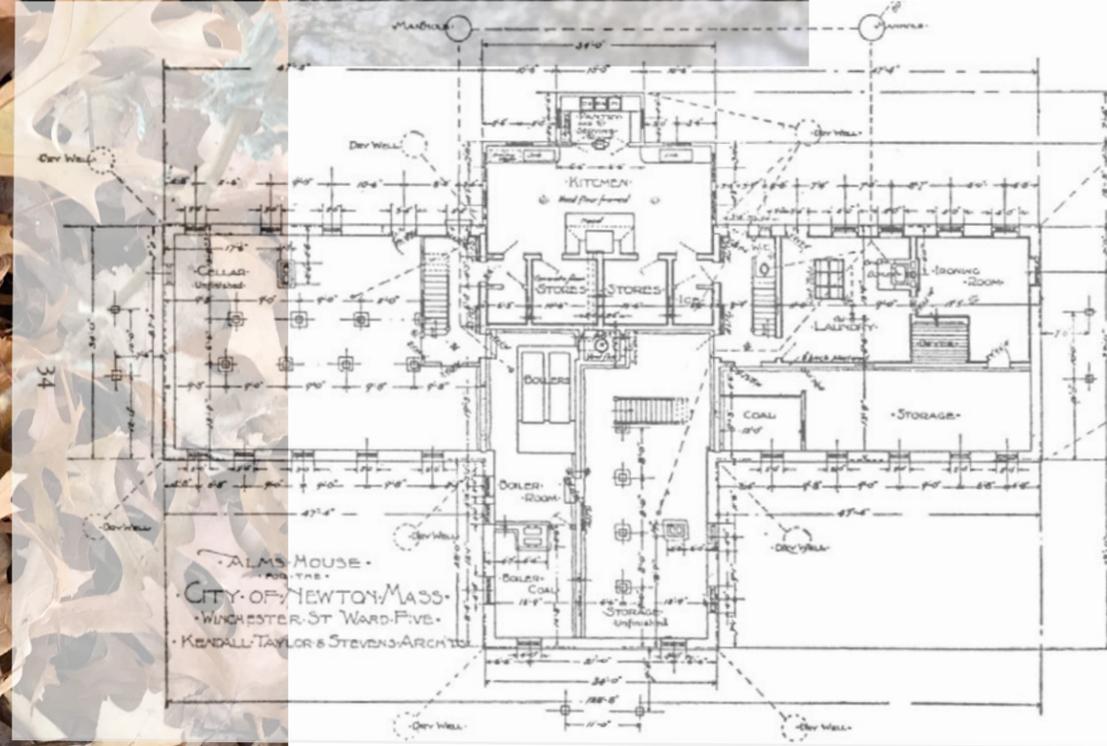
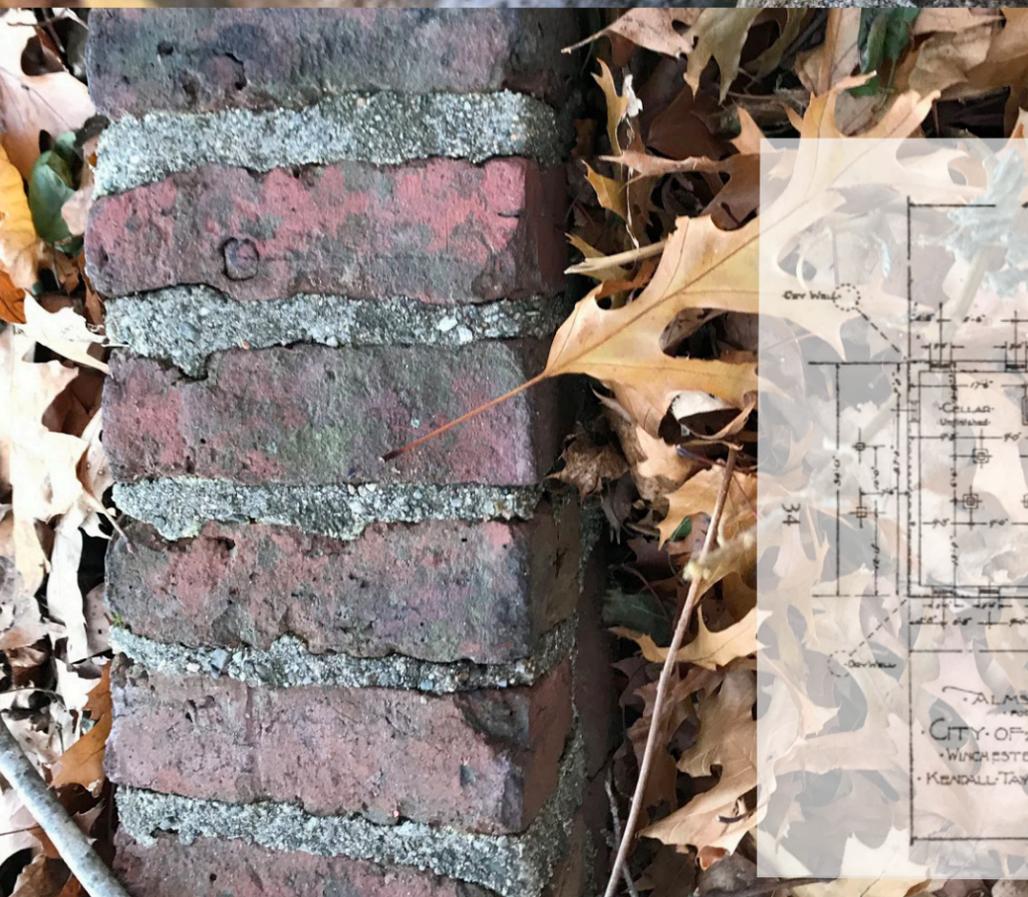


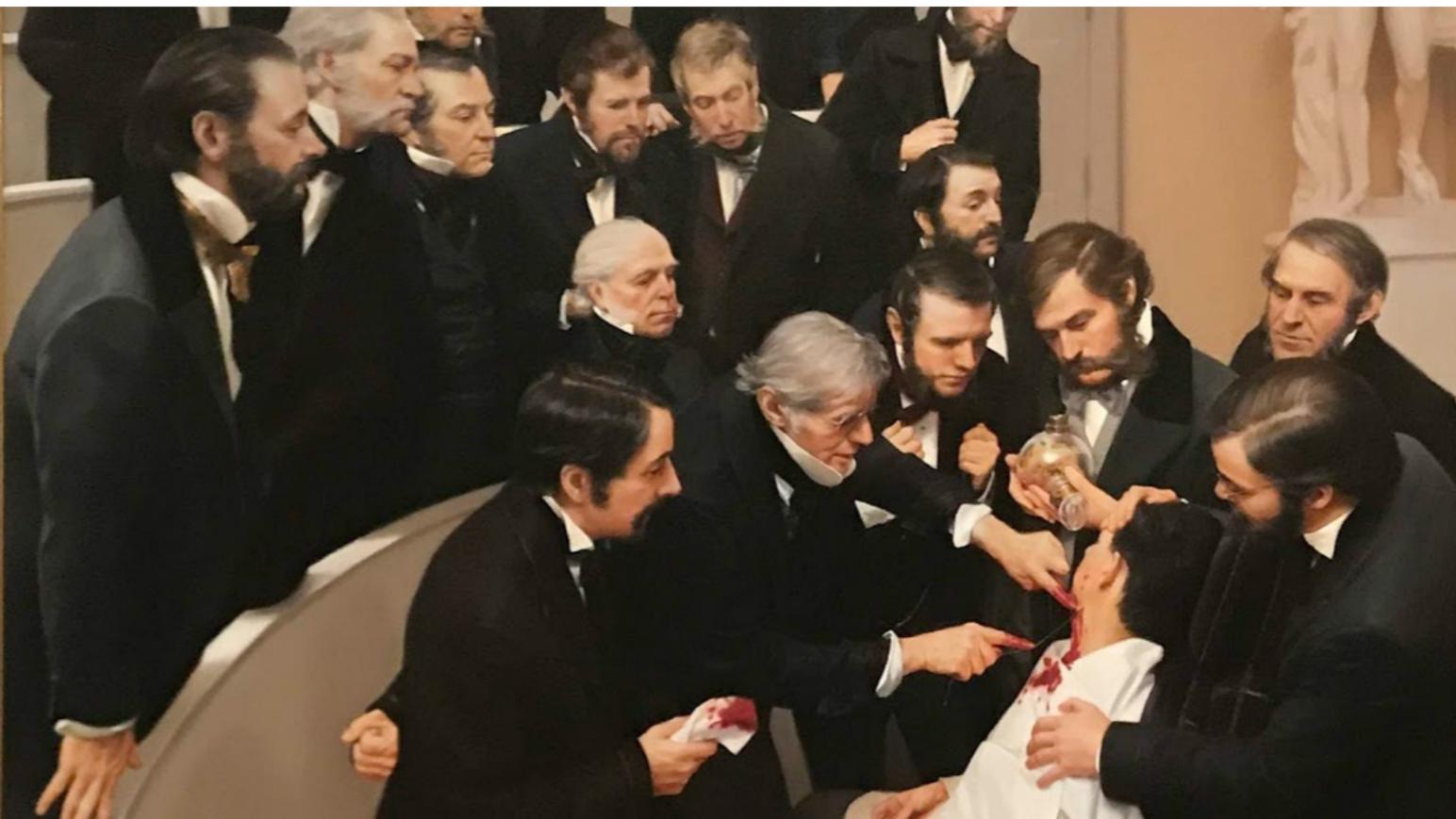
FIGURE 57 | Collage of Newton Almshouse Ruins and Fragments

Massachusetts General Hospital

Due to advocacy by rights activists, almshouses were eventually replaced by more specialized treatment centers and social welfare, which allowed those in need of medical care to become more integrated into common culture. In 1810, Massachusetts General Hospital was approved by the city as the third general hospital in the United States on account of the poor conditions at the city's almshouses (Massachusetts General Hospital, 2019). Though almshouses still operated at this time, the establishment of MGH in the city of Boston marked a turning point in the city's transformation in designing for disability. In 1846, the first public surgery performed with anesthetic occurred here. Surgeons said of that day:

“Whatever triumphs still should hold the mind,
 Whatever gift shall yet enrich mankind,
 Ah! Here no hour shall strike through all the years,
 No hour as sweet as when hope, doubt, and fears,
 ‘Mid deepening stillness, watched one eager brain,
 With Godlike will, decree the Death of Pain.”

FIGURE 58 | “Ether Day 1846” by Warren and Lucia Proserpi, 2001



Massachusetts General Hospital would go on to join forces with Harvard Medical School, investing more than \$900 million into research annually. It is regarded as one of the top-tier hospitals in the United States, and has played a large role in biomedical research as well. In 1968, a joint project between MGH, Harvard, MIT, and Liberty Mutual Insurance yielded the Boston Arm, a first-of-its-kind, myoelectric prosthetic arm. This marked a beginning for Boston becoming an innovator in prosthetic devices. MGH also established Boston as a medical hub, prompting more hospitals to open in the city.

FIGURE 59 | The Boston Arm | Boston Magazine, 2013





FIGURE 60 | Boston Marathon Bombing Survivors Gillian Reny and Marc Fucarile



The Boston Marathon Bombings

On April 15, 2013, two homemade bombs were detonated near the finish line of the Boston Marathon at Copley Square in a terrorist attack. The bombs killed three people, Martin Richard, Lu Lingzi, and Krystle Campbell, and injured around 280 others. Of the injured, 16 lost limbs.

Due to the medical advancements that have been made by the city of Boston, those injured by the bombings have been able to receive appropriate medical attention ranging from being fit with prosthetic limbs to full limb reconstruction. Many of the victims of the bombings have gone on to recover and start foundations for further medical research in the city. Gillian Reny was in high school at the time of the bombing, and still managed to walk at her own graduation on her newly reconstructed legs. She founded the Gillian Reny stepping Strong Center for Trauma Innovation. Marc Fucarile, lost his leg in the bombings, and has since been fit with a prosthetic leg, hand-cycled in the Marathon multiple times, volunteered at a camp for children with limb loss, and has established the Mobility Awareness Resource Community Network (Design Museum Foundation, 2019).

Boston's commitment to improving its approach to medicine and bodies which are "other," has allowed Gillian and Marc along with many others to not only to receive the treatment, therapy, and devices needed, but also to continue to push innovation surrounding injury and disability forward.

FIGURE 61 | Boston Marathon Bombing Support



Summary

By reflecting on the historical, social, and cultural context of this thesis, we have remembered the history of how disability has been perceived in culture throughout human history and have specifically investigated the perception of disability in America through Boston's story. Boston has evolved from a city which once cast out its disabled residents into a city which leads worldwide innovation in medicine and the fabrication of prosthetic, orthotic, and biomedical devices. In delving into this history, we have gathered the fragments of an untold story and have established the narrative that this project seeks to share. Through the telling of this story, the goal is that the visitor will see disability in a new way and will become aware of his or her own prior misconceptions, feeling moved to ignite cultural change.

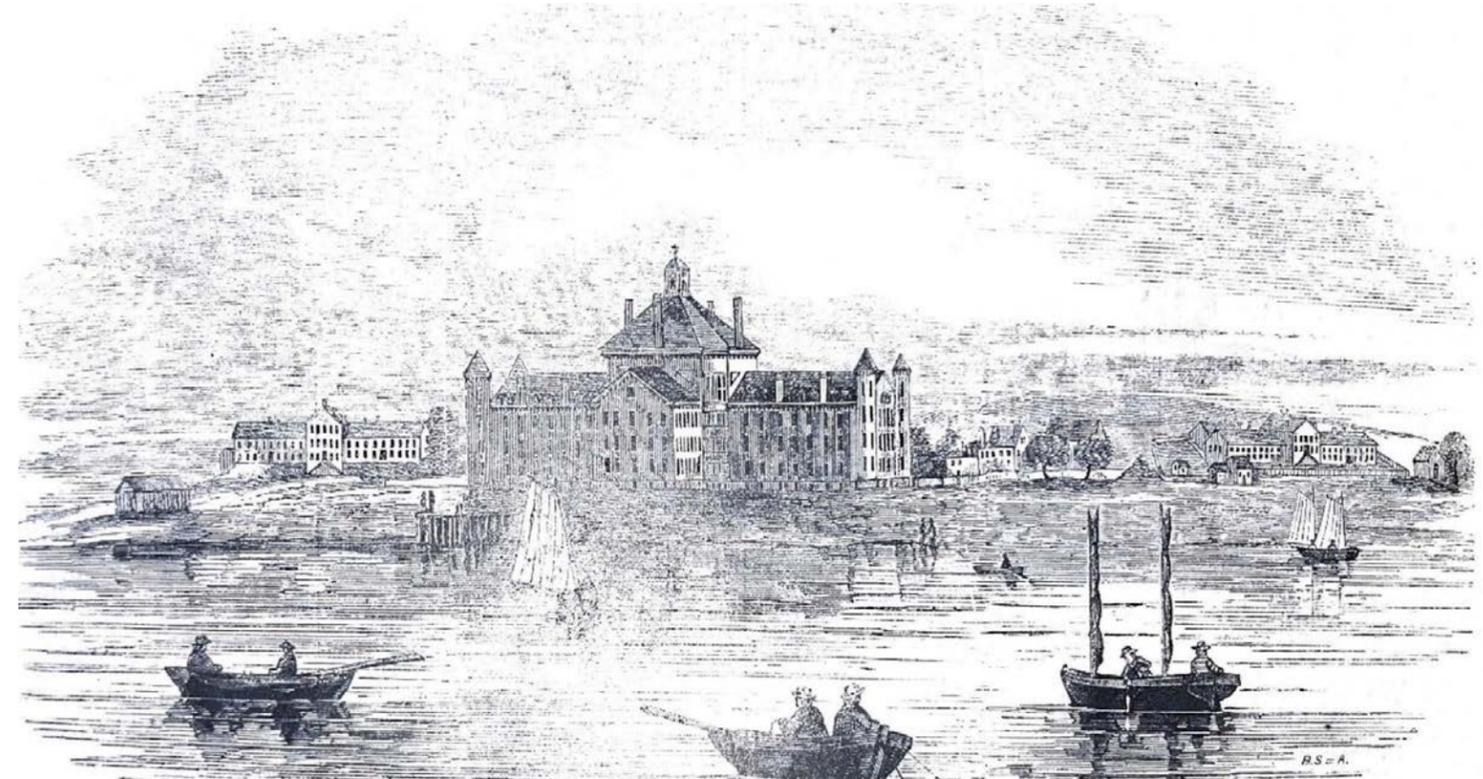


FIGURE 62 | Deer Island Almshouse Across Boston Harbor, 19th Century

FIGURE 63 | Boston Strong Signs at the 2014 Boston Marathon



SITE ANALYSIS

QUALITATIVE NARRATIVE

Standing in Christopher Columbus Park on an overcast, November day, it is difficult to believe that this place has not always been here. Even more difficult to believe, is the fact that nearly all of the land within a quarter-mile radius from the place that I stand did not exist in this position when settlers arrived in Boston almost 400 years ago. The park in which I find myself used to be nothing but bay, water meeting sky. Despite this unique history of landmaking near this site, the area has an authority as if it has always been here. What is it that makes this site feel such an inseparable part of the city?

Perhaps this site feels inseparable from Boston because of its proximity to many of the city's major points of interest. As I look west, the Custom House clock tower nestled snugly into the skyline reminds me that it was not a long walk from downtown. This walk was guided by the flawless continuation of the axis which runs through Quincy Market across John F Fitzgerald Surface Road, the Rose Kennedy Greenway, and Atlantic Avenue landing me directly into the south end of the park. I can still see part of the Christmas tree at Quincy Market and shoppers buzzing around in a frenzy. In the foreground of this view, I can spot the Boston Harbor Islands Visitor Center captured in the Greenway, guarded on each side by a delicate line of greenery creating a barrier between the structure and the heavy traffic which runs along its sides. It looks like the visitor's center isn't very popular during the off-season, as its windows are all shut, and its only visitors are sleeping on cardboard boxes beneath its canopy.

Looking further North, I am reminded of the cannoli that I had for breakfast in the Historic North End. I can't quite catch a glimpse to the historic buildings which populate this area, Boston's pride and joy, as the road curves inland. I recall the day prior, though, when this walk was only but a few blocks to the Old North Church, the famed site of the hanging lanterns that informed Paul Revere that the British were crossing the Boston Harbor to invade the colonies. Turning to face the harbor, I see many boats traversing the water. Long Wharf, one of Boston's oldest wharfs, runs beside me. I can't see its end, nor much of its activity, as the Marriot Hotel blocks most of my view. Along the sidewalk lining the hotel, signs for tour buses and harbor cruises hang, although these don't seem to be overly popular outings this time of year, judging by the foot traffic.

**Human
Characteristics**

Views

Context

**Existing
Structures**

Grids

Human Activity

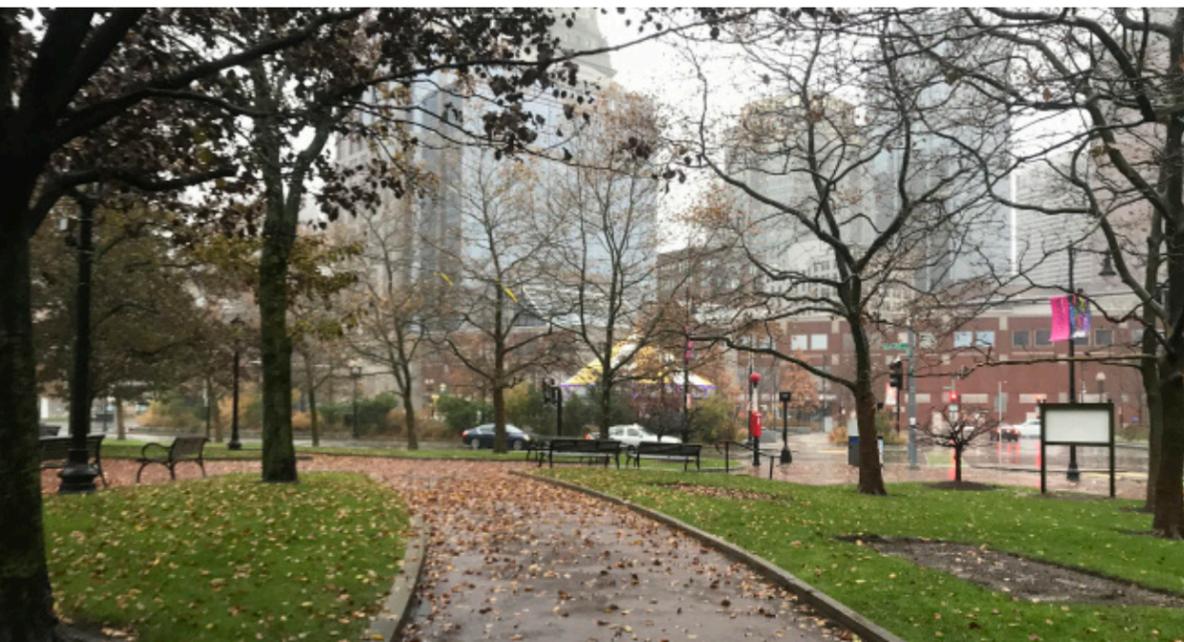
History

Water

Views

Tourism





Existing Structures Turning back to face the site, I can see edges of the memorials which are housed in this park. There is one to Christopher Columbus, one to Rose Kennedy, one to the United Way Children of Boston, one to soldiers, and a few others. “With so many memorials,” I think to myself, “this park is sure not lacking in remembrance!” I chuckle to myself when I remember the irony that it is, in fact, lacking in remembrance, and that this is the reason I have come to this place.

History

Circulation Moving through the site, I begin to walk along the central path that runs northeast to southwest, dividing the park in half. Above me, a vault of twigs defines an arched walkway. It is too formal for the geometries of the surrounding skyline. Defining the statue of Christopher Columbus at its end, the path intersects with two others that run perpendicular to it. I reach this point at the same time as a field trip group of high school students, just in time to hear one of them share the history of Christopher Columbus. As the student talks about Christopher Columbus’s scandalous history with native people, I wonder if he knows the history of the indigenous people of Boston being sent out to the Harbor Islands, only to be followed by the many other groups who were designated as outcasts and were later sent to these same islands.

Topography Passing the students and turning at the intersection of the paths, I encounter a change in elevation. The walkway circles around the Christopher Columbus statue and slopes down into a few formal stairs. The grade change is maybe three feet, if I had to guess. Walking down the stairwell, the ground slopes down with me. I land on a path which lines the harbor, defined by a hanging chain fence the height of my knees. Water wakes when boats come by, sending sounds of gentle splashes against the rocks. The harbor breeze gently blows off the water, chilling my face and filling the air with the smell of the sea. I recall the contrast of when I was here the day prior, being whipped around this path by the wind and rain which billowed off the harbor in furious sheets. My phone still a little water damaged, I am thankful that today the harbor is more still. Although, it is unfortunate that I never got to see this site on a sunny day, as I would love to see the shadows play. Today, it is overcast, and the shadows are invisible.

Light

Sound

Views As I move along the path, I feel drawn upward by the curving path which wraps the site’s southeast end. From this point, the site unfolds with clarity in the distance. Four main sectors of open lawn define the park. The two sectors inland become more forested as they approach Atlantic Avenue. In late November, most of the trees have dropped their leaves, which now scatter the ground like confetti. Through the trees’ bare branches, glimpses can be caught of the storefronts that surround the park. On the harbor side, a playground and a seafood restaurant define the park’s

Vegetation

Texture

Context

edges. I can see the top of a carousel in the Greenway. I smile at the thought of it spinning to a soundtrack of soft music and laughter on a warm summer evening.

From time to time, people pass by me as I walk through the site exploring further. Many of them seem to be on their way to someplace else. The wharf is undoubtedly a tourist center, but you wouldn't know it at this time of year. It seems this place becomes the most prized location in Boston's warmer months, and yet in November, it sits mostly empty even though its grass is still green.

At the thought of tourists and warm weather, I realize that it is almost time for my harbor cruise. Making my way around the Marriot, I pass by a few tour booths and an upscale restaurant, landing on Long Wharf near the Boston Harbor Cruise gift shop. Straight ahead, the New England Aquarium sits perched upon the coast. In between the aquarium and me is a gaping valley between wharves, filled to the brim with water gently being rocked by the coming and going of its large boats. As I make my way down the dock, I can see the rotting wood pilings on which the street above rests. Boarding the boat, I find a cup of coffee and a seat on the deck, gazing over the area which I have just navigated.

As the boat pulls away from the wharf, I see the only view more beautiful than Boston Harbor: the skyline of Boston from across the Harbor. "What a shame," I think to myself, "that this beautiful view was a moment of rejection for so many as they were sent out to the institutions on the Harbor Islands." The tour guide of the cruise begins to speak of the harbor's history, and over the course of the entire ninety-minute cruise, says as little as possible about the "unfortunate" decisions of the city of Boston to send their outcasts on this same path, not to return within ninety minutes.

Imagination

Human Activity

Changing Seasons

Vegetation

Existing Structures

Harbor Activity

Tourism

Water

Views

Water

History

FIGURE 66 | View of Long Wharf and Christopher Columbus Park from Boston Harbor



QUANTITATIVE NARRATIVE

Soils + Groundwater

Boston is a city rich in history, and there are few sites in the city as wealthy with stories as the harbor coast. Boston's coastline has been an evolving organism of infill for almost 400 years. Approximately one third of the city of Boston sits on infill, and Long Wharf, is one of the oldest products of these landmaking efforts. Nestled at the neck of the mainland and Long Wharf, Christopher Columbus Park sits in what was once the bay.

Manmade Land

In no way is Boston's physical transformation more evident than in the city's coastline, which has been an evolving organism of infill for almost 400 years. Boston originated on Shawmut Peninsula and was only connected to the mainland by a small land bridge at its south. Over the years, the port city increased its capacity for

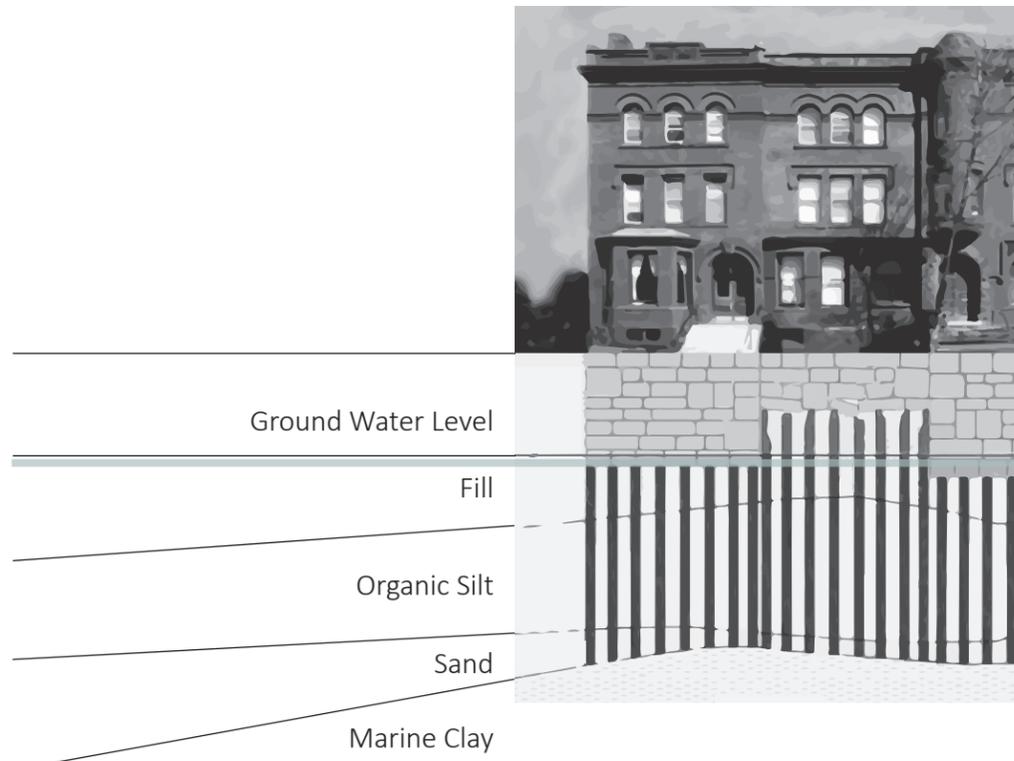


FIGURE 67 | Land Infill Diagram

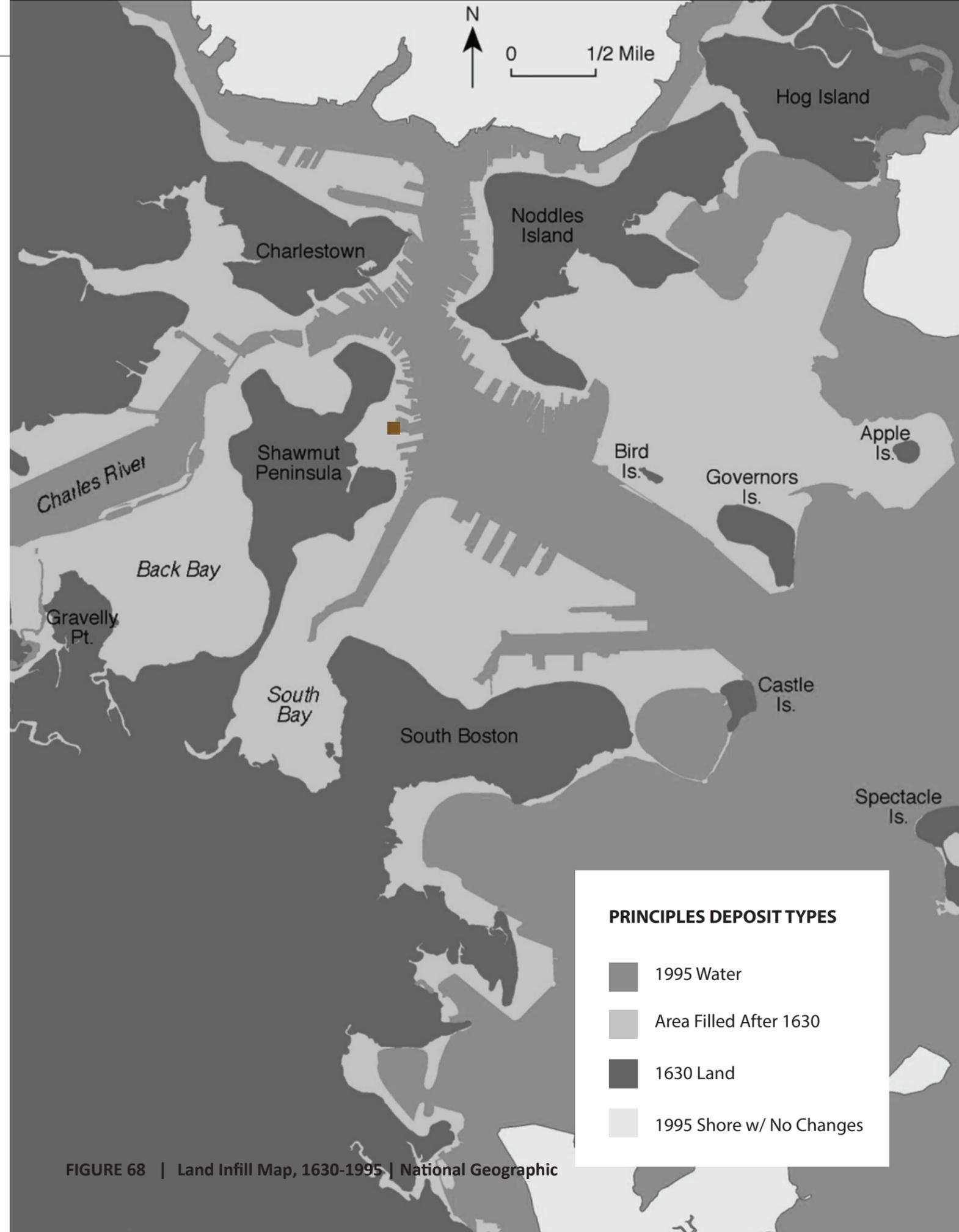


FIGURE 68 | Land Infill Map, 1630-1995 | National Geographic

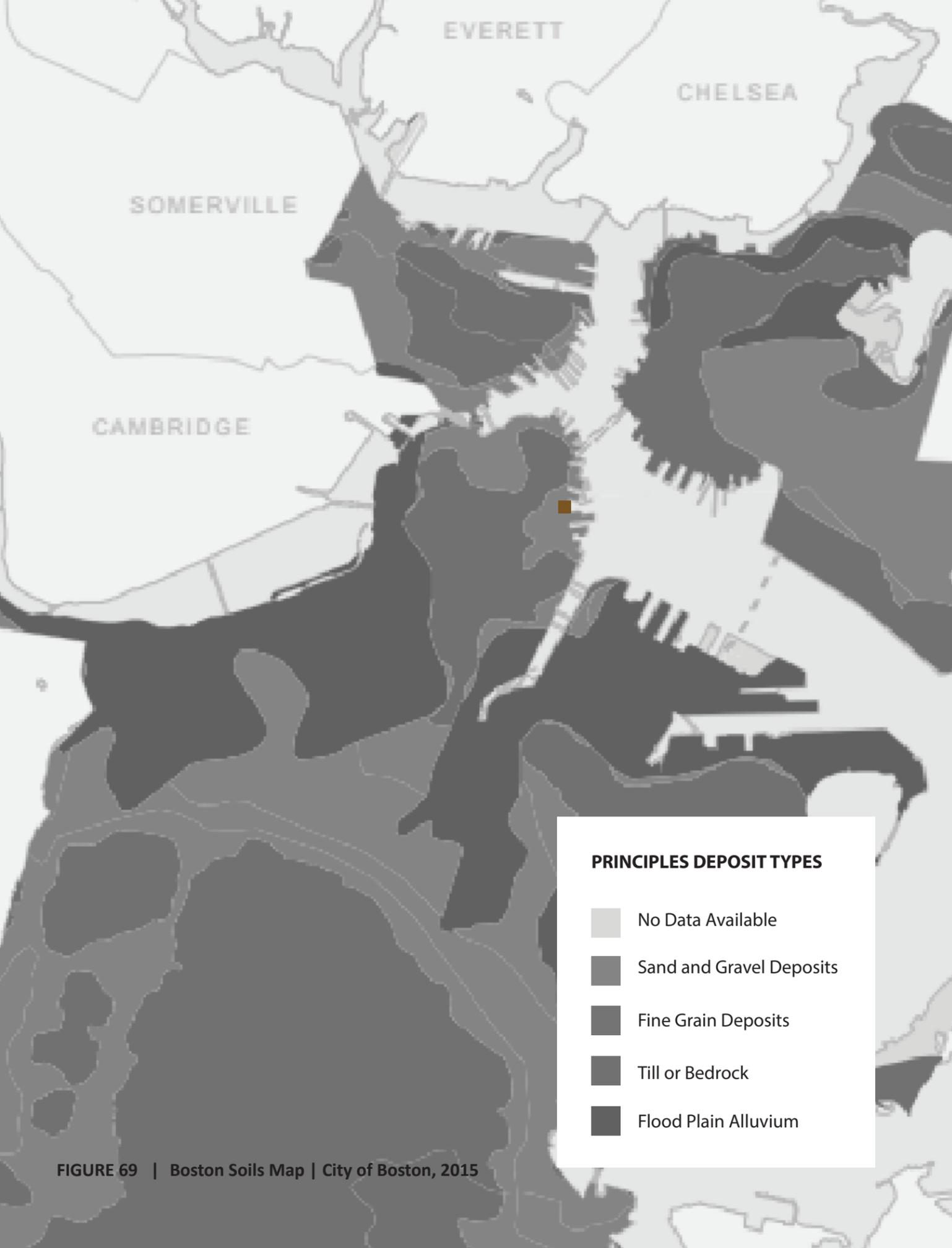


FIGURE 69 | Boston Soils Map | City of Boston, 2015

commerce and residence by infilling land in small segments at a time, resulting in a modern-day Boston which is now hardly recognizable to the original. Nearly 5,000 acres of the city now sits atop wood pilings that stabilize it in what used to be the bay. The coast is a prosthetic extension and reimagination of the city's original body, enabling the city to evolve as needs changed over time.

This practice of landmaking was carried out by a process of covering marshy, mud flats (organic till) with sand and gravel and then driving wood pilings into the land approximately 15 to 20 feet to make stabilize the infill. This is an effective method of landmaking if the pilings remain submerged in groundwater. However, this requires that water levels remain consistent, which, unsurprisingly, they have not over Boston's 400-year history. When the piles are exposed to air, they begin to rot. Due to changing water table conditions, the city has had to repair a number of piles in its historic neighborhoods over the course of the last few centuries. The success of the foundations is dependent upon the consistency of the water table.

Soil Type

The majority of Boston sit atop a bedrock called the Cambridge and Braintree Argillite. Boston sits on at least four different types of soil, largely in part to the landmaking efforts. In the figure at left, the original Shawmut peninsula can be seen as being composed of till or bedrock, with a variety of soils types surrounding this area. The Central Waterfront Area all sits atop sand and gravel deposits. The word used to refer to this infilled land which serves as the foundation for urban areas is Udorthents-Urban Land (City of Boston, 2015). This soil type may range anywhere from 2 to 20 feet deep and contains a large amount of hard surfaces, like asphalt.

Implications

These foundation conditions imply that there will likely not be the possibility of creating a basement in my design and that additional structural considerations will need to be given to the foundation. In addition, this may impact the construction process, as checking for any damaged pilings before beginning construction would be a wise choice.

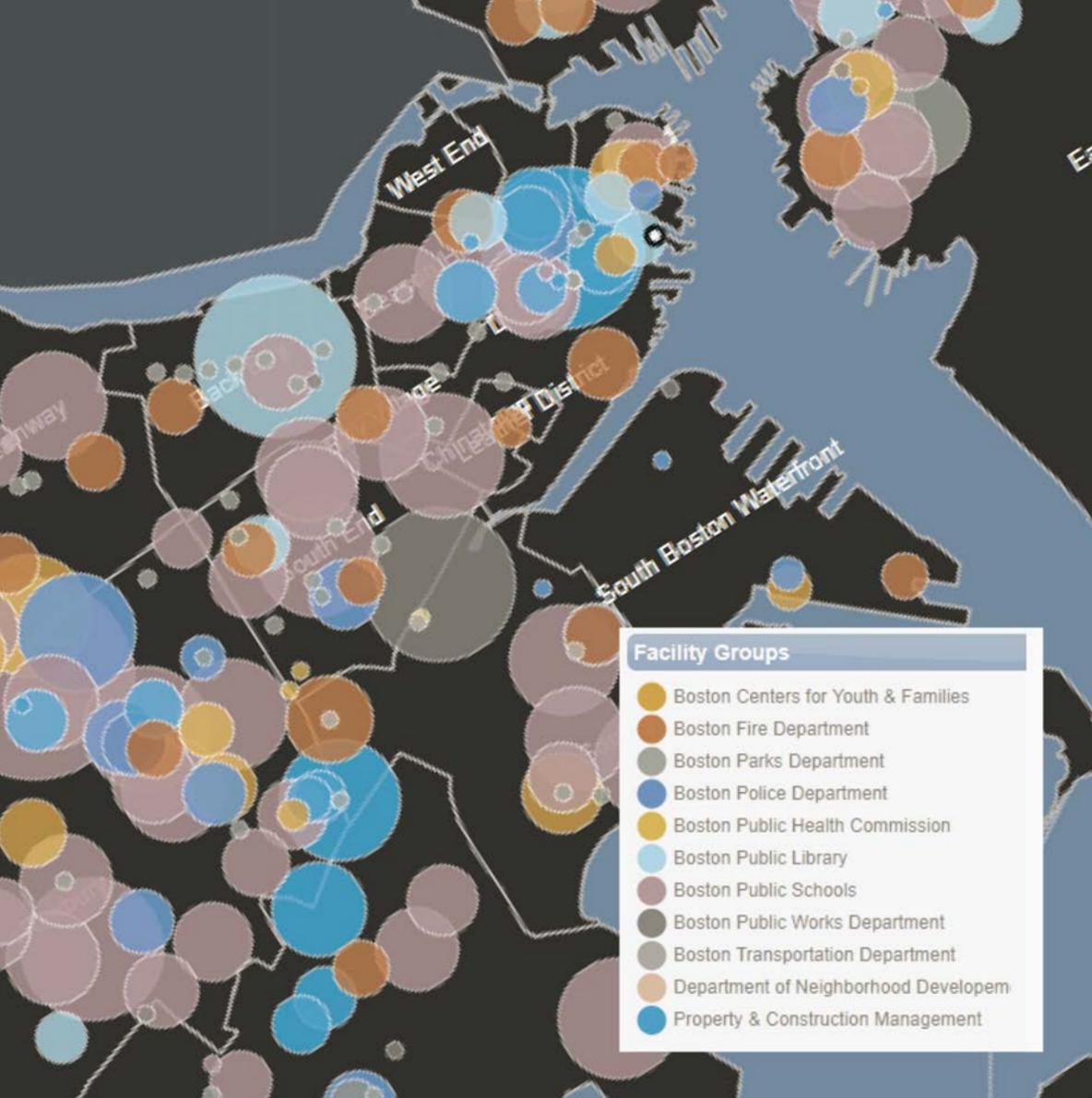


FIGURE 70 | Boston Municipal Energy Usage Map | Advanced Energy Intelligence, 2016

Utilities

City-Wide Energy Usage

In 2016, Advanced Energy Intelligence, LLC developed an interactive map to monitor the energy usage of public buildings belonging to the City of Boston. This includes family centers, fire departments, parks department facilities, police departments, libraries, schools, and many more. This is a useful source for my site because the land currently belongs to the City of Boston, specifically the Parks Department. The size of the circle generated on the map represents the amount of energy used by that location. As can be seen, the dot on my site (shown in white) is very small in comparison to many of the city's municipal areas. According to AEI's map, the structures in Christopher Columbus Park used 49,368 kWh of electricity in 2015, totaling to around \$2,848 (Advanced Energy Intelligence, 2016).

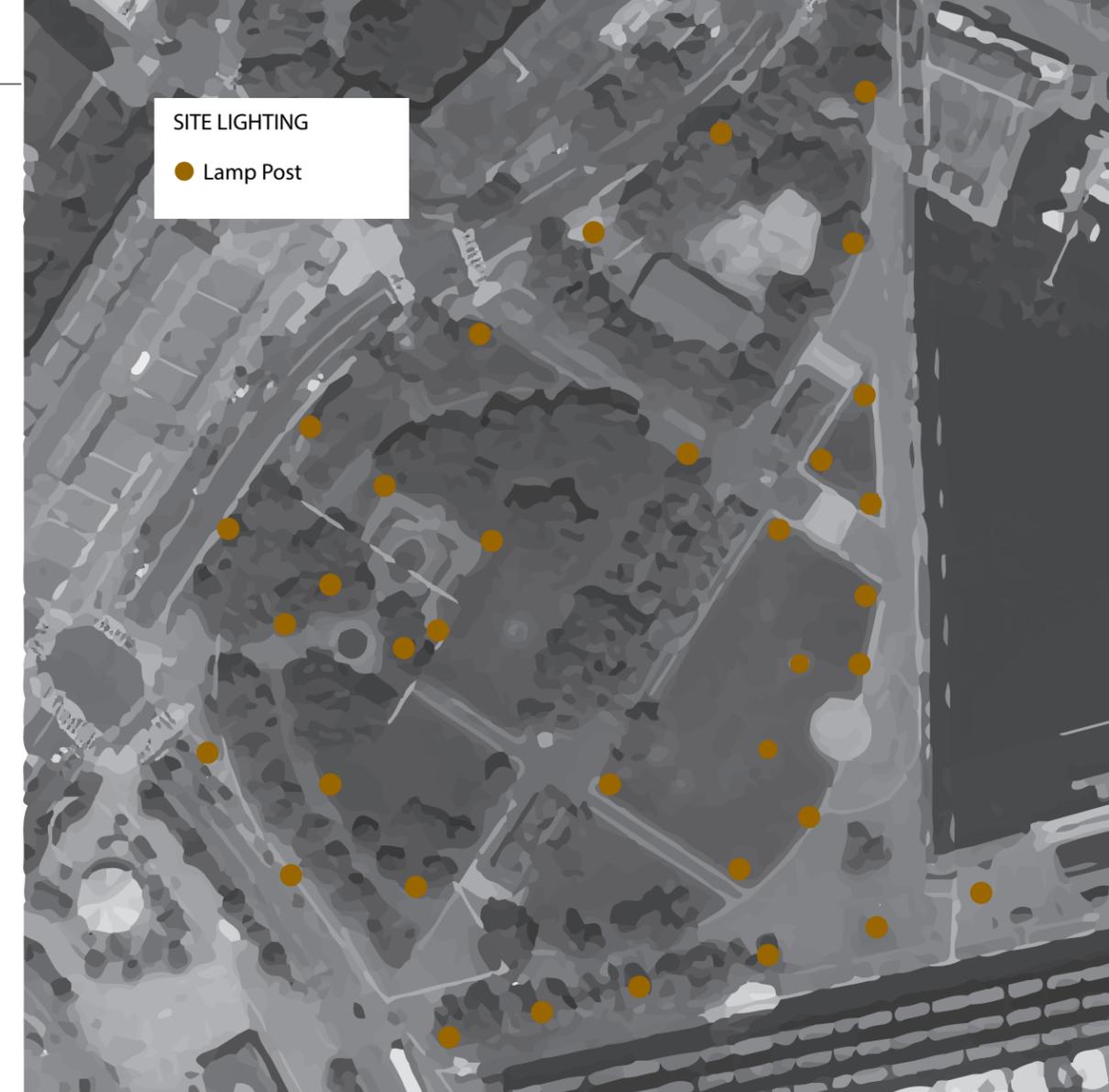


FIGURE 71 | Onsite Street Lantern Map

Christopher Columbus Park has a very low usage in comparison to most of the other municipal properties which are summarized in the map, being that the structures in the park do not need to be heavily utilized by occupants and the public. However, the addition of my project on this site would increase this number significantly, although I aim to design a building which is as energy efficient as possible. The entire purpose of creating this resource was to increase sustainable practices in the city of Boston. I aim to contribute to this goal.

The exact locations of utility lines onsite are not available to the public, so reading the surface conditions is the closest that I can get to an answer as to what utilizes are running through the site and where. This has been executed through a mapping exercise of the site's lighting, as can be seen above.

Vehicular Traffic

The Big Dig + Its Impact

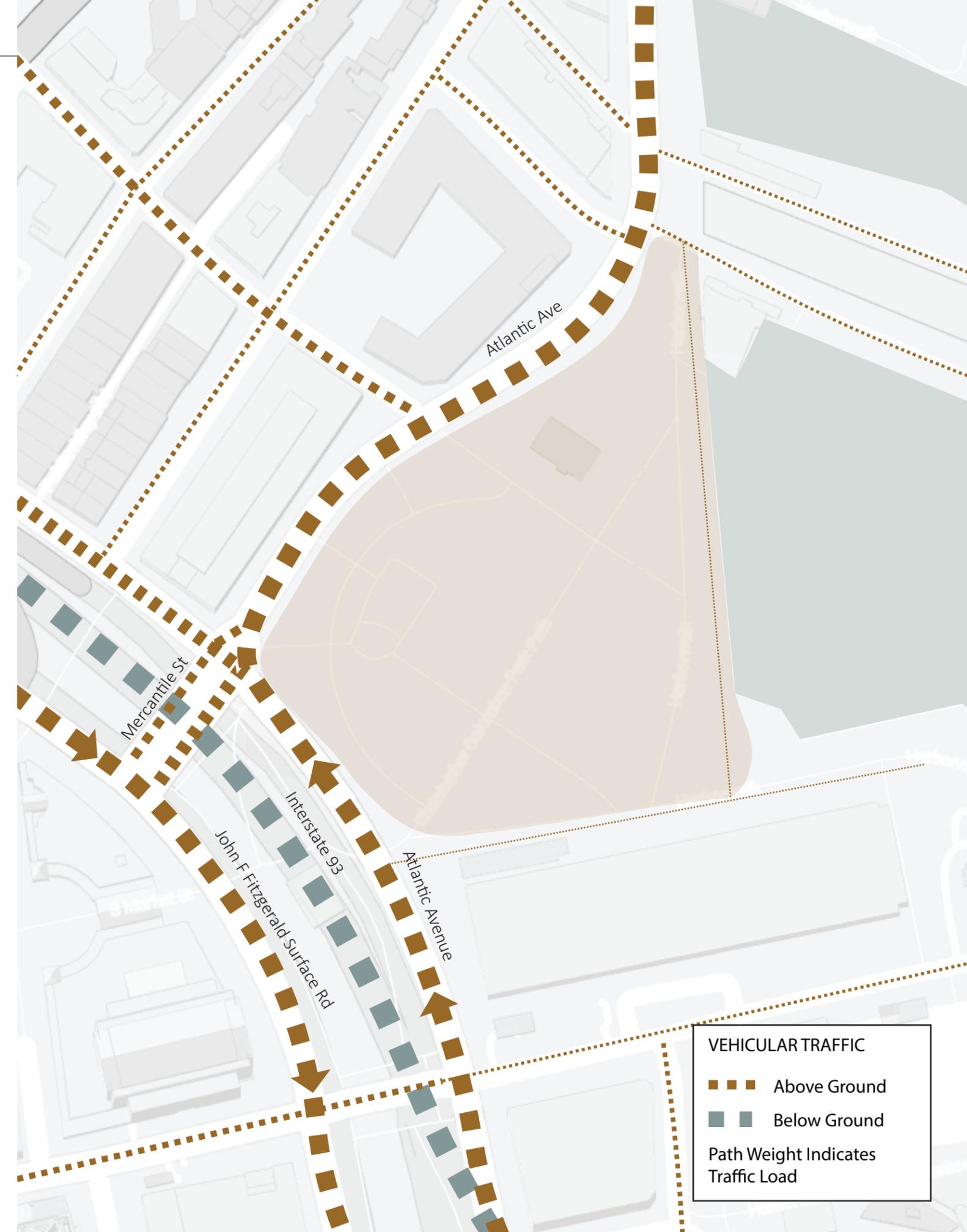
This site is located along the Rose Kennedy Greenway, which has an interesting origin story that relates to vehicular traffic. In the mid-19th century, this artery that runs along the site's southwest corner hosted Interstate 93, the major interstate in the Boston area. This plagued the area with an unbearable amount of traffic. Being that this was the city center of Boston, the city wanted to take measures to reduce the traffic as much as possible.

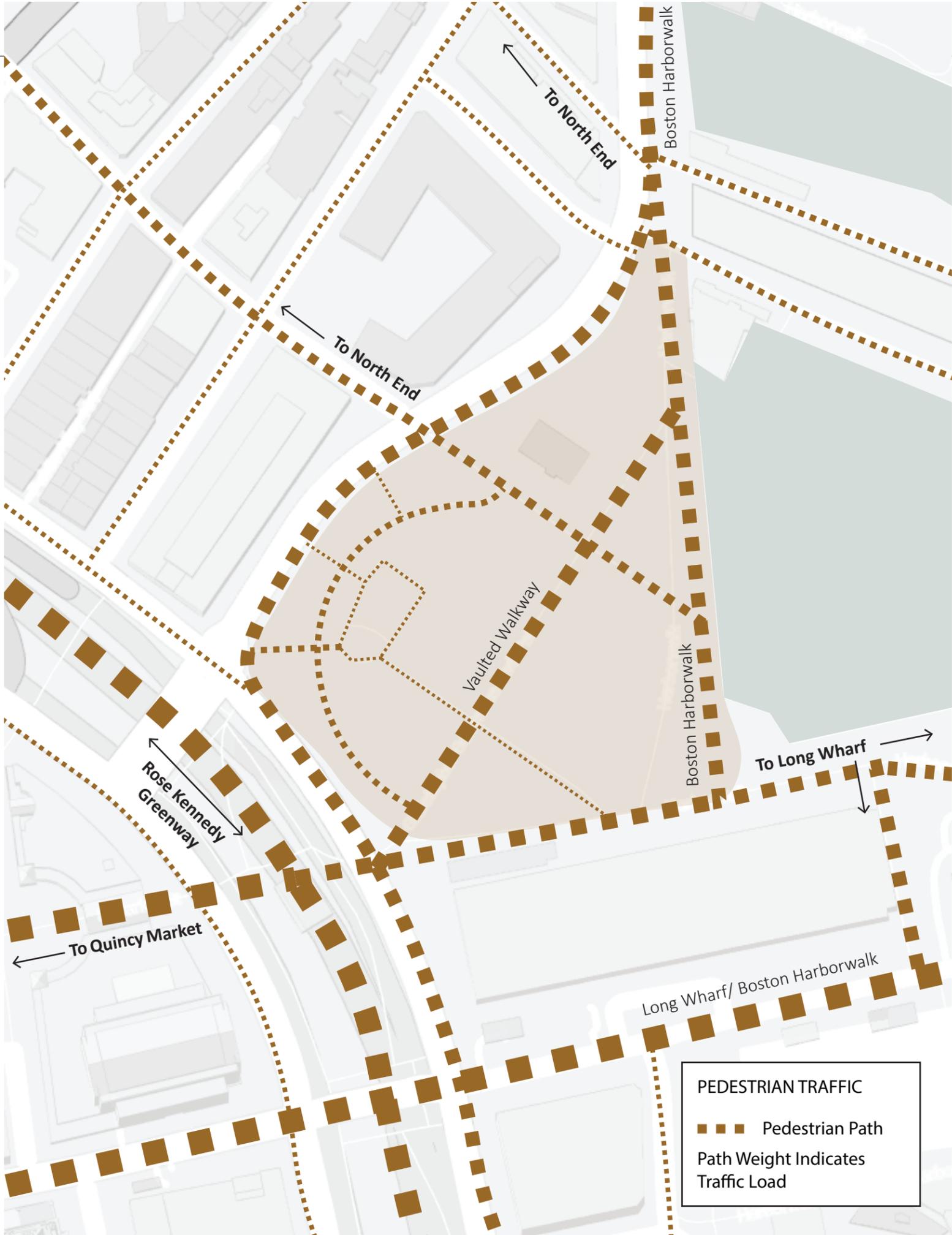
The approach that was decided upon was to create a tunnel for the interstate which would run underneath the city. This project was coined the "Big Dig" as it was a massive project even for a city of Boston's repute. Work began in the early 1980's and was completed in the early 2000's. With the interstate off the ground level, the city established local roads to serve as a main artery for this area of the city, these being John F Fitzgerald Surface Road and Atlantic Avenue. The most exciting part of this project, though, was the establishment of the Rose Kennedy Greenway between these two roads, which now serves as a public green space, connecting the Historic North End to Long Wharf.

Today, John F Fitzgerald Surface Road and Atlantic Avenue, one-way roads which run opposite one another at this point, serve as major roads in Boston and still accommodate a large amount of traffic. The Greenway, however, allows these two roads to be crossed separately, increasing pedestrian safety and providing a buffer between the two roads. Atlantic Avenue turns at the site's west corner, wrapping the park and approaching the coastline. Cross Street continues its path parallel to John F Fitzgerald Surface Road. Mercantile Street serves as the connection between this elaborate intersection. It will be important to consider pedestrian safety in my design, particularly in the path from Quincy Market which crosses these roads.

Around the site, there are various other roads which are less busy than this major vehicular artery. Many of the roads which run on the wharves have a small amount of traffic given the change in road materials and the presence of pedestrians. To the North, the streets of the North End are rather slim and hold a moderate amount of traffic. Considerations for this type of traffic may include ensuring that any harborwalk changes allow the clearance for a vehicle if needed for maintenance purposes.

FIGURE 72 | Vehicular Traffic Map





Pedestrian Traffic

Around the Site

One of the most important factors in choosing this site was its connection to many points of interest in the city. Since Boston is geographically a rather small area and is well connected by transit, the city is very walkable. Features like the Rose Kennedy Greenway help to accommodate and entertain pedestrians, providing open, green walking paths through public art, memorials, and more. Long Wharf, to the south of my site, is also a pedestrian hotspot, particularly in the warmer seasons. This is where many visiting Boston line up to go on a cruise of the harbor or to visit the New England Aquarium. Along the south border of the site runs the axis which starts in Quincy Market. It is only a block's walk to more shops, bars, and eateries than can be counted. A few blocks beyond that lies City Hall and the central downtown district. To the North of the Site, tight roads lined with colonial townhomes draw the pedestrian toward Hanover Street, a road famed for its Italian restaurants and its position on the Freedom Trail. Along the site's east border runs a section of the Boston Harborwalk, which continues around a majority of the harbor's perimeter, connecting most of the city's waterfront sights in a breezy, paved path.

In the Site

Within the site, a network of paths bring pedestrians through the site's vaulted walkway, tree canopy, and harbor views. Most of the paths cross around and between the many memorials which are housed in this park. The most frequented paths are the central diagonal path, where the vault stands, the harborwalk, and the path that runs along the Marriot's end toward Long Wharf. These three paths are likely the most important to maintain or impact minimally. Connections that I aim to improve further by making them more accessible and opening view corridors are those to Long Wharf, Quincy Market, and the North End.

FIGURE 73 | Pedestrian Traffic Map

Topographic Survey

FIGURE 74 | Boston Topographic Texture Map | GIS

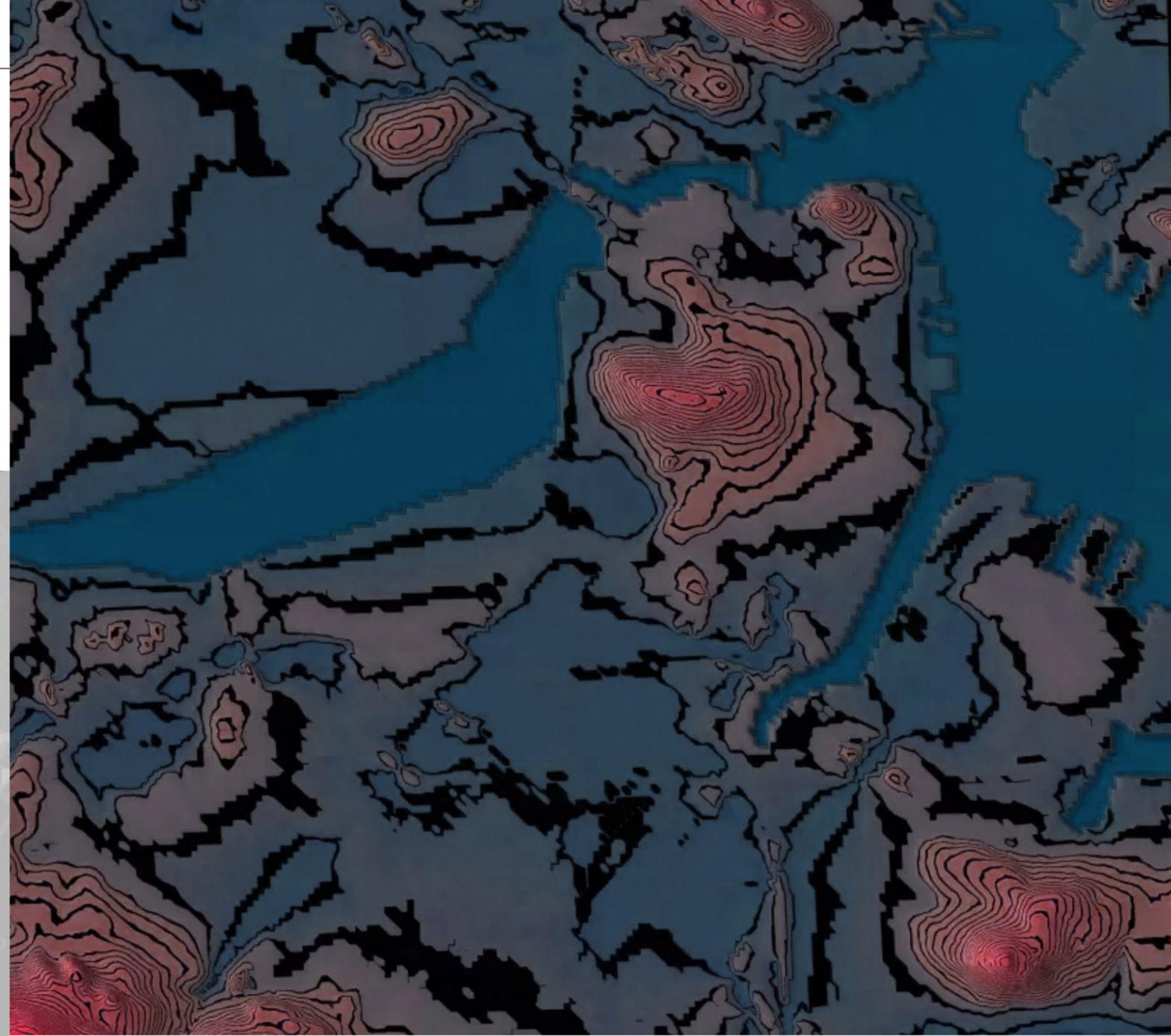
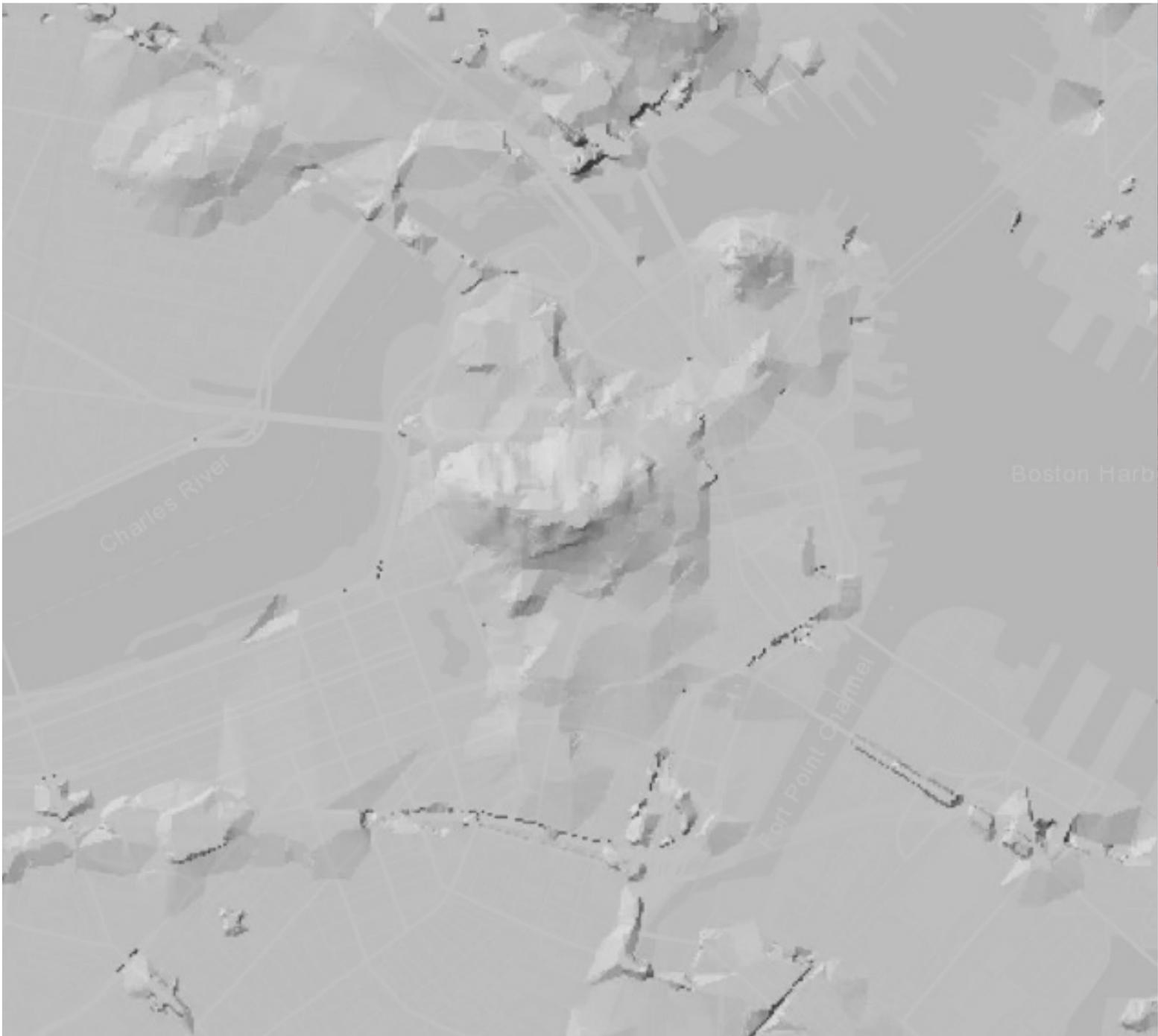


FIGURE 75 | Boston Topographic Color Field Map | GIS

Most of the land that has been created by the city's landmaking efforts creates a plain which surrounds the hill of the city's original Shawmut Peninsula. This large central hill on the Shawmut Peninsula is the most notable when visiting Boston Common, a large park in the city's center featuring a tree covered hillside, monuments, and the Boston Public Garden. The position of my site at the foot of this hill may expose the site to water runoff in the event of a heavy rainstorm.

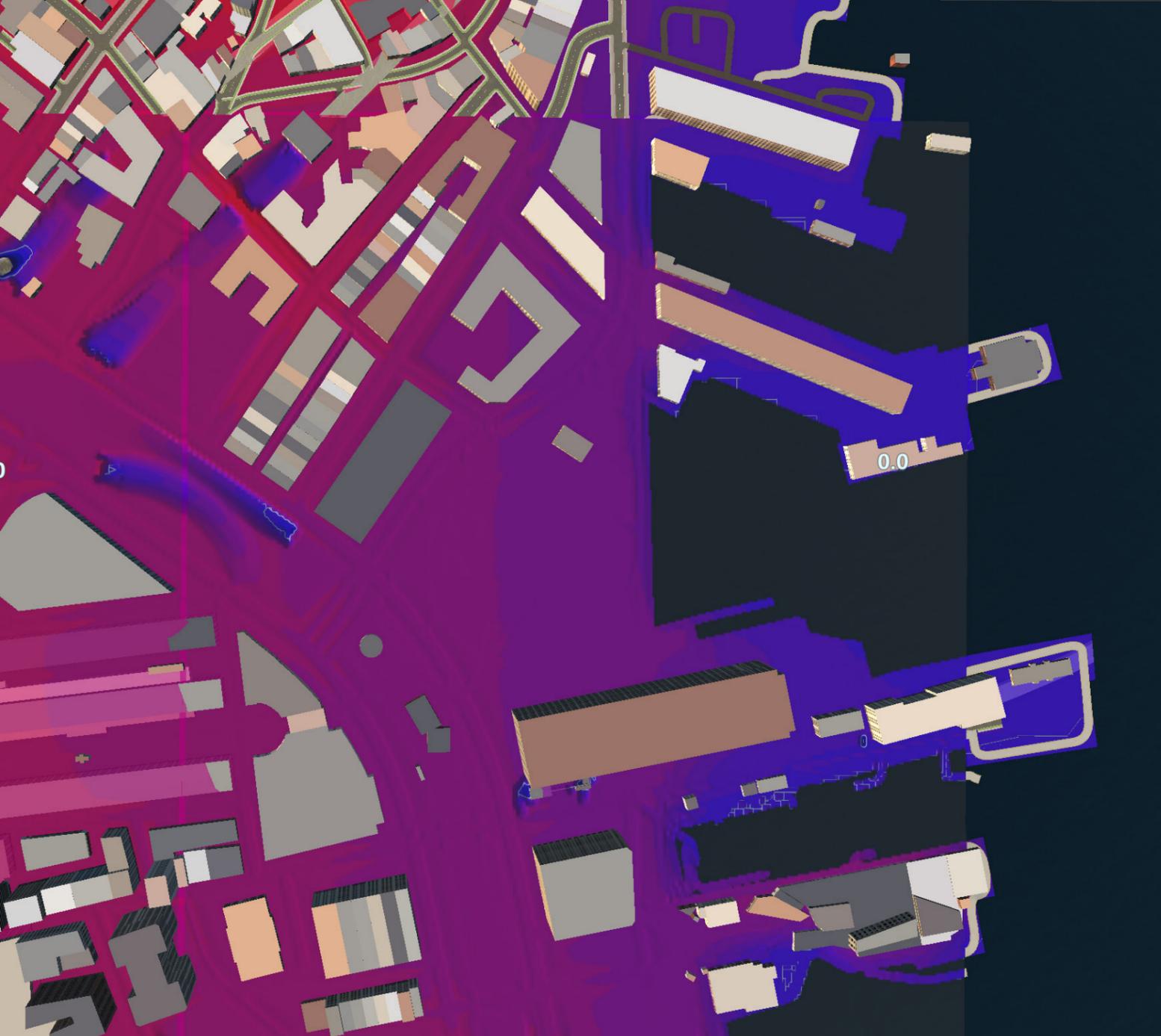


FIGURE 76 | Elevation Analysis

There is not much topography on the site beyond a slight slope upward toward the street. This is noticeable onsite, but is not dramatic. Christopher Columbus Park's paths contain a few small stairs to accommodate for this change in elevation. This will present a design solution for me in making this site accessible to people of all abilities. The flatness of the site along with its proximity to the water may also expose the site to flooding.

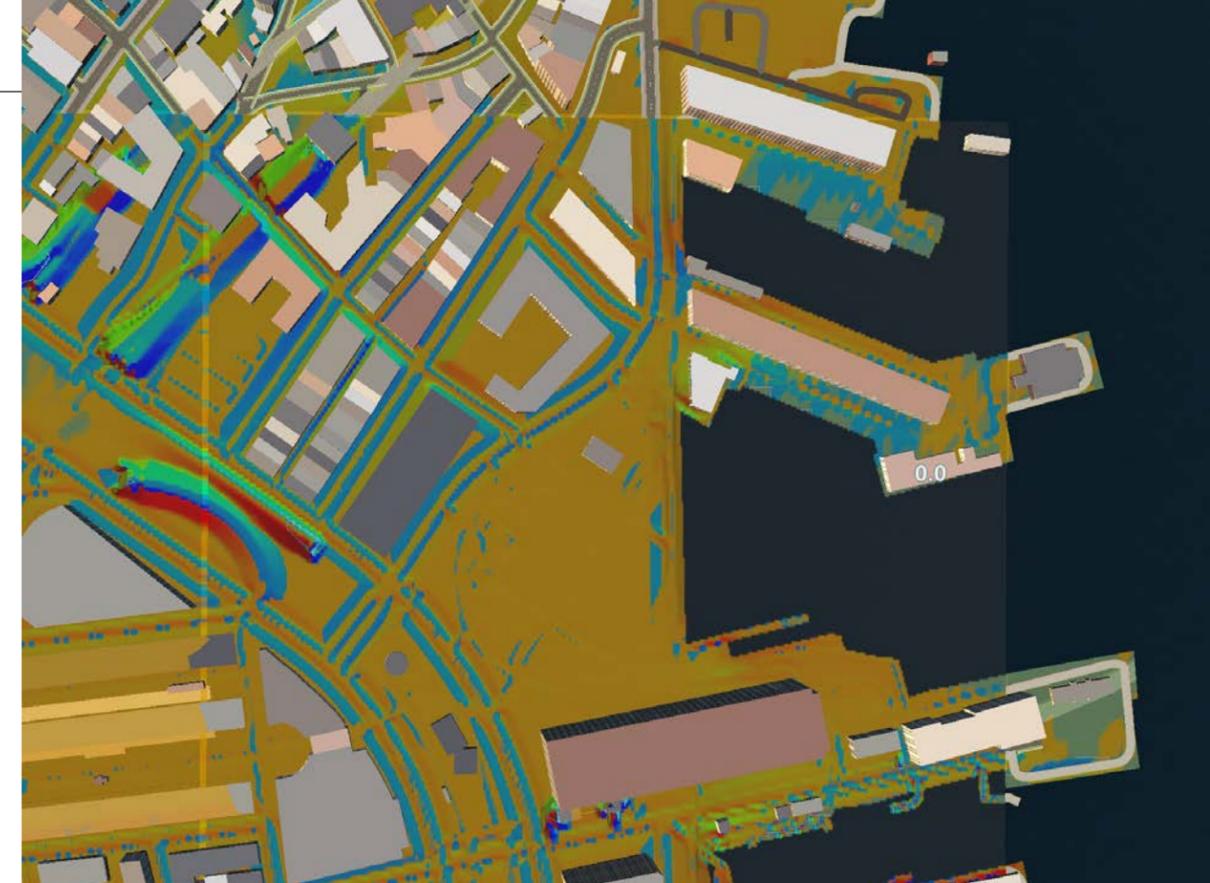


FIGURE 77 | Aspect Analysis

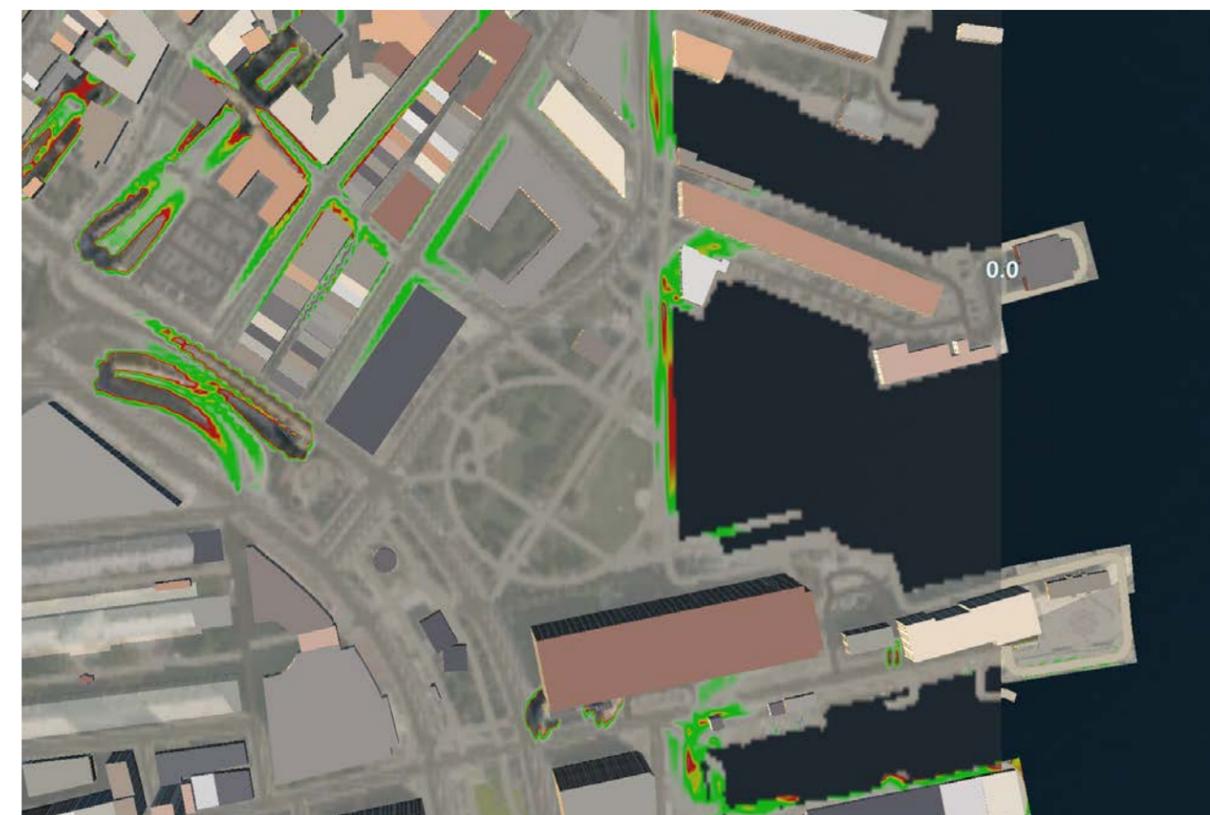


FIGURE 78 | Slope Analysis

Site Character

Erosion

Onsite, I did not see any signs of erosion. The trees all appeared to have life, despite assuming their dormant states for winter. The gently sloping lawns were not crumbling apart, but rather appeared to be in great shape. A few path edges showed signs of wear and tear, but nothing beyond what could be expected from regular use, and nothing that would need immediate attention.

Given what I have learned about this site throughout my analysis, if any major erosion were to occur, it would be due to a changing water table, which would expose the wood pilings beneath the site's surface to rot. I did not see any signs of this near the site, but did see a few rotted pilings further out in the harbor. They are pictured here as an example of what could occur should the water table change. Also picture is the foundation edge of long wharf, which appears to be in fine condition.

Activity

Surrounding businesses seems to have regular activity. Although, the crowd for harbor cruises was much smaller than I presume it to be in the summer. This judgment is based on research concerning Long Wharf's tourist activity as well as multiple tour kiosks onsite which appeared to be closed for the season.

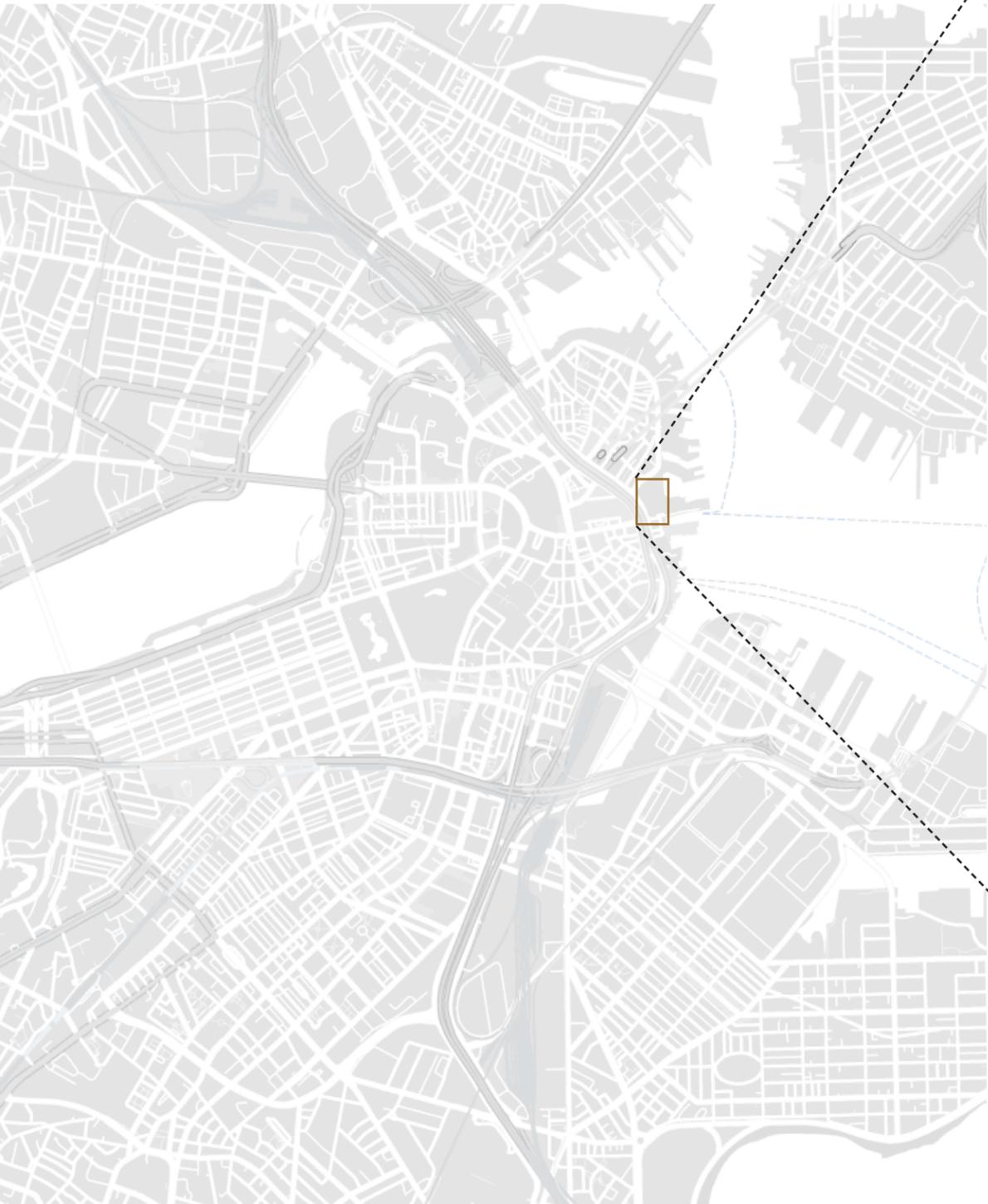


FIGURE 79 | Site Visit Photos of Site Character



Maps

FIGURE 80 | City Context Map of Site



SITE MAP

-  Parcel Line
-  Road
-  Pedestrian Area
-  Boston Harborwalk
-  Covered Walkway
-  Greenspace
-  Existing Structures
-  Memorial
-  Vegetation (Deciduous Tree)



FIGURE 81 | Site Base Map

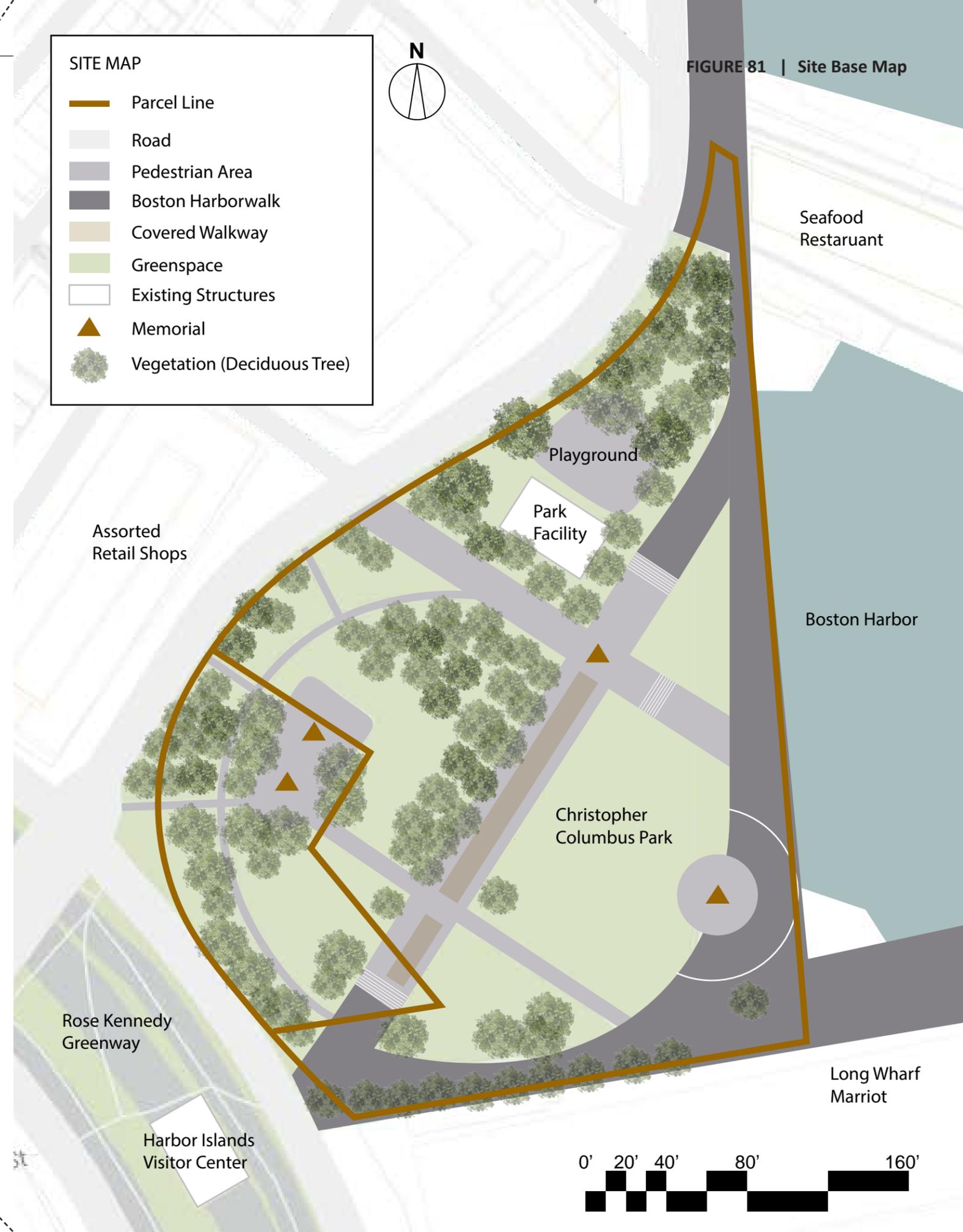




FIGURE 82 | Aerial City View

FIGURE 83 | Aerial Neighborhood View

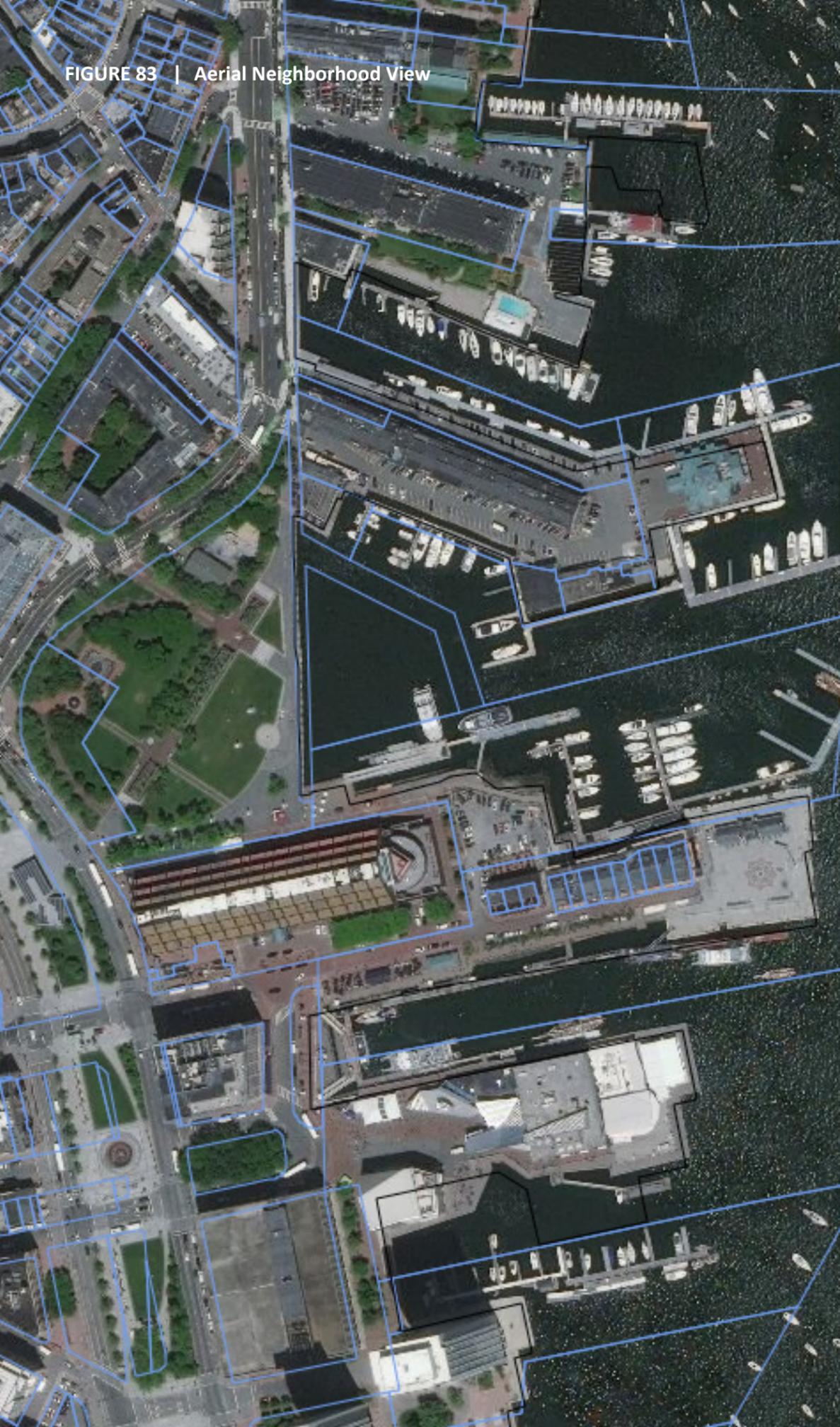
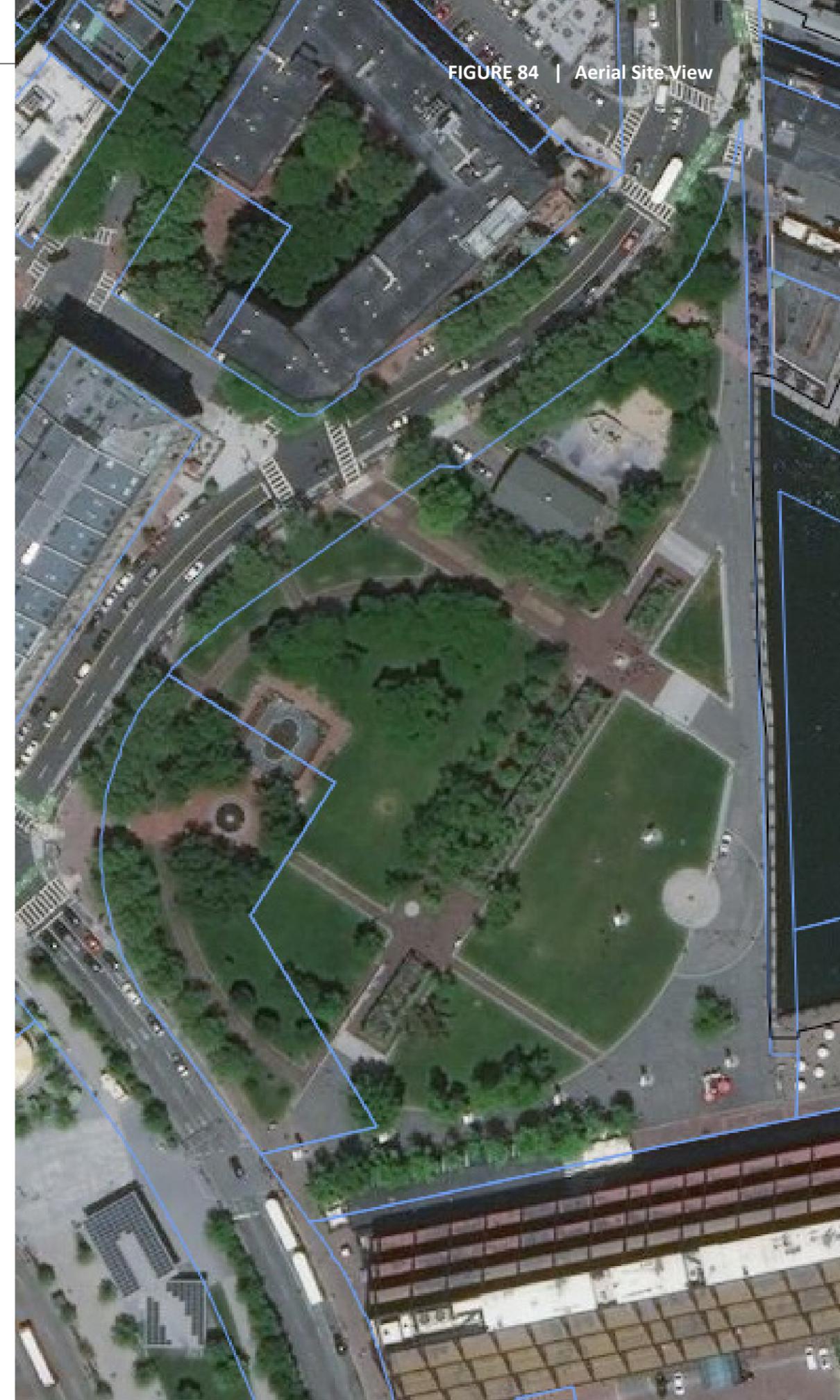


FIGURE 84 | Aerial Site View



Site Reconnaissance Grid

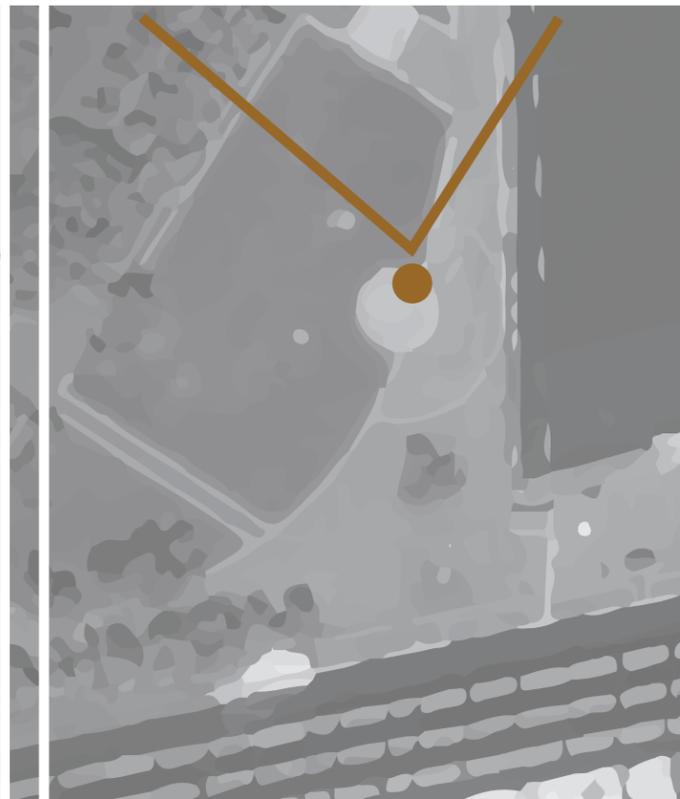
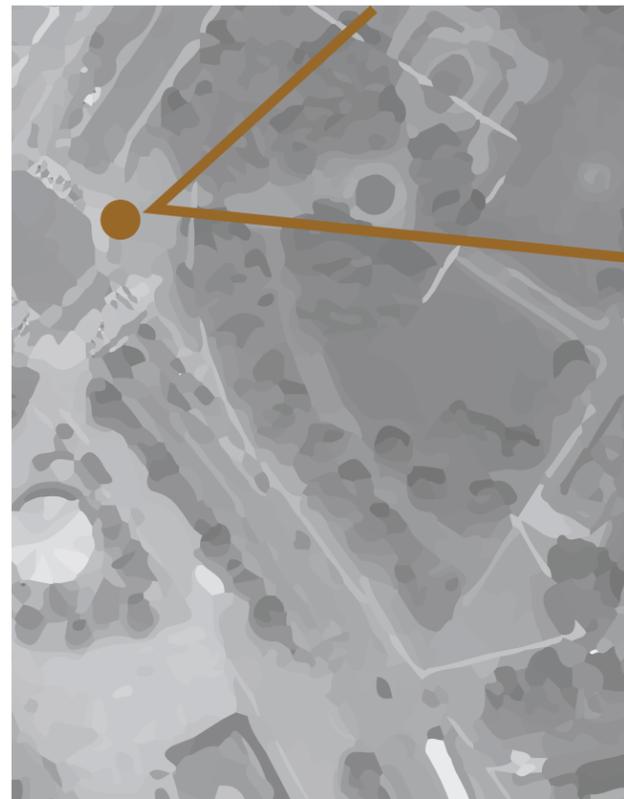
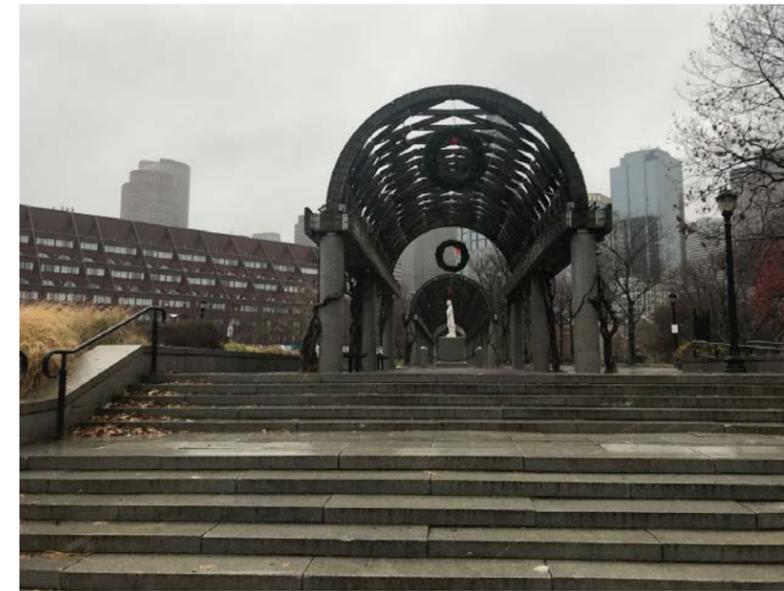
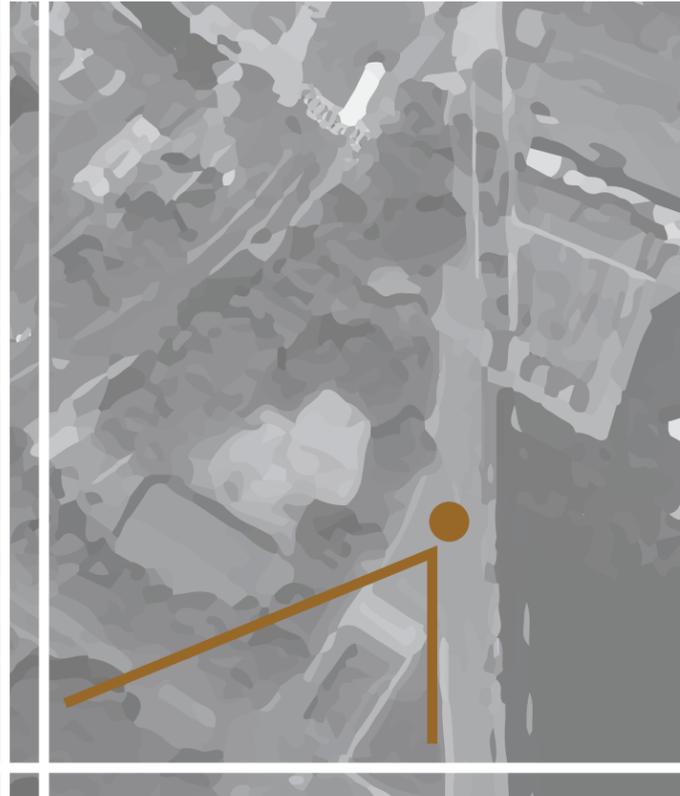


FIGURE 85 | Site Reconnaissance Grid

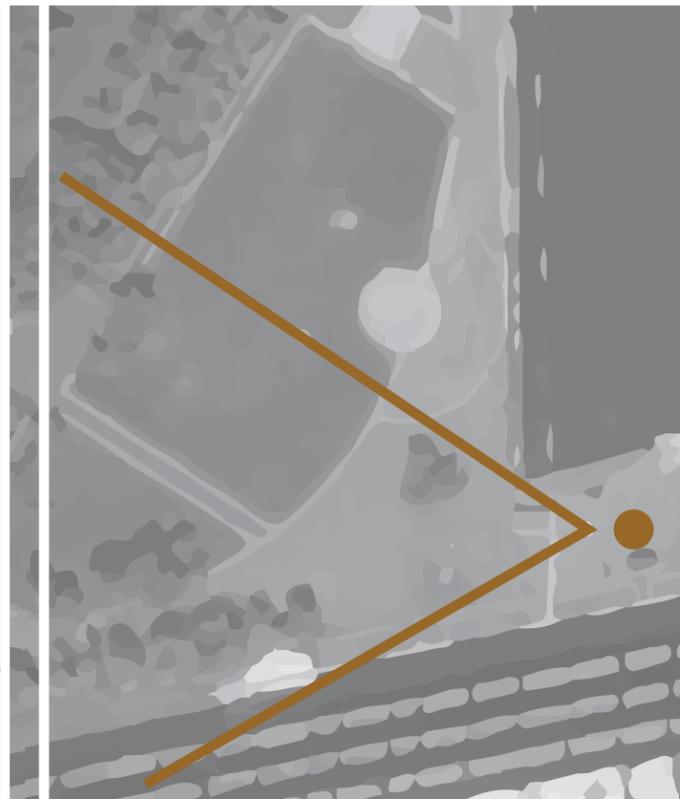
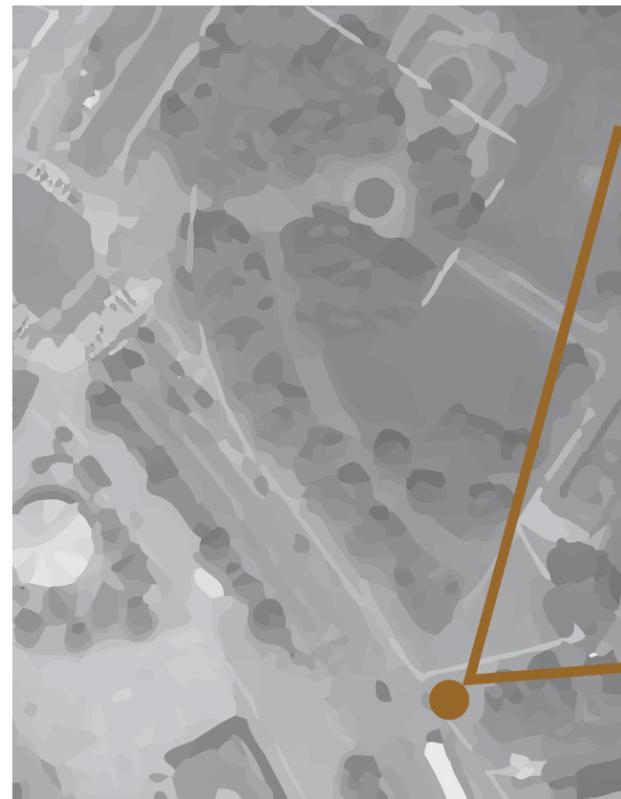
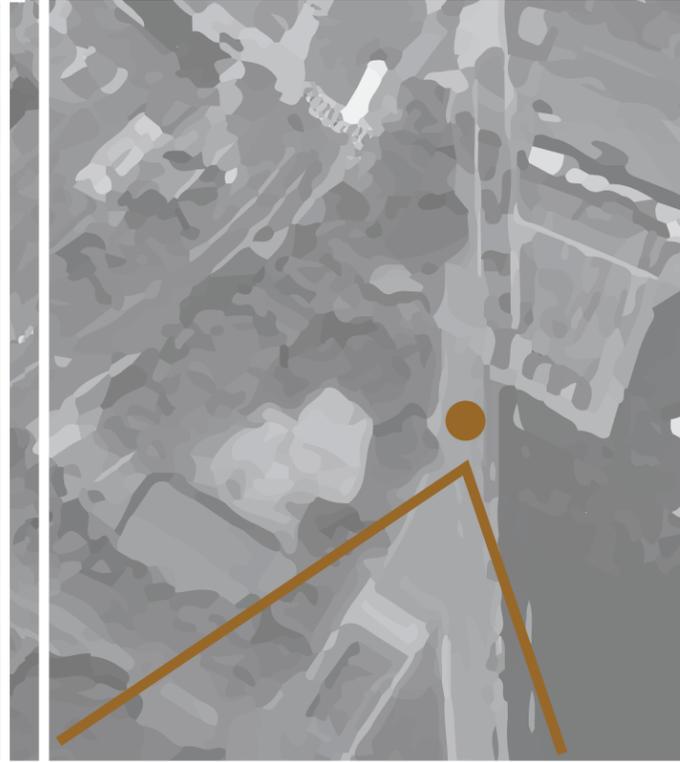
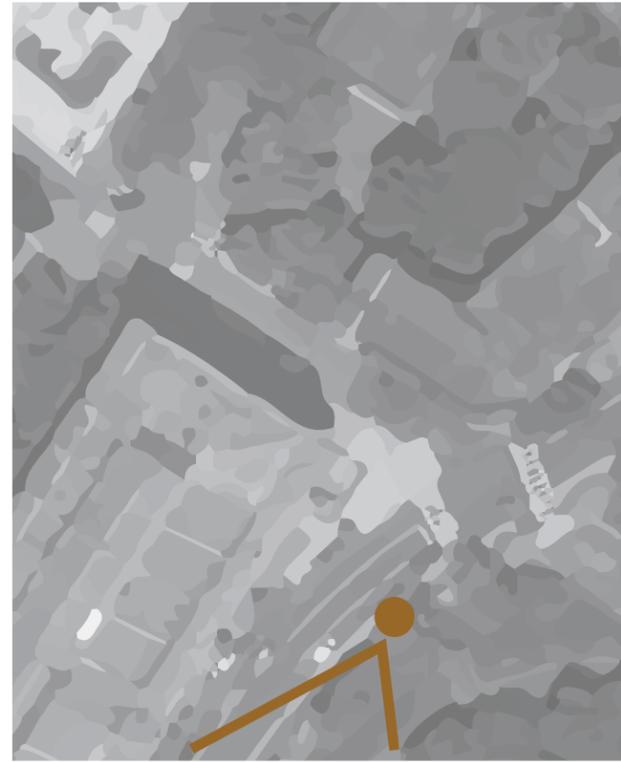


FIGURE 86 | Site Reconnaissance Grid

Climate Data

Climate Overview

As a port city, Boston's proximity to the ocean has great benefits for the city's climate. The harbor helps to moderate the cool temperatures which residing in the Northeast can bring in the winter and provides cool breezes to offset the warm air in summer months. This also allows Boston to experience all four seasons in equal part. However, it's not all moderate, as being so far geographically east can result in some strange daylight effects.

FIGURE 87 | Basic Climate Statistics of Boston by Month

	Temperature		Precipitation		Daylight
	Avg. High (°F)	Avg. Low (°F)	Avg. Precip.	Days with Precip.	Hours of Sunshine
Jan	36	22	3.35	11	164
Feb	39	25	3.23	9	169
Mar	45	31	4.29	11	213
Apr	56	41	3.74	11	228
May	66	50	3.46	12	266
Jun	76	60	3.66	10	288
Jul	81	65	3.43	9	300
Aug	80	65	3.27	9	275
Sep	72	57	3.43	8	237
Oct	61	47	3.94	9	207
Nov	51	38	3.98	10	144
Dec	41	28	3.78	11	142

Boston, Massachusetts

42.3601° N, 71.0589° W

Sun Path

FIGURE 88 | Typical Solar Altitude and Azimuth Data for 42 Latitude | MEEB

Latitude (°N)	Date	Solar Time ^a							
		AM: 6 PM: 6	7 5	8 4	9 3	10 2	11 1	Noon	
42	Altitude	—	11	22	32	40	46	48	
	Dec 21	—	—	4	13	19	23	25	
	June 21	108	99	89	78	63	39	0	
Azimuth	Mar–Sept 21	90	80	69	56	41	22	0	
	Dec 21	—	—	53	42	29	15	0	

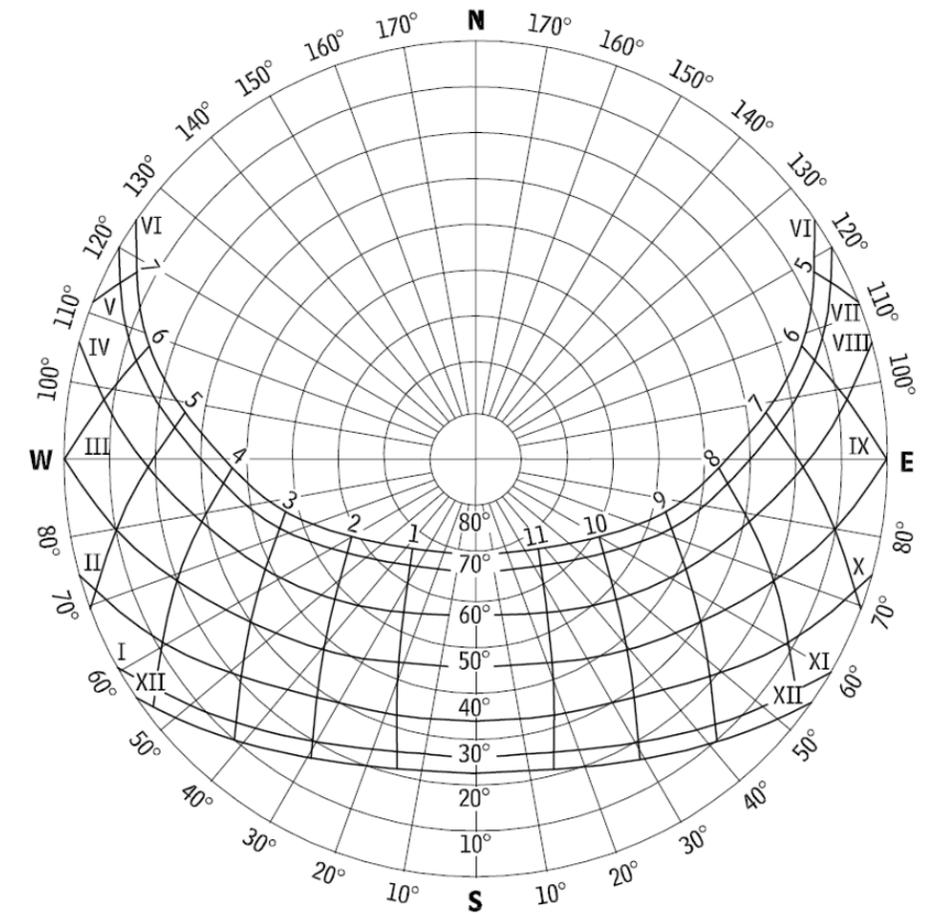


FIGURE 89 | Sun Path Diagram for 42 Latitude | MEEB

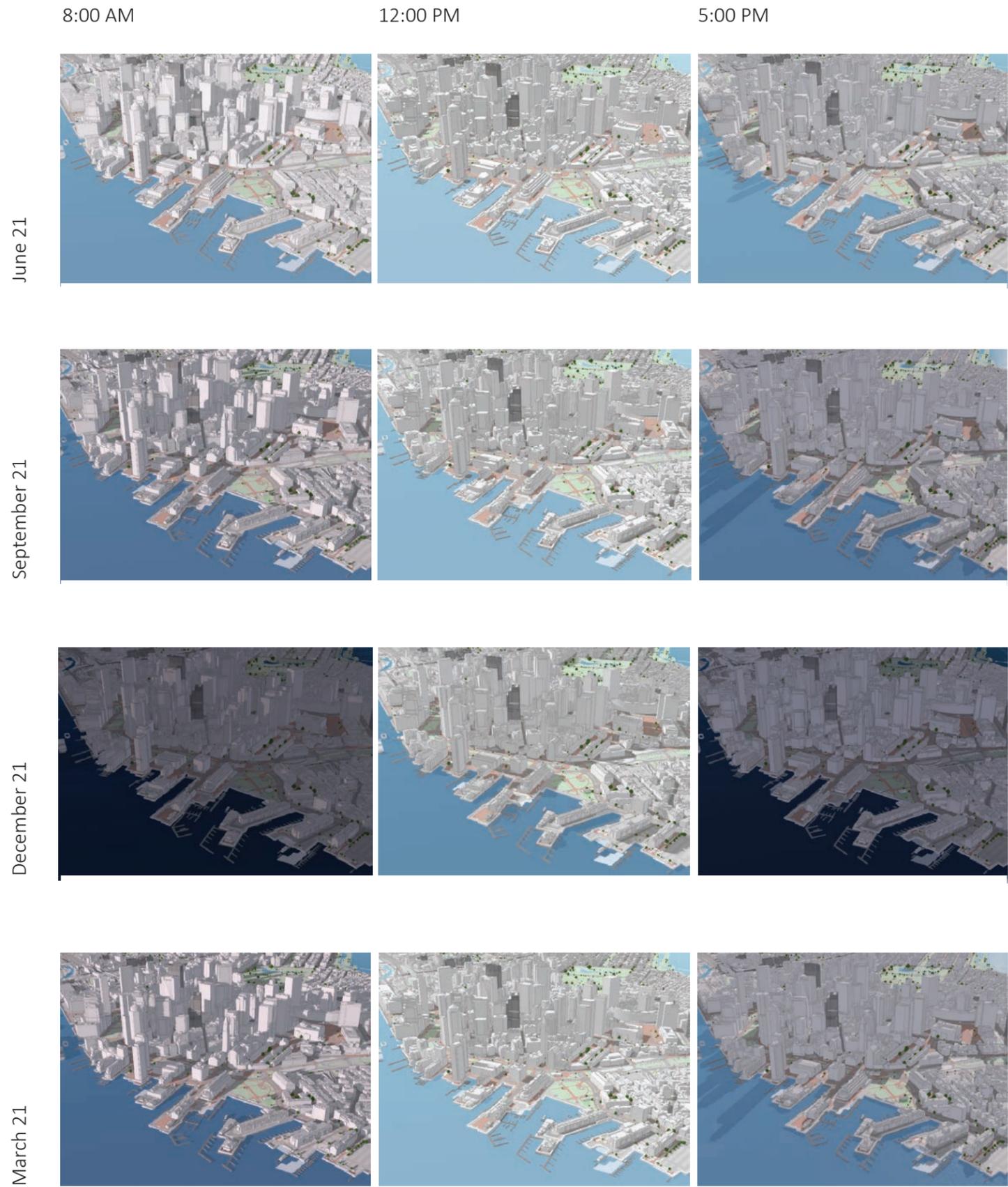


FIGURE 90 | Shadow Study of Site on Solar Solstices and Equinoxes | Boston GIS

FIGURE 91 | Eastern Time Zone Map



The Trouble with Timezones

One of the strangest things that I noticed during my site visit to Boston was how early the sun would set each day. By 3:30PM, twilight would be setting in, and by 4:00PM the sun had set. In mid-November, this seemed strange to me. Perhaps it was strange because I am from a different part of the country, where my home sits in a different part of the time zone. Boston, however, sits on the far east edge of the Eastern Standard Time Zone, meaning the sun sets earlier for Bostonians than it does for New Yorkers, even though both exist on the same coast, in the same time zone.

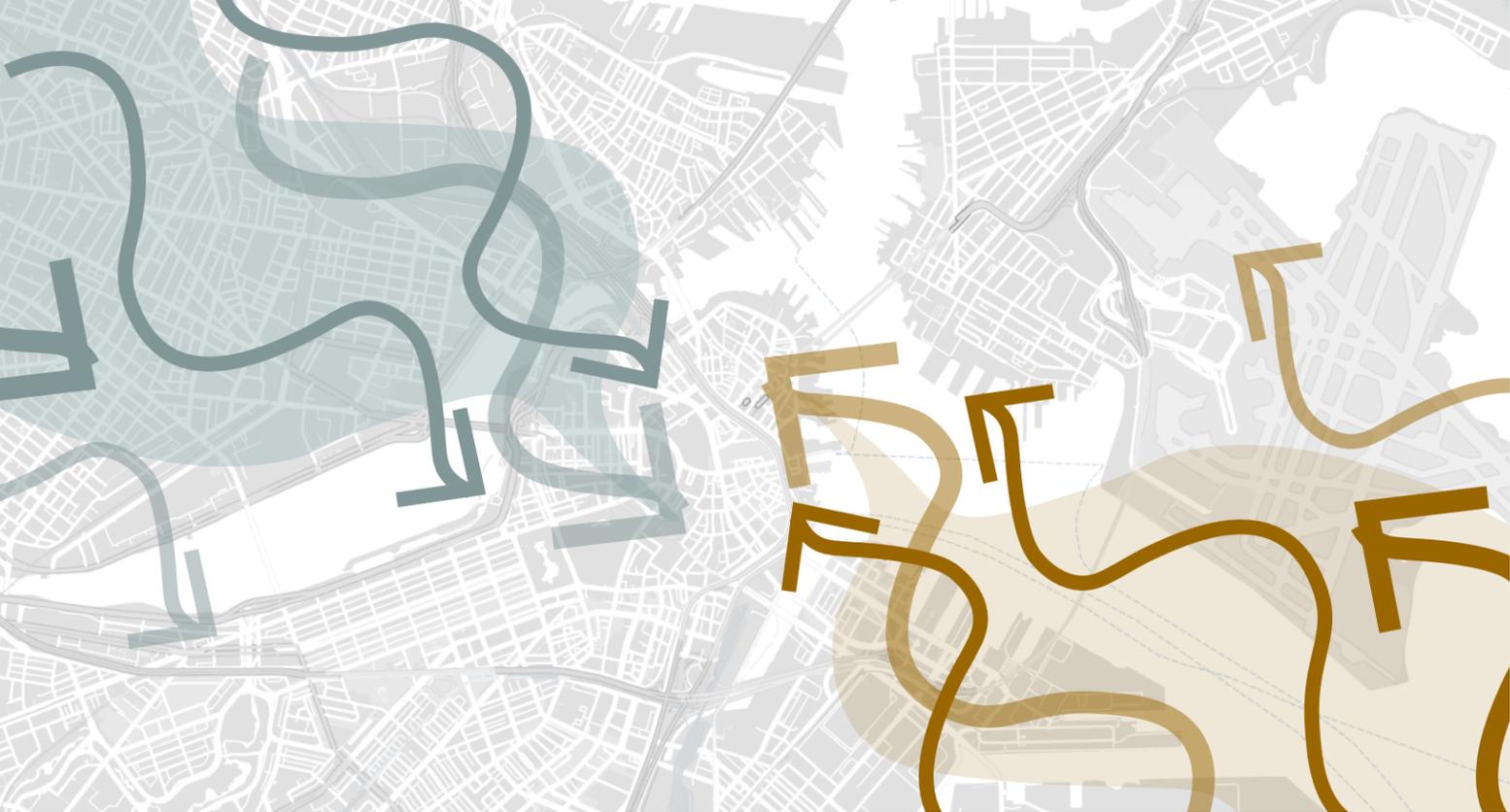


FIGURE 92 | Wind Patterns Diagram

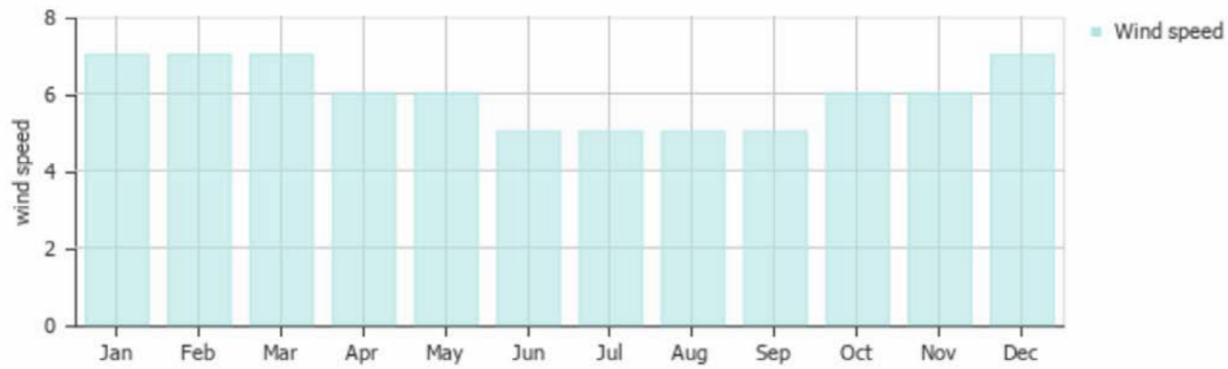


FIGURE 93 | Wind Speed Bar Graph | Weather & Climate

Wind Patterns

Observing Boston’s wind patterns across these same dates – the solstices and the equinoxes – we can see that Boston’s summer winds tend to come from the Southeast and the winter winds tend to come from the Northwest. This may be important to consider in my design in relation to the seasonal changes that occur onsite and the lack of other things to do onsite during the winter months. By designing with wind in mind, I may identify design solutions which dampen winter winds for a more comfortable visit in the colder months, and that collect summer winds to keep visitors cool in the summer. Wind is also a huge opportunity to incorporate passive systems into the building’s design.

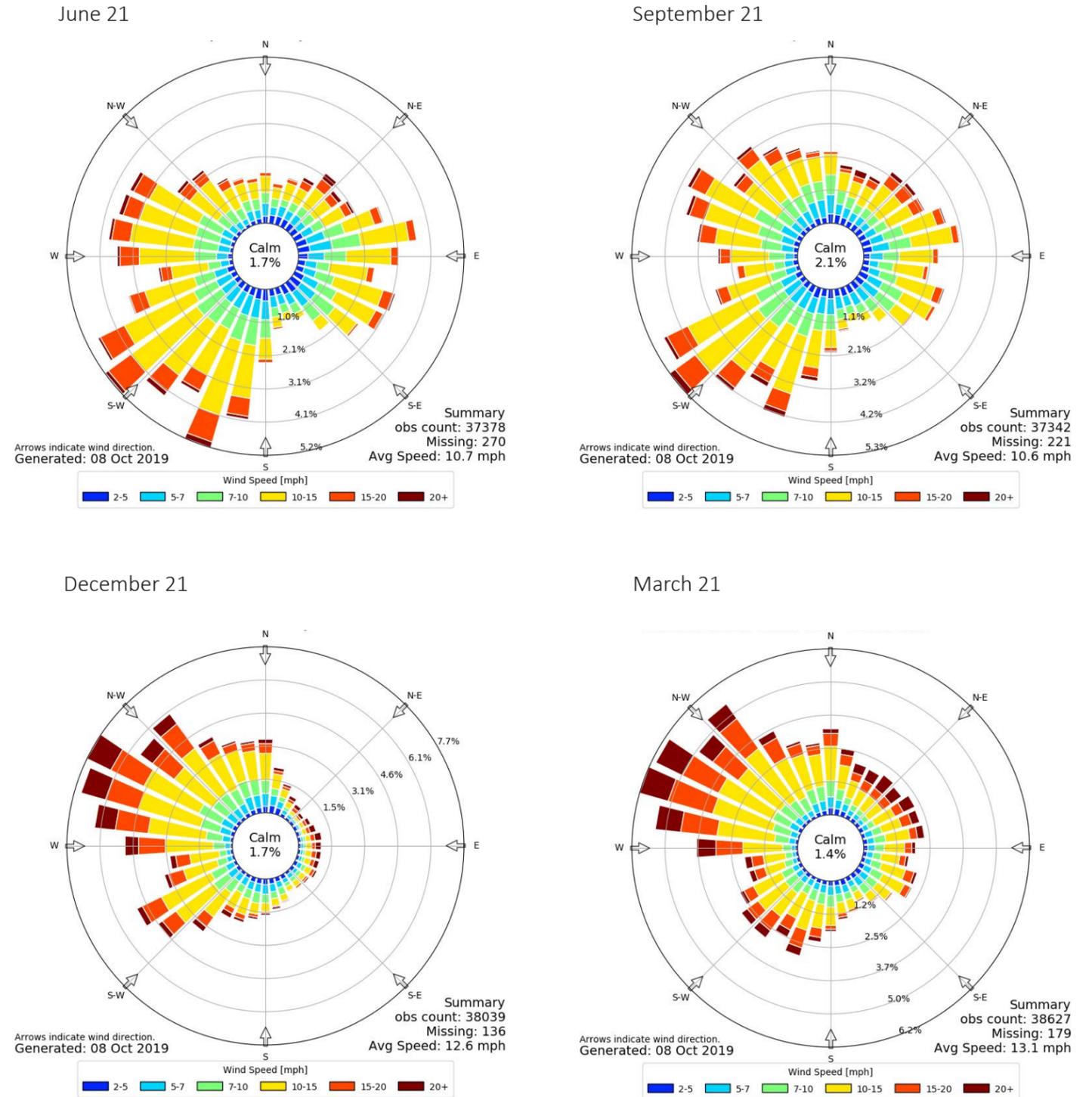


FIGURE 94 | Wind Roses in January, March, June, and September | Iowa Environmental Mesonet

FIGURE 95 | Average Relative Humidity in Boston by Month | Current Results

	Average Relative Humidity (%)		
	Daily	AM	PM
Jan	62	67	57
Feb	62	68	56
Mar	63	69	56
Apr	63	68	56
May	67	71	58
Jun	69	73	59
Jul	68	74	58
Aug	71	77	61
Sep	72	79	62
Oct	69	77	59
Nov	68	74	61
Dec	65	71	60

Humidity

Boston's seaside location exposes it to a fair amount of humidity, which can play a large role in affecting real-feel temperatures. Being that my site is directly on the harbor, I am likely to deal with a large amount of moisture in the air. This can be harnessed in my design through the use of passive systems which use humidity to cool air, for example, as in cooling towers.

PERFORMANCE CRITERIA

One of the most important things to intend in my project will be the ethicality of access. Designing so that the spaces housed within the building could be detailed to be accessible through further design development will help to ensure that all visitors can navigate the building with equal freedom. This concept is coined by the term **universal design**, which is defined by the United States Access Board as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (United States Access Board, 1995). The USAB also lays out seven design principles for Universal Design, which are summarized in the table.

I will strive to follow the seven basic principles of Universal Design wherever possible in the design of my building. Even so, the design of an equitable building will always require an empathy beyond the interpretation of a set of rules. The United States Access Board reiterates this in saying that, “the principles of universal design in no way comprise all criteria for good design, only universally usable design. Certainly, other factors are important, such as aesthetics, cost, safety, gender and cultural appropriateness, and these aspects should be taken into consideration as well when designing” (United States Access Board, 1995).

This project’s focus on designing ethically for various abilities will lie mostly in large gestures which prioritize Equitable Use and cultural appropriateness. A strong emphasis will be placed on providing equal means of access, meaning that different abilities will not require users to take different routes within the museum. Since time will likely limit my ability to design the technical details that demonstrate ADA-compliance and Universal Design throughout the building, **these large gestures will communicate the intention of ethical, Universal Design that can be understood as reasonably achievable through further design development.**

FIGURE 96 | Seven Principles for Universal Design | United States Access Board

Equitable Use	<ul style="list-style-type: none"> • Provide the same means of use for all users: identical whenever possible; equivalent when not. • Avoid segregating or stigmatizing any users. • Provisions for privacy, security, and safety should be equally available to all users
Flexibility in Use	<ul style="list-style-type: none"> • Provide choice in methods of use. • Accommodate right- or left-handed access and use. • Facilitate the user’s accuracy and precision. • Provide adaptability to the user’s pace.
Simple & Intuitive Use	<ul style="list-style-type: none"> • Be consistent with user expectations and intuition. • Accommodate a wide range of literacy and language skills. • Arrange information consistent with its importance. • Provide effective prompting for sequential actions • Provide timely feedback during and after task completion.
Perceptible Information	<ul style="list-style-type: none"> • Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information. • Provide adequate contrast between essential information and its surroundings. • Maximize “legibility” of essential information in all sensory modalities. • Differentiate elements in ways that can be described (i.e., make it easy to give instructions or directions). • Provide compatibility with a variety of techniques or devices used by people with sensory limitations
Tolerance for Error	<ul style="list-style-type: none"> • Arrange elements to minimize hazards and errors: most used elements, most accessible; hazardous elements eliminated, isolated, or shielded. • Provide warnings of hazards and errors. • Provide fail safe features. • Discourage unconscious action in tasks that require vigilance.
Low Physical Effort	<ul style="list-style-type: none"> • Allow user to maintain a neutral body position. • Use reasonable operating forces. • Minimize repetitive actions. • Minimize sustained physical effort.
Size and Space for Approach & Use	<ul style="list-style-type: none"> • Provide a clear line of sight to important elements for any seated or standing user. • Make reach to all components comfortable for any seated or standing user. • Accommodate variations in hand and grip size. • Provide adequate space for the use of assistive devices or personal assistance

Space Allocation

In regards to space allocation on a site level, it will be important for my project to preserve greenspace on the site for public use along the water. This area will host leisurely activity and will also be capable of hosting small outdoor events.

Within the building, a large design decision will be the sequence of the exhibits that tell the narrative of Boston’s disability history. The measure of performance will be based on the qualitative clarity of the narrative and its ability to evoke a feeling of historical reflection and responsibility on part of the user.

FIGURE 97 | Space Allocation Table

Space	Small	Average	Large
Lobby/Common Area	900 6.82%	1200 6.58%	1500 6.44%
Almshouse Exhibition Hall	1000 7.58%	1400 7.68%	1800 7.73%
Medical Innovation Exhibition Hall	1000 7.58%	1400 7.68%	1800 7.73%
Biomedical Technology Exhibition Hall	1000 7.58%	1400 7.68%	1800 7.73%
Prosthetic Fabrication Lab	700 5.30%	1000 5.48%	1300 5.58%
Community Maker Space	1100 8.33%	1500 8.22%	1900 8.16%
Presentation Hall	2500 18.94%	3500 19.19%	4500 19.33%
Gallery Space	300 2.27%	400 2.19%	500 2.15%
Meeting Rooms	300 2.27%	600 3.29%	900 3.87%
Offices	400 3.03%	600 3.29%	800 3.44%
Outdoor Common Area	1000 7.58%	1200 6.58%	1400 6.01%
Restrooms	800 6.06%	1000 5.48%	1200 5.15%
Total Occupiable Space	11000 83.33%	15200 0.833333	19400 0.833333
<i>Grossing Factor</i>	<i>20.00%</i>	<i>20.00%</i>	<i>20.00%</i>
Total Space	13200	18240	23280

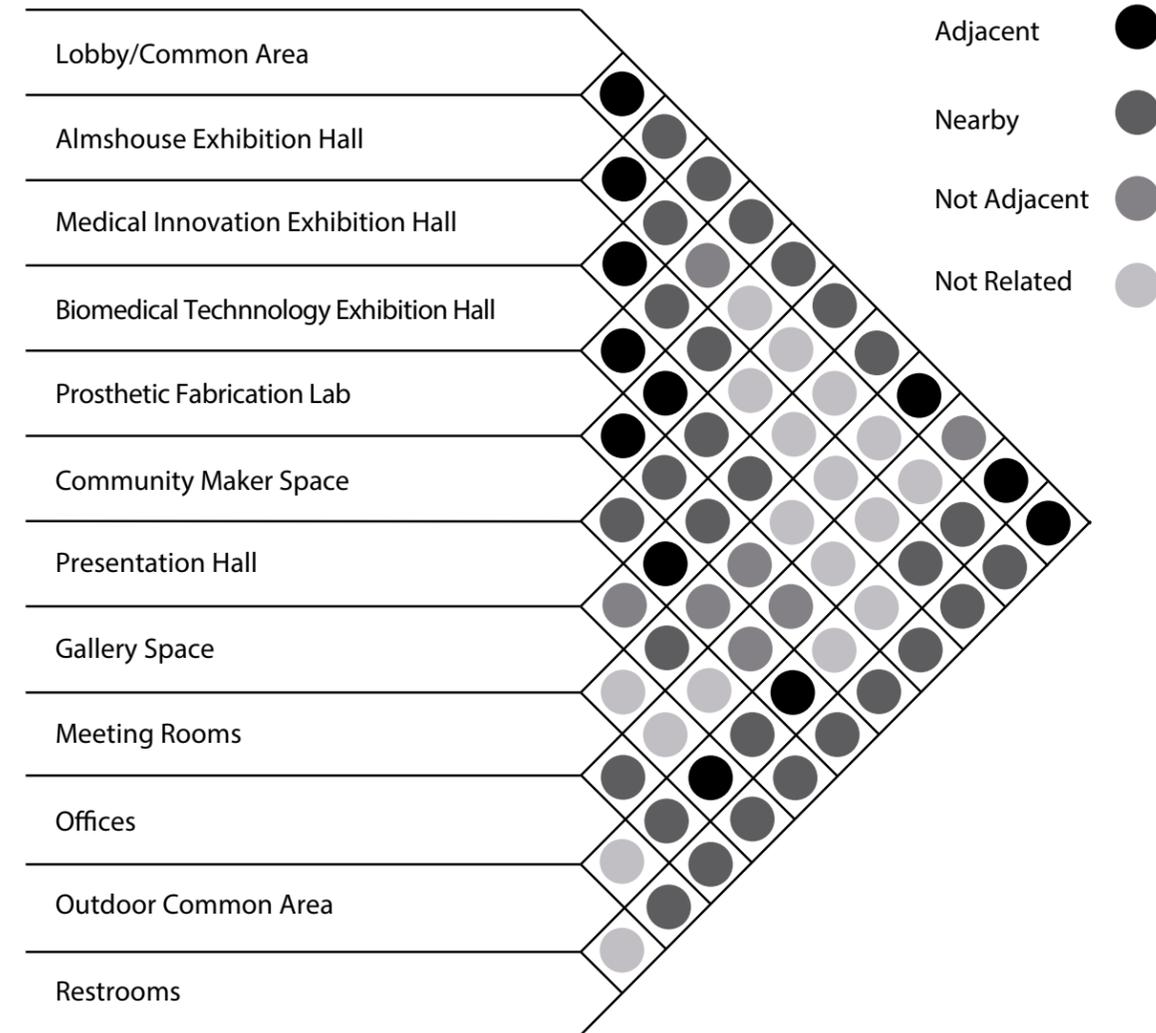


FIGURE 98 | Space Interaction Matrix

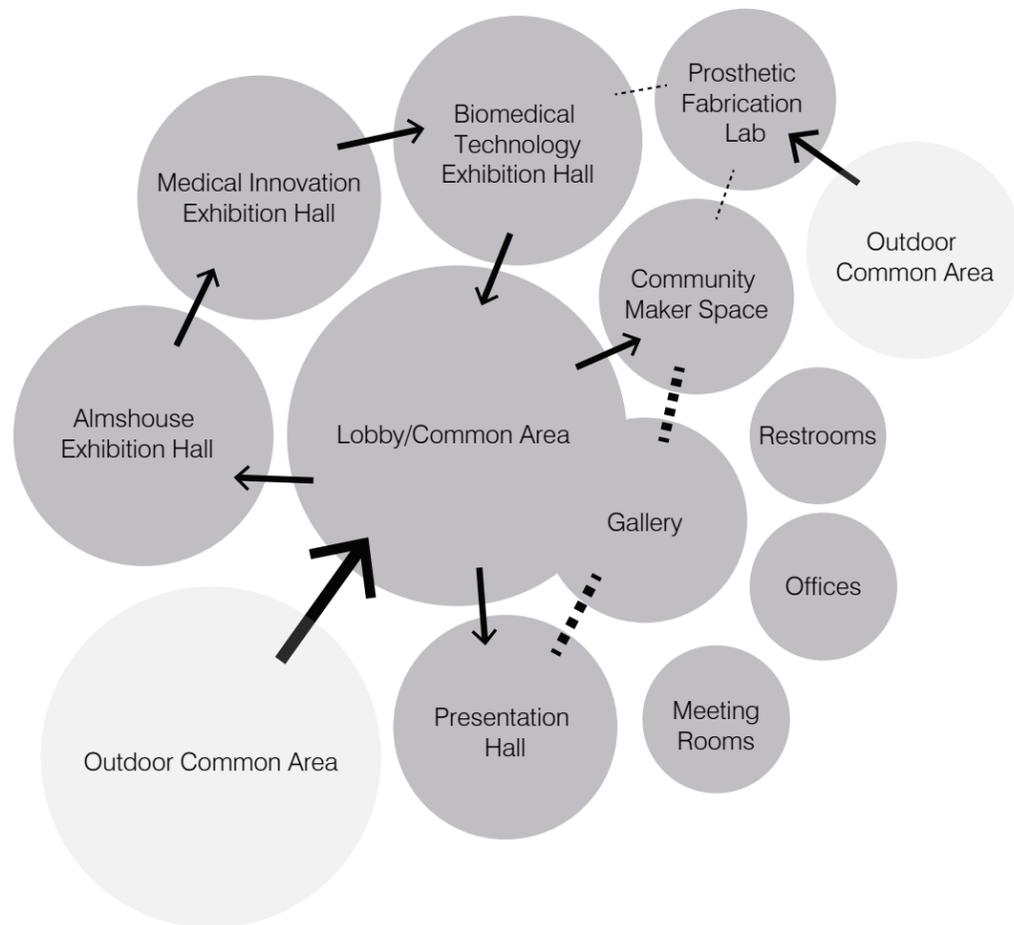


FIGURE 99 | Space Interaction Net

Psychological Impact

Psychologically, the building will aim to make the user experience waves of self-consciousness and disorientation, intermittently interrupted by feelings of resolution while navigating the building and its exhibits. This will be measured through qualitative feedback generated through the artefact, which aims to evoke the same psychological experience as the building. Feedback from the gallery exhibition of the artefact will be especially useful in that the majority of users will be encountering the artefact for the first time and with little context, unlike any users who are part of the NDSU Architecture-Landscape Architecture Department, who have watched this project evolve and may already know what is they are "supposed" to experience.

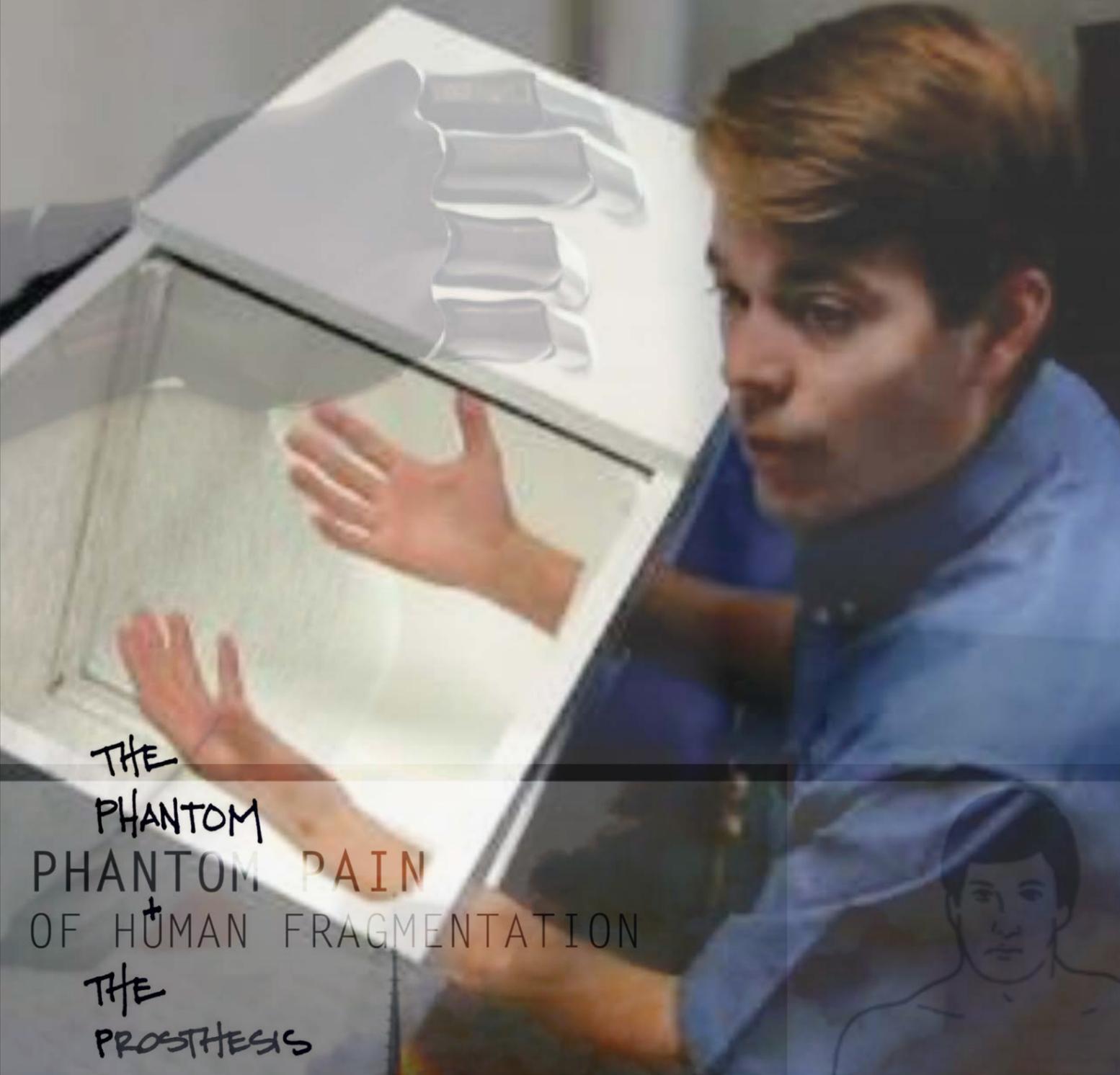
Preliminary Budget

A preliminary construction budget for the project will be established at approximately \$50 million. This has been established through precedents set by the Jewish Museum in Berlin (\$54 million) and the Institute of Contemporary Art in Boston (\$41 million). If the City of Boston were to take part in the development of this project, which it presumably would, the property budget may be little to nothing, as the city currently owns the land on which the site for this project exists. If the project were to be funded by a private investor, property acquisition costs could range as high as \$18 million.

Summary

Performance criteria for this project will be judged on the basis of ethicality of access, space allocation, and psychological impact. As a project in a historically significant area which aims to promote change surrounding building practices and social perception through the telling of history, these are the three most important factors to be measured. Universal Design measures will speak to standard building practices, pushing the envelope of what designing for disability looks like and providing a precedent for future architectural design. Space allocation criteria will ensure sensitivity to the historical significance of the site and will be beneficial to public acceptance of the project. In addition, it will aid in the clarity of the narrative and authenticity to the historical events which the building will exhibit. Psychological impact criteria will assess the effectiveness of the artefact, which is a physical, experiential sample of the building, to evoke the desired response. This will help to ensure that the historical narrative is presented in a context which inspires a positive change in personal perception of disability.

ARCHITECTURE AS A
PROSTHETIC EXTENSION OF SELF



THE
PHANTOM
PAIN
OF HUMAN FRAGMENTATION
+
THE
PROSTHESIS



DESIGN



ARTEFACT

Introduction

Principal Metaphors

In “The Function of Fiction in Reshaping Reality” Paul Ricoeur suggests that fiction allows us to “make and remake the world.” Cyril and Liliane Welch support this idea that poetic works can take us beyond our usual way of seeing the world specifically by putting the imagination to work through the work. Such fictional works do not duplicate reality, but rather establish metaphors which produce new ways of seeing the interrelationship of prior known things, thus augmenting reality .

The artefact produces a new reality which establishes its principal metaphor between the reimagination of cultural perception of disability and an amputee’s encounter with phantom pain and a prosthetic limb. By instituting a narrative which transforms found objects and fragments of Boston’s disability history into an extension of the user’s body, the artefact becomes a prosthesis for the user to reimagine one’s own body image through reinterpretation of the well-known condition of phantom pain . Our fragmented human nature leads us to project ourselves on the outside world in pursuit of wholeness in a similar way to how an amputee’s nerves search for the lost limb beyond the boundary of the body. Federica Goffi has suggested that the identity we place in our architecture resembles phantom pain by the loss we feel when beloved cultural buildings are destroyed. In V.S. Ramachandran’s experiments with amputees, he has determined that mirroring the image of a remaining limb to appear in place of an amputated one can restore a sense of wholeness to aching nerves, revealing architecture as a prosthesis or “mirror” which we fabricate in the outside world to reflect our own self-image back to us to feel whole. As the artefact draws upon Boston’s specialty in prosthetics and our prosthetic relationship to the world around us, the universal question of perceiving bodies which are “other” is made specific by the fragments of Boston’s story. Supporting metaphors between found objects and historical events, phantom pain, self-image, and prosthesis as well as cultural evolution enliven the metaphor of the phantom and prosthesis, framing a reality for the user to imagine new ways of perceiving self and others through embodied experience.

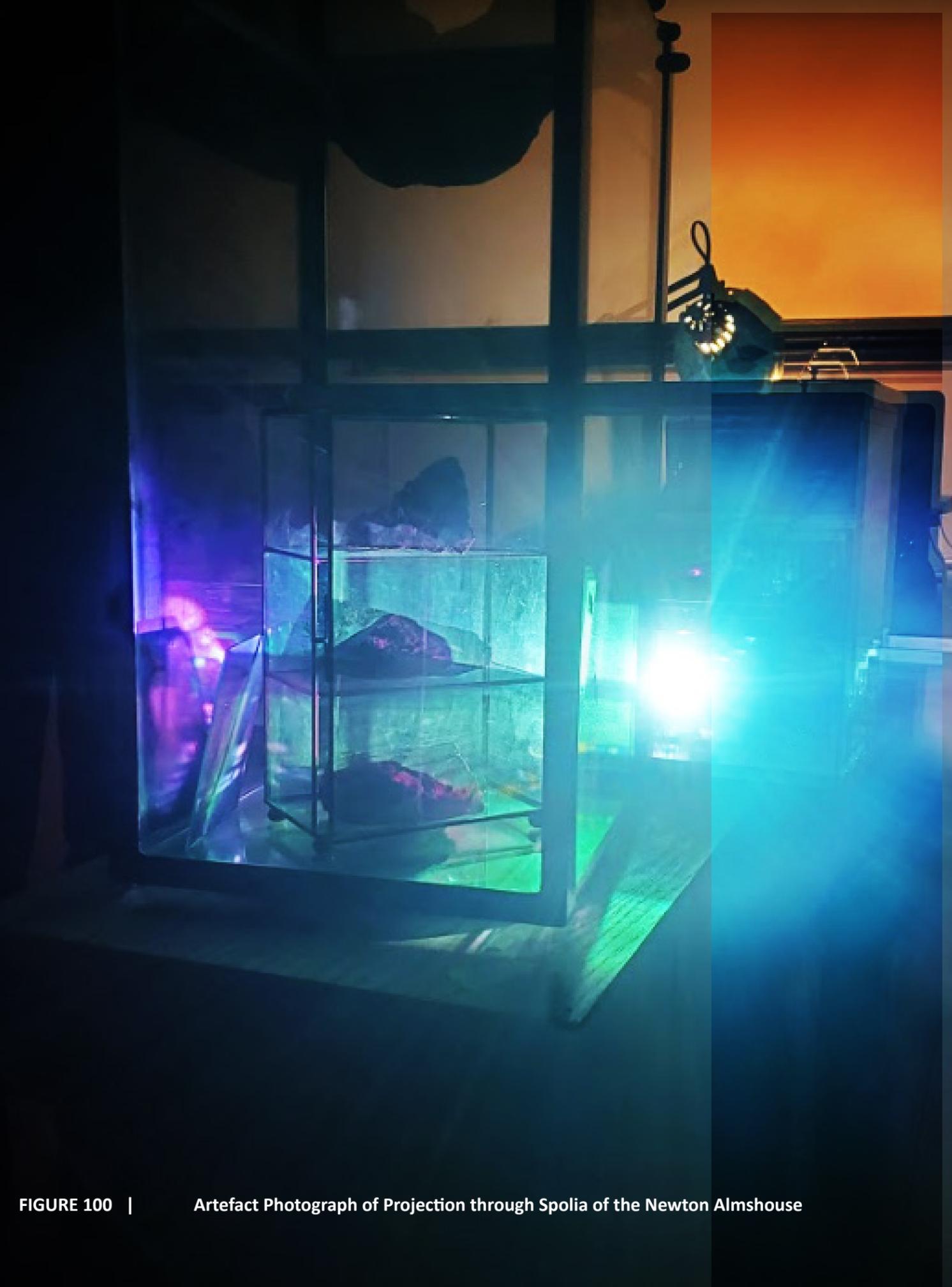


FIGURE 100 | Artefact Photograph of Projection through Spolia of the Newton Almshouse

How the Work Works

To allow the user to reimagine perception of self and others, the artefact must reveal the human feeling of incompleteness as a restorative fragment. Fragmentation has long been perceived as an aching hindrance, as described by Plato's Symbolon, which theorizes that we were separated in half by Zeus and left with a relentless longing to reconcile our fragmented human condition to the outside world. However, in the metaphor of the phantom and prosthesis, fragmentation plays a restorative role as the force which drives the body to pursue evolution in the outside world, both literally in the body adapting to physical challenges of a disability and culturally in shared thought adapting to historical challenges. The prosthesis tropes phantom pain into a restorative fragment, which is defined by Dalibor Vesely as something negative which has the power to become something positive. Since the phantom pain of being incomplete reveals new ways of reconciling to the world by forcing the body to adapt, it can produce a new reality through which the user can reimagine self and others. The artefact recreates this reality for the user by uniting the fragments of Boston's history, the user's image, and other bodies and objects present in the room into an exquisite corpse like those created by surrealists seeking new interpretations of the world in the early twentieth century. By moving the user to face the "phantom pain" of one's own fragmentation through distorted projections of one's own image and adapt by operating the "prosthesis," my artefact opens the user's imagination to developing a new outlook on disability.



FIGURE 101 | Projections through Artefact

The Exquisite Corpse: Found Objects and Historical Events

The artefact's most tangible metaphor between found objects and Boston's historical events establishes a physical manifestation of a spoken history and invents meaning for ordinary objects through combinations of language, projected image, and physical artefacts. Compiled of two fish tanks, a projector, two lazy Susan's, a web camera, crumbling bricks, water, and various other simple items, the components of the artefact feel very ordinary and, quite frankly, underwhelming. However, these objects which the user recognizes as "ordinary" take on an "other" reality as they recombine and language crafts them into the new image of the prosthesis. This demonstrates Ricouer's argument that emerging images begin with the emergence of language (Ricouer, 127). As audience members read specific stories about the body of Boston's disability history aloud, each fragment of this narrative is represented as an object added to the "prosthesis."

Projecting the presentation through this prosthesis, quite literally imagining "through" it, the components of the artefact cease to be projectors, fish tanks, and rotational spice racks and evolve into a new body which rearranges the information that passes through it as a cinematic device for reimagining. This machine extends the capabilities of its components into a new reality which is greater than the sum of its parts because it exists in a different reality than its individual parts. "Phantom" images of Boston's crumbling almshouses, marathon bombing headlines, and ground-breaking medical innovations flood the room and break from their boundaries as they spill across clocks, corkboards, and the faces of those present in the room, splitting and rejoining, stretching and vanishing. The artefact's dynamic projections transform the present space into one large exquisite corpse. The result is a hybrid body which is implied by things which are not human at all, opening new interpretations. The artefact is an exquisite corpse that transforms the ordinary, even a simple PowerPoint presentation, into an experience which is other, creating depth in a sea of narrated events and inviting the imagination to fill it.

Since each ordinary object of the artefact represents a real event, the user is challenged to view history in this same way: ordinary at first glance but holding within it the hidden potential to transform the present condition and facilitate catharsis. Assembled by the audience piece by piece, each spectator has become a participant in the fabrication of the artefact. In doing so, each audience member has become a storyteller of Boston's untold tale of evolution from a city which once cast out its disabled residents into a city which leads worldwide innovation in medicine as well as prosthetic and biomedical devices. This participation gives each observer's imagination a sense of mastery to enter the work and continue to piece the fragments together with each new story in the plot.

The audience assembles stories of land that was built larger while its tolerance grew smaller, charity houses and quarantine stations that became recycling bins for societal rejects, leading to Boston's first hospital that emerged out of desperation for the disabled and ill. From these cultural changes came the first anesthetized surgery, biomedical innovation that changed worldwide prosthetic technology, and improved medical technology and social support of those with disabilities following the tragedy of many citizens losing limbs during the Boston Marathon bombing. Cyril and Liliane Welch have suggested that "we have to put together what we are reading before we can even see what we are reading, and since we do the sewing we cannot [help] but see the seams, 'seeing through' or beyond the elements as they are first presented" (Welch, 357). By articulating Boston's untold story through remains of the almshouses, water representing the harbor of the outcasts, and stories of medical and cultural failure, triumph, and adaptation, the metaphor of the phantom and the prosthesis becomes a fictional animation which enlivens an exquisite corpse of both physical and historical montage-like fragments. This opens a reality for the user to see "through the seams" of the fragments they have "sewn together" to reimagine not only every fragment that is introduced, but also one's own self-image in relationship to these fragments as text and historic images are projected atop the faces and bodies filling the room, and soon after, as the user's body is projected on these same walls and faces.

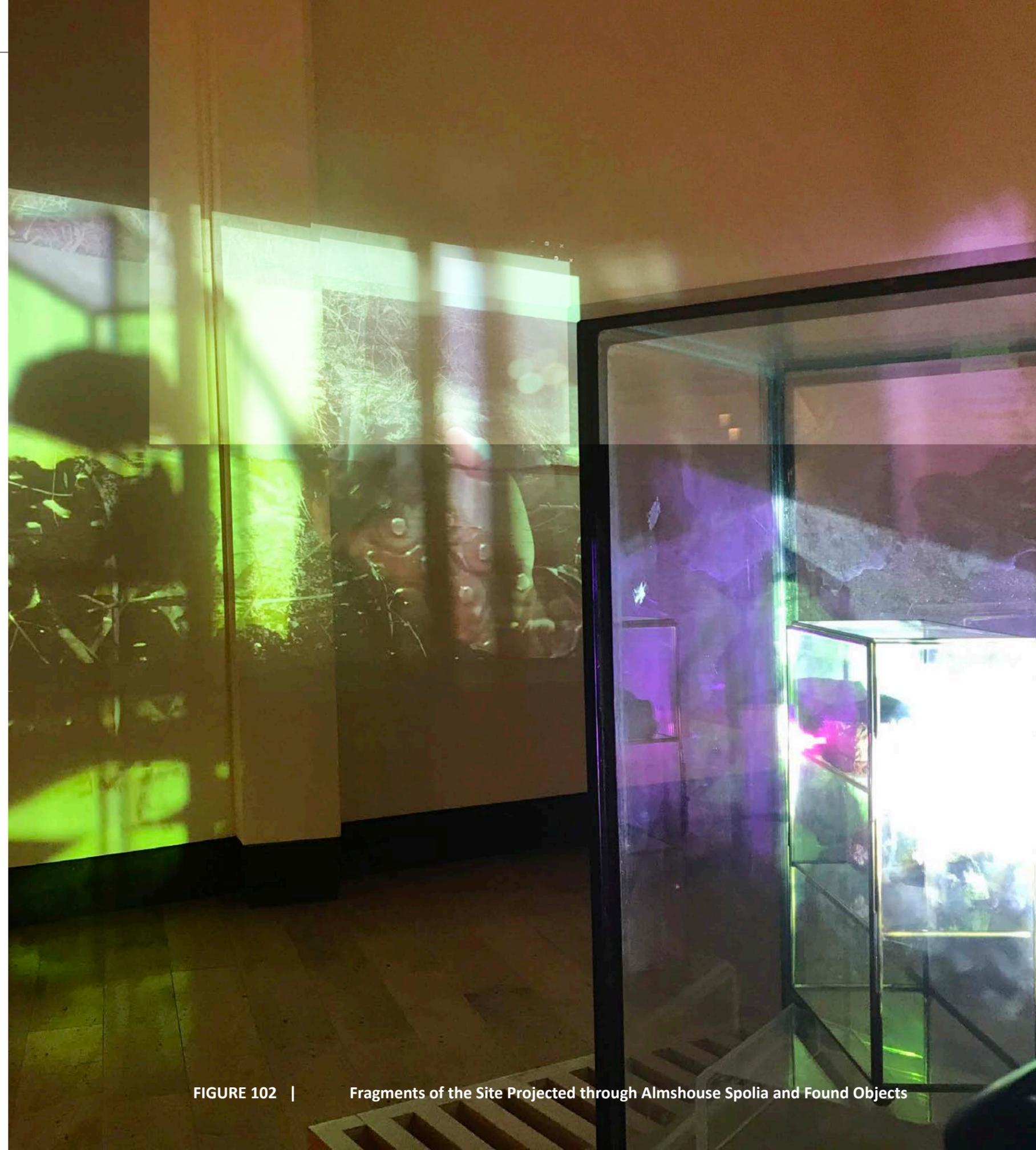


FIGURE 102 | Fragments of the Site Projected through Almshouse Spolia and Found Objects



FIGURE 103 | Artefact Photograph of Projection through Exquisite Corpse of Found Objects

Fragmentation: Phantom Pain and Self-Image

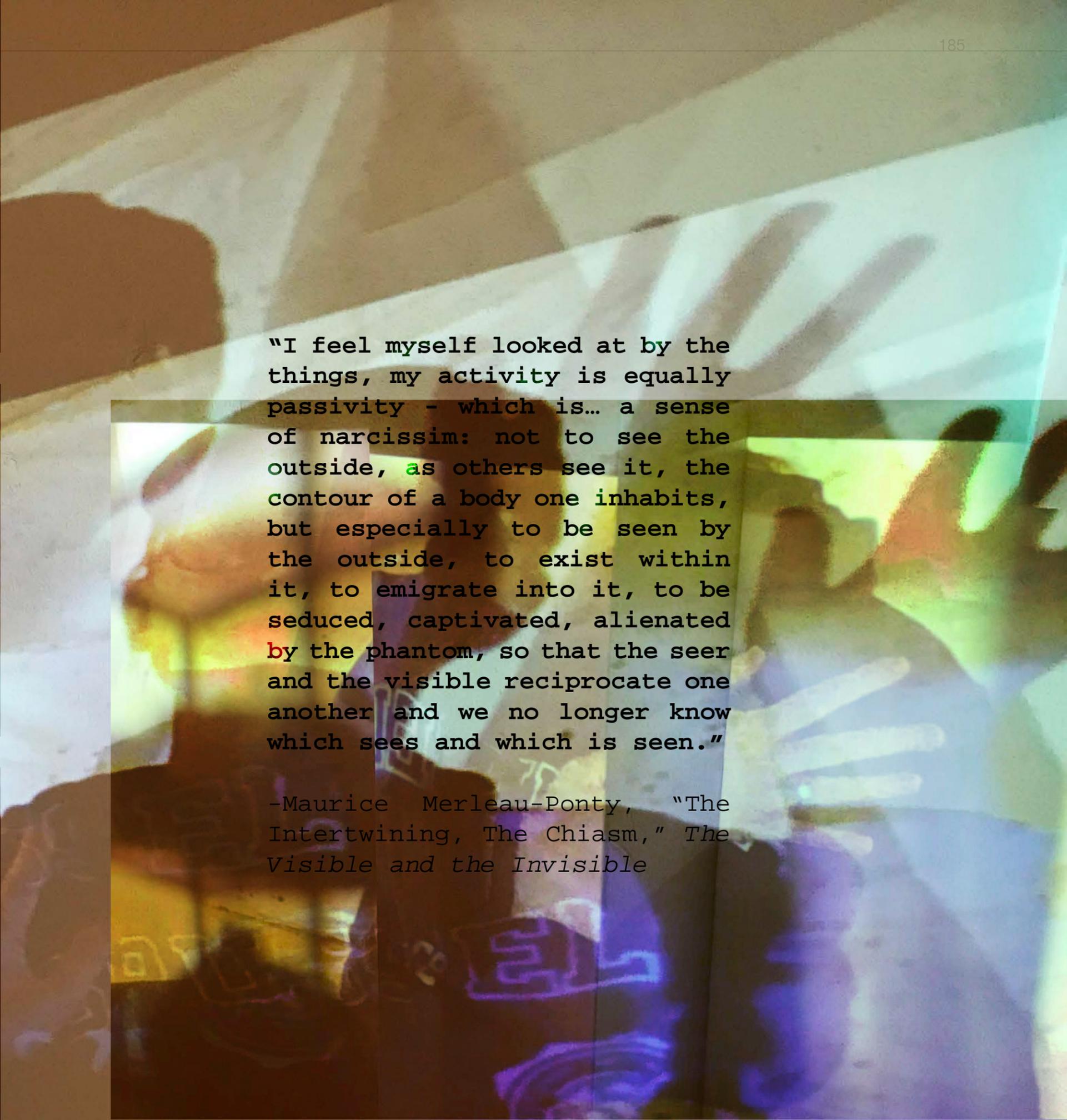
After producing a reality in which one can imagine through the seams of ordinary objects and historical fragments, the artefact becomes a machine for imagining the user's own body as stitched into this same narrative. Ricouer states that "the more imagination deviates from that which is called reality in ordinary language and vision, the more it approaches the heart of reality which is no longer the world of manipulable objects, but the world into which we have been thrown by birth and within which we try to orient ourselves by projecting our innermost possibilities on it" (Ricouer, 139). In order that the user might project oneself onto this other world which the artefact has produced, the user's image is physically projected onto the "world of manipulable objects." The images of Boston's story are replaced by the user's own image as one takes place before the artefact's webcam. The user's image is filtered through the prosthesis and comes out just as the images that preceded it, a recognizable but fragmented exquisite corpse. Segments of the body vanish. Hands appear where the face belongs, mirroring the user's movements across a distance with ghostly distortion similar to the distortion of space in Paul Sermon and Suzanne Kozel's "Telematic Dreaming." As the image filters through water, it is reminiscent of Boston Harbor's complex social history. Across the distance imposed between the city and the almshouses by the harbor, one can only imagine the way that water could distort one's perception of another.

This encounter with one's own fragmented image stirs a psychological discomfort which is an interpretation of the phantom pain that an amputee experiences, in which the nervous system perceives its fragmentation and fires signals beyond the body's boundary in search of the nerves which have been lost. In their pursuit for wholeness, the nerves create sensations of extreme pain or discomfort in place of the missing "phantom" limb as if it were still attached to the body. The artefact's fragmented projections evoke a similar response of self-recognition across a distance followed by a human desire to be whole. The user's consciousness responds by extending itself outside of the body to unite with the disembodied image in a similar way to how an amputee's nerves search outside of the body's boundary for the missing limb.

By initiating an encounter with the "phantom," the artefact frames a new reality where "seen" experience is fragmented while "embodied" experience remains whole, placing the two in opposition despite the user's perception of both. The reading between the seen and the embodied facilitates a working of the imagination "not simply serving as a mirror of what the reader already is, but as an evocation to 'put together' while 'seeing through' the elements" (Welch, 357). In this augmented reality, the user feels compelled to piece one's cubistic reflection together so that the two self-images, body and phantom body, might be reconciled into one. The distance that is evoked from one's fragmented self leads the user to reevaluate the body's boundaries. In this new reality, fragmentation is revealed as universal to anyone that would sit before the artefact's camera, regardless of ability, yet is experienced as self-conscious.

FIGURE 104 | Artefact Photograph of Phantom Projections





"I feel myself looked at by the things, my activity is equally passivity - which is.. a sense of narcissism: not to see the outside, as others see it, the contour of a body one inhabits, but especially to be seen by the outside, to exist within it, to emigrate into it, to be seduced, captivated, alienated by the phantom, so that the seer and the visible reciprocate one another and we no longer know which sees and which is seen."

-Maurice Merleau-Ponty, "The Intertwining, The Chiasm," *The Visible and the Invisible*

FIGURE 105 | Collage of Artefact's Phantom Projections

Restorative Fragment: Prosthesis and Cultural Evolution

The user can reimagine the phantom projections by operating the prosthesis as an extension of the body. (As a flexible assembly of found objects, the artefact can be engaged in a variety of ways or operated by many different parts of the body by nature of its flexible assembly and anatomical ambiguity. For this demonstration, I will use the example of operation by foot while seated.) A lazy susan sits at the user's foot and is wrapped in tension around another which hosts the large fish tank filled with various fragments of the site. As the user's body joins the mind in an attempt to resolve the phantom, it finds that the mechanism is rigged to rotate the fish tank in the reverse direction that the user moves, introducing a difficulty in operating the prosthesis not only with a motion which is awkward to the foot, but also in opposite directions than the mind's eye might anticipate. The user's imaginary work of "putting together" is met by physical work through the frustration of adapting to the device in order to utilize it to resolve the fragmented self-image, resonating with the amputee's experience of adapting to a prosthetic device. In this new reality, a reading between the experience of the artefact and the fictional narrative which has assembled it might move the user to imagine this challenging, embodied adaptation to have various implications of the cultural adaptation required to perceive the body differently. This invites the user to imagine one's own fragmented, human condition not as a means to this cultural question, but as an end (Welch, 351). The human condition becomes a restorative fragment.

Upon operation of the prosthesis, one's image is stretched, divided, and distorted across the walls, hosting an active dialogue between the phantom and the prosthesis in which self-image is constantly being reimaged and reconstructed as a response to bodily movement. In this way, the prosthesis allows the body to bound past its limitations, extending the motions across a distance and into a space of action which is otherwise inaccessible. The seen and the embodied here are always changing to affect one another, revealing the intertwined nature between the objective and subjective body that Merleau-Ponty describes in his essay "The Intertwining-The Chiasm" (Merleau-Ponty, 1968). In the reality re-made by the artefact is born an "other" body: a body whose bones are history and whose flesh is fiction, intertwined and bound together by tendons of imagination. A body whose musculature is elusive, whose strength is in evolution, and whose skin is flushed by the blood which marks a bearer of the human condition. A body who is entirely

organic, made so by the labors of countless men. A body whose nerves refuse to stay within their boundaries, and whose hand never stops reaching for more. A body who is culture herself, natural and manmade, ever old and ever new.

As one's image travels across the room in fragments, it is also superimposed on the bodies of others in the room. Boundaries of self and other are blurred. Across a distance, one sees oneself in another: a secondary experience of the phantom. Here the body which is "other" becomes a captivating presence by which those present feel permission to be intrigued and reevaluate cultural beliefs through historical fiction and embodied imagination. Goffi relates this to history and the ongoing act of building, rebuilding, and reimagining which allows us to be not only observers of history, but participants in it. As the audience has taken part in fabricating the prosthesis which makes this reality possible, they may also be moved to imagine the many ways in which they take part in fabricating culture. Cultural perception evolves through a prosthetic act which we ourselves have initiated and begs that we never stop reimagining how we perceive ourselves and, in turn, the other.

Conclusion

The artefact produces a new reality which establishes its principal metaphor between the reimagination of cultural perception of disability and an amputee's encounter with phantom pain and a prosthetic limb. Supported by metaphors between found objects and historical events, phantom pain and self-image, and prosthesis and cultural evolution, the narrative of the phantom and the prosthesis frames a reality for the user to imagine new ways of perceiving self and others through embodied experience and the fragments of Boston's history. With architecture as a form of prosthesis, the architect's duty is revealed to be the same as it was for the arkitekton of ancient Greece: to cut and join, divide and connect to create interconnections between body and world as well as between self and other. Serving as an extension of the body, the artefact and my architecture move the imagination to work at reconciling a fragmented, human culture to the universal question of how we perceive bodies that are seen as "other."

For detailed documentation of the artefact, please view the video "Thesis Supplement01_Randazzo" in the Institutional Repository.



FIGURE 106 | Collage of the Phantom and the Prosthesis Present in the Artefact

DESIGN PROCESS

Process Models and Sketches

The design process for the museum began with physical models. These models allowed me to manifest my ideas into material and to play with how the museum would interact with its surroundings onsite. Although I had originally intended to build only in Christopher Columbus Park and the water directly adjacent to it, through the modeling process I began to see Long Wharf as an opportunity to host the building as an appendage to itself. This also helped to make clear the separate components of the building: the residual, the phantom, and the prosthesis.

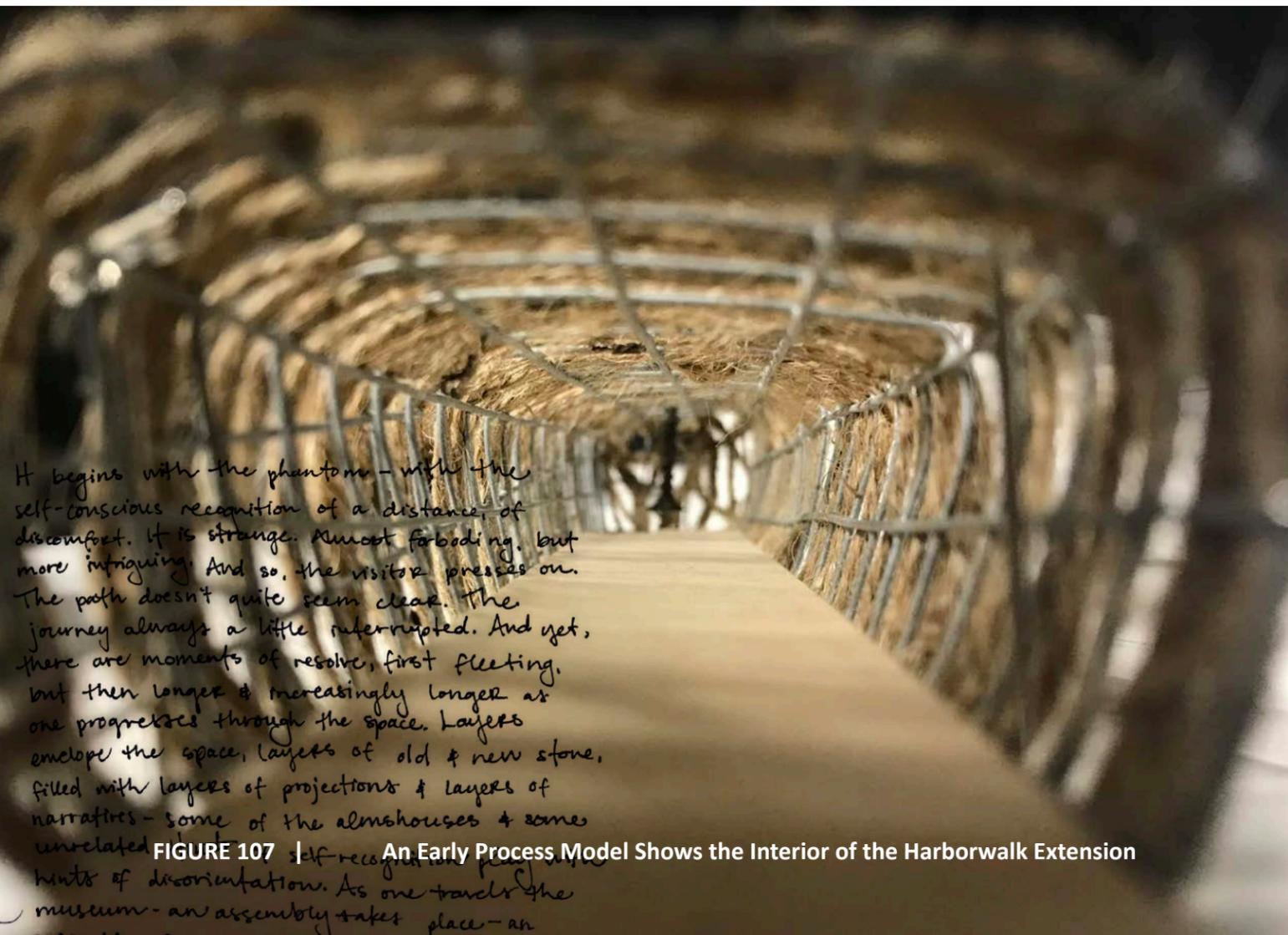


FIGURE 108 | An Early Process Model Shows the Museum's Major Elements Along Long Wharf

The Residual

The residual would be the beginning of the user's experience, drawing one into the museum as an extension of the harborwalk and bringing an awareness of the city's amputated history to the user.

The Phantom

The phantom would be the "invisible" connection between the residual and the prosthesis, hosting a disorienting journey through the city's untold stories. In early models, like shown here, the user was to navigate the tunnel below the water. Through the design process, the mass below the water became purposefully inaccessible, and the phantom instead suspended the user above it.

The Prosthesis

The prosthesis would be the portion of the museum dedicated to the progression of cultural thought in its program. Formally, a void through its center appears as if it could fit on the end of the residual.

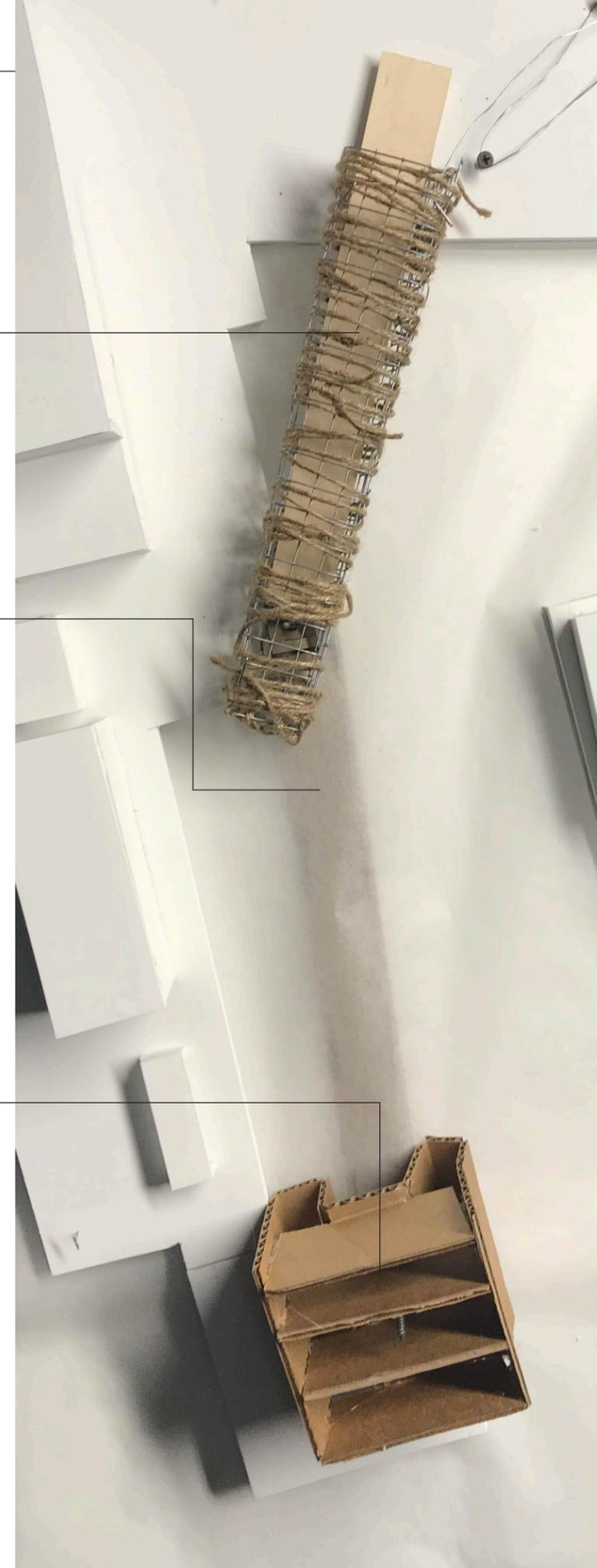
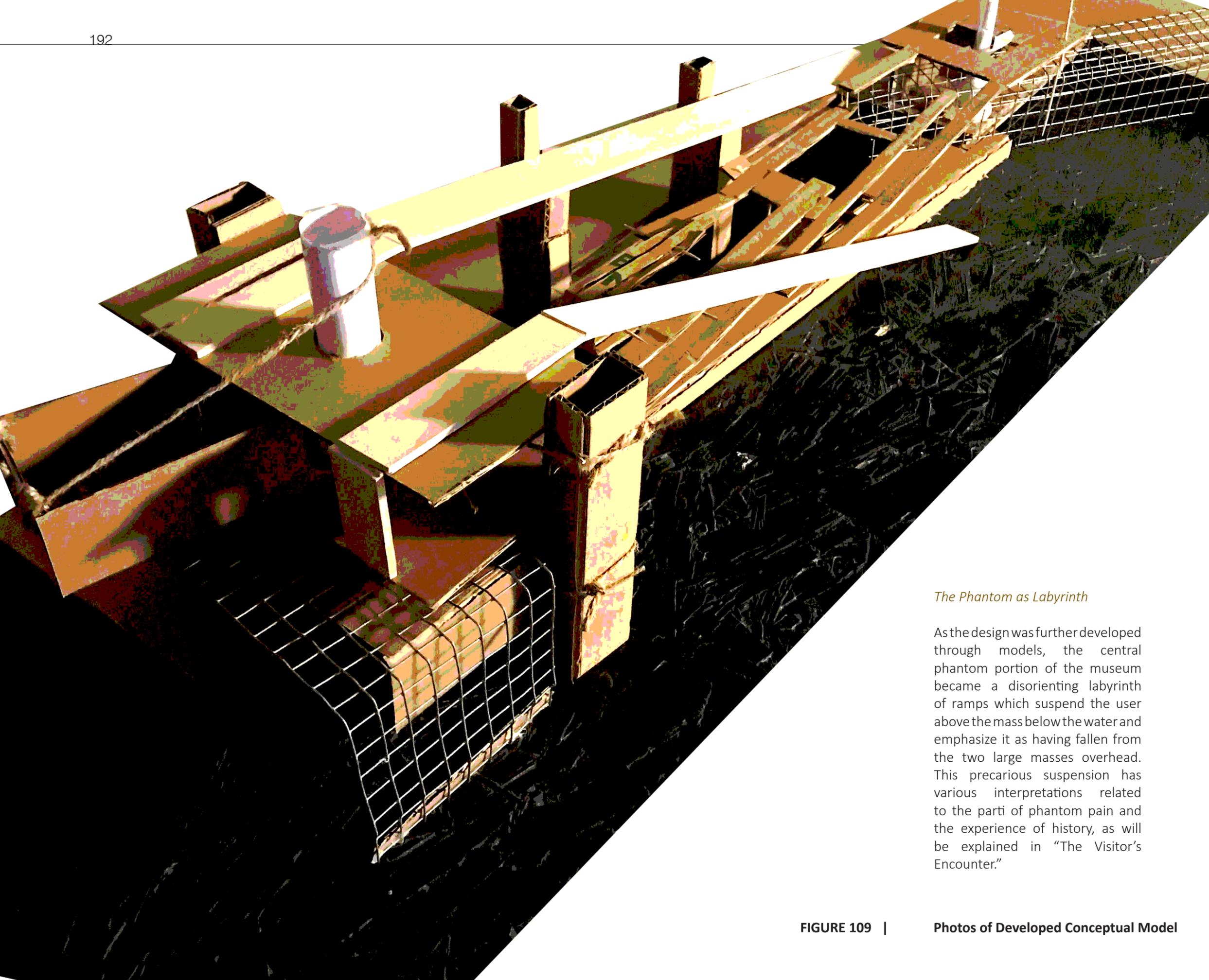


FIGURE 107 | An Early Process Model Shows the Interior of the Harborwalk Extension



The Phantom as Labyrinth

As the design was further developed through models, the central phantom portion of the museum became a disorienting labyrinth of ramps which suspend the user above the mass below the water and emphasize it as having fallen from the two large masses overhead. This precarious suspension has various interpretations related to the part of phantom pain and the experience of history, as will be explained in “The Visitor’s Encounter.”



FIGURE 109 | Photos of Developed Conceptual Model

The ruins of the Newton Amherst (by land) and the Harbor Island (by sea) will be united in one central location in the heart of the city at a tense point where it is in both, but neither, the land it is present, but alienated. Always both.

ANOTHER BODY
ANOTHER BODY

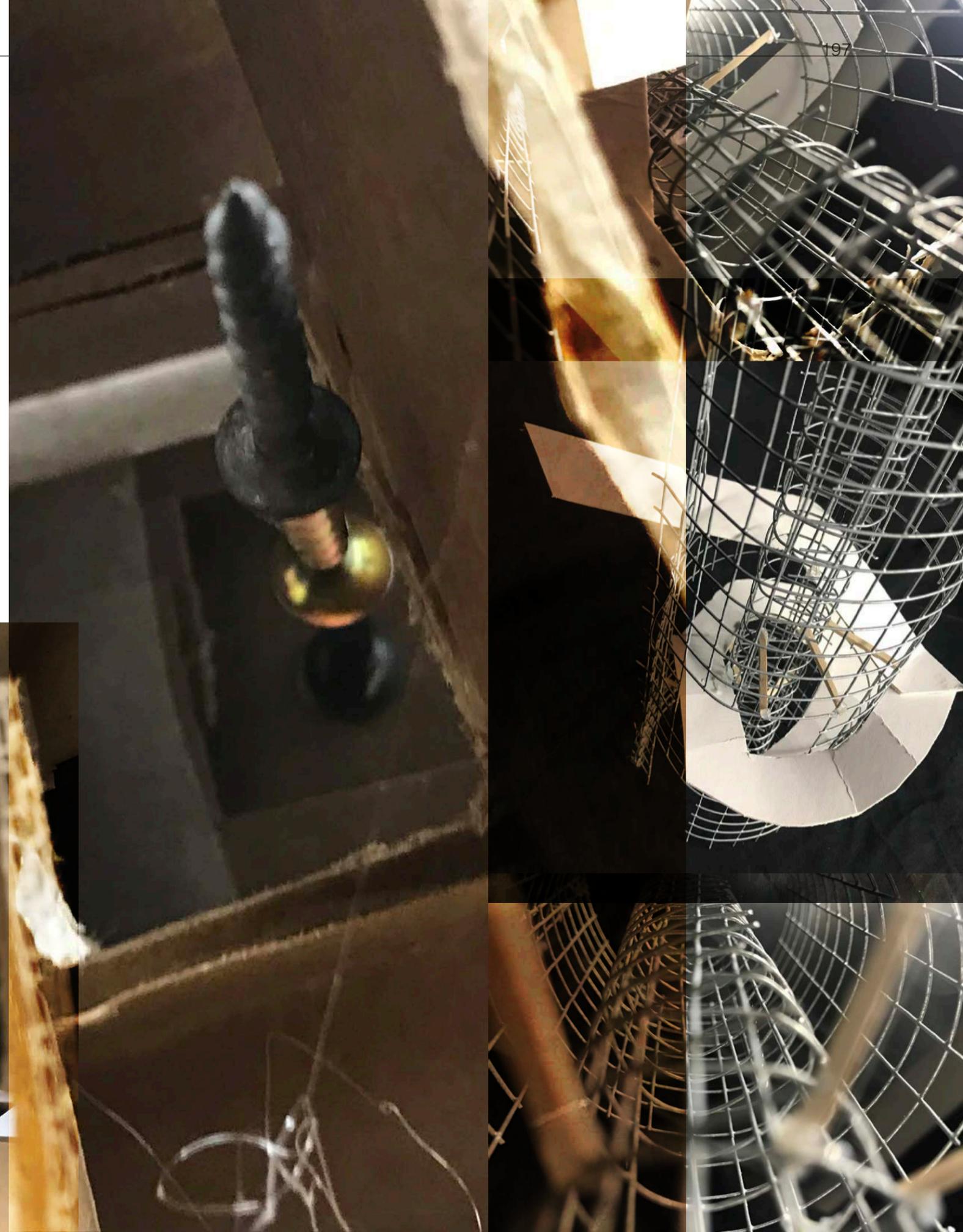


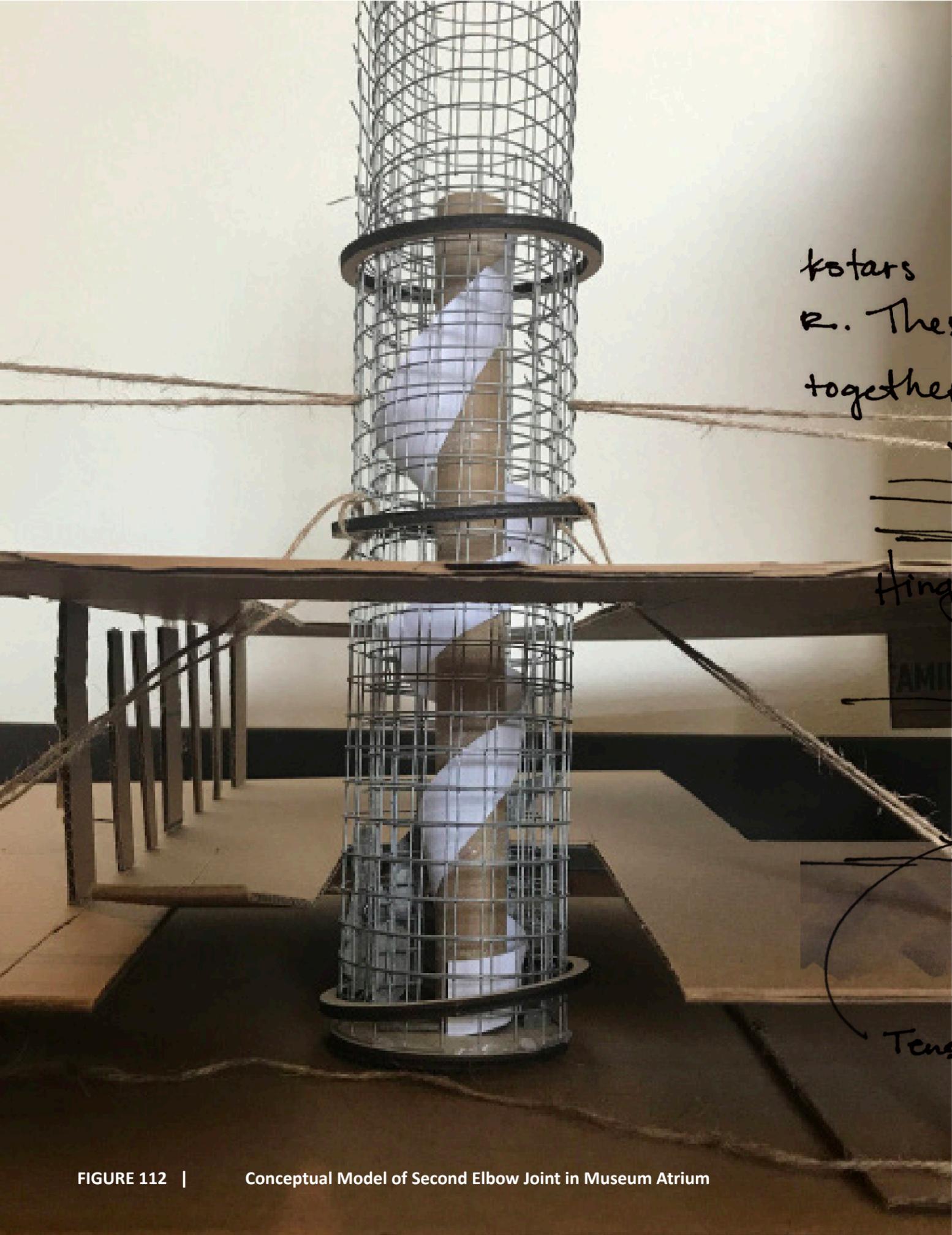
FIGURE 110 | An Interpretive Map Shows the Union of Boston's Fragments at the Site

The Elbow Joints

Inspired by the movement of limbs as well as by the motion with which all of Boston's fragments would be wound up into one central location (as seen in previous figure), I began to investigate joints as a central design feature that would connect and enliven the elements of the building. These joints would form the central circulation shafts, highlighting this program element as the common point of tension in designing for bodies of various abilities. By playing with the relationships between elevators and stairs within the joints, these issues could be addressed architecturally. By constructing the joints from the almshouse spolia, history becomes the joint which enlivens cultural progress. Tendons anchor these joints in place, connecting them to the surrounding tissue and uniting each and every fragment which they touch and bind together.

FIGURE 111 | Photographs of Various Elbow Joint Conceptual Models

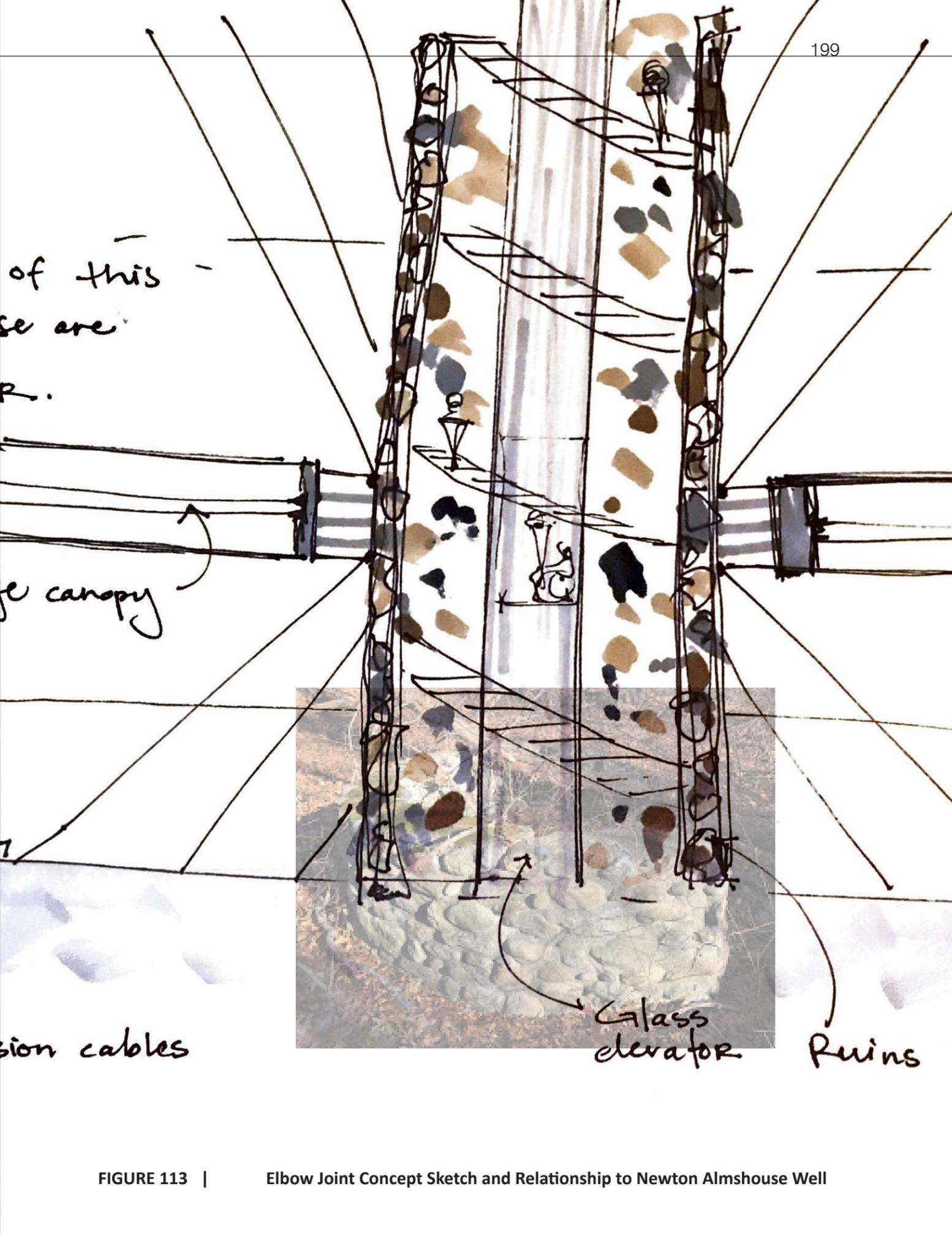




kotars of this
R. These are
together.

Hinge canopy

Tension cables



Glass
elevator

Ruins

FIGURE 112 | Conceptual Model of Second Elbow Joint in Museum Atrium

FIGURE 113 | Elbow Joint Concept Sketch and Relationship to Newton Almshouse Well

The ruins will be completed by modern material (concrete) which are the anti-ruins - a cast of what was, and an impression that has been forgotten. Perhaps the visitor will wonder between the ruins and their anti-ruin... at the interface, the site of the amputation.

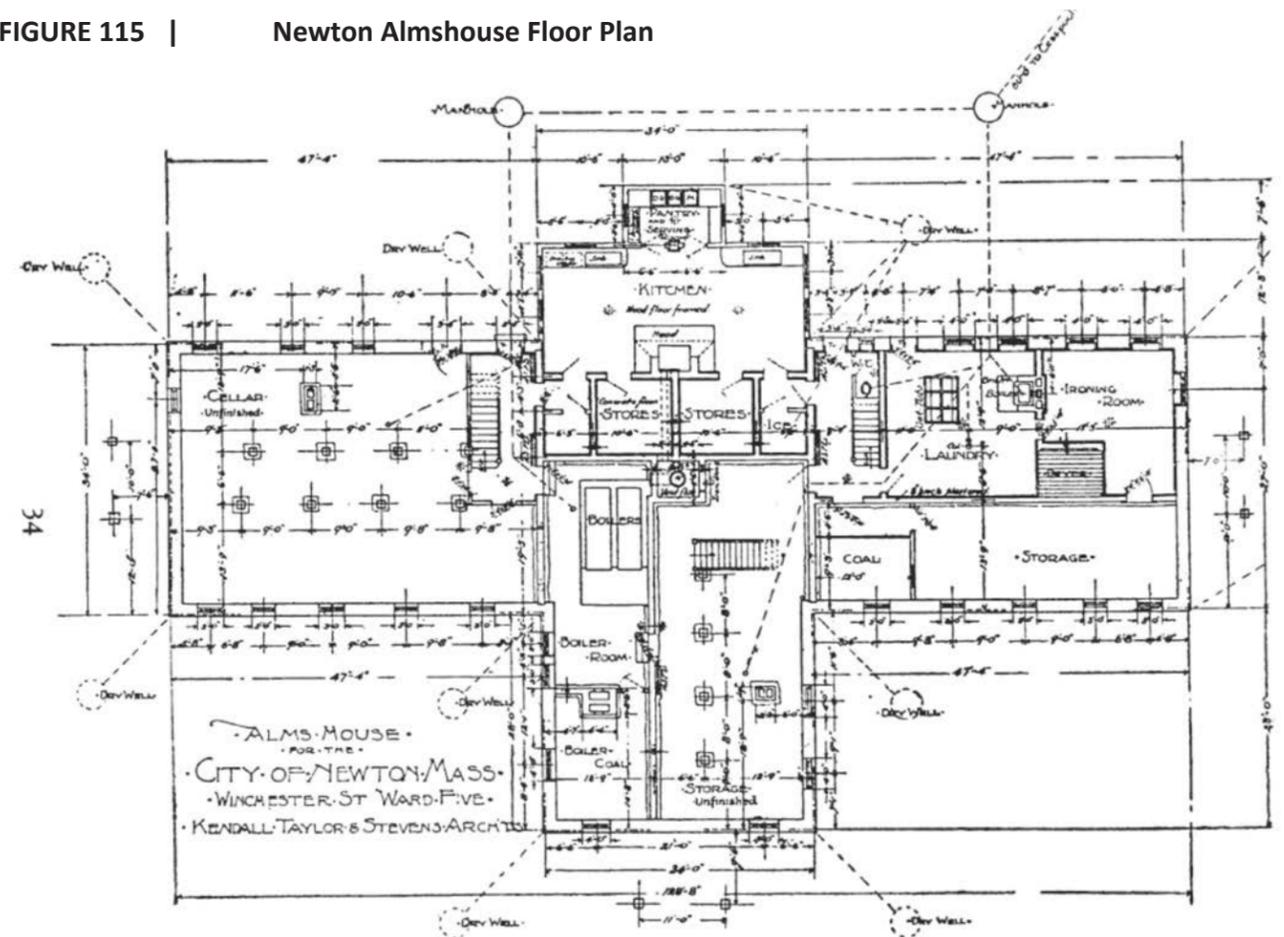


FIGURE 114 | Newton Almshouse Spolia and Casted Inverse Mass

Prosthesis to the Almshouse

In order to capture the idea of prosthesis, I began to investigate ways in which the inverse of the "original" almshouses might be casted or preserved. This was a challenge because none of the original structures I was investigating remained intact. Mostly what remained on these sites were loose spolia, disassembled and scattered across the landscape. I desired for the almshouse to be recognizable to the average visitor. For this reason, I began to investigate imaginative preservation techniques like those discussed by Federica Goffi, which do not approach preservation "as is" or restoration "as was," but rather take the creative liberties to reimagine historical architecture in a way that makes it more meaningful in the present. This took form as a reimagination of the floor plan of the Newton Almshouse and a prosthetic filling of its voids.

FIGURE 115 | Newton Almshouse Floor Plan



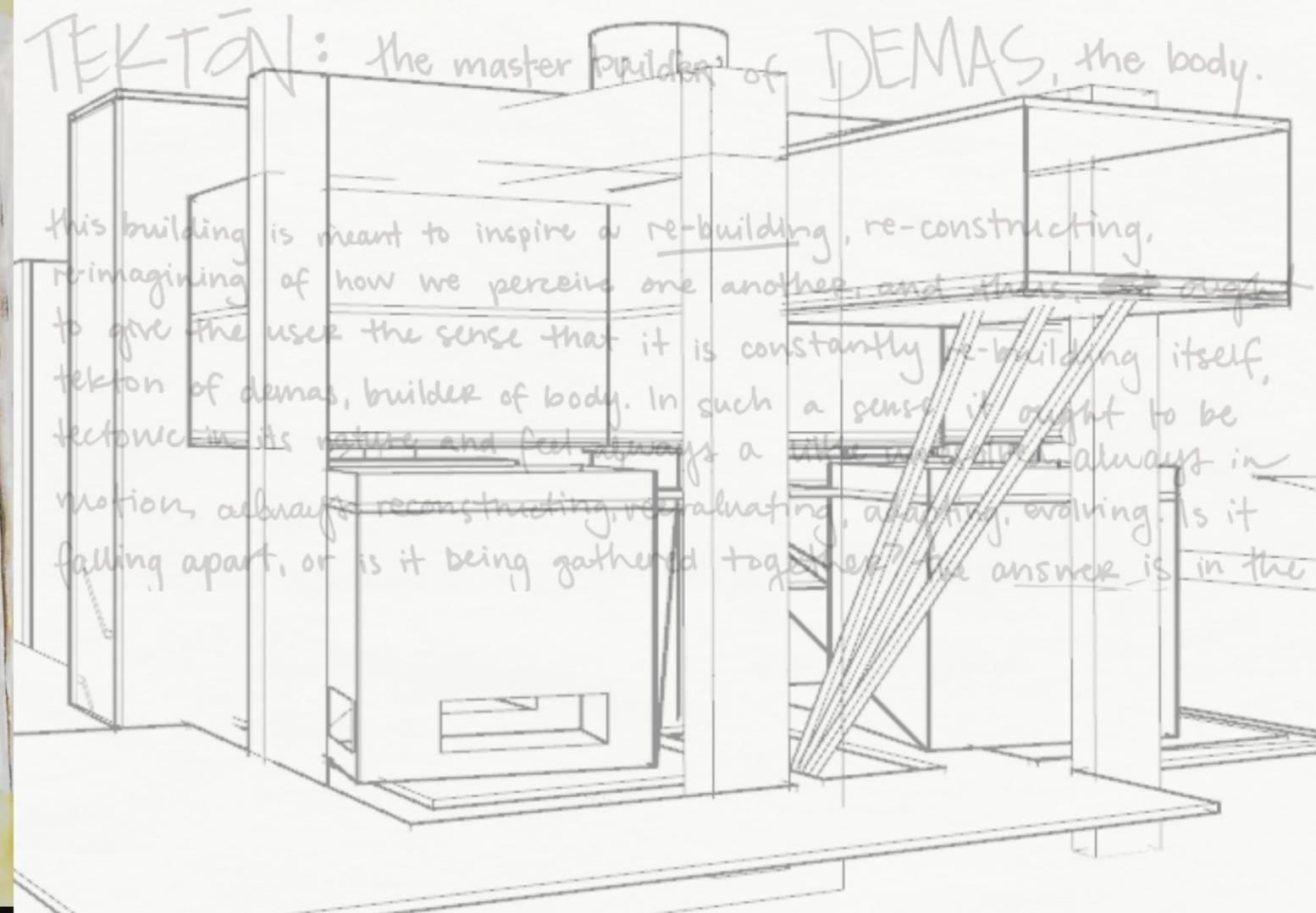
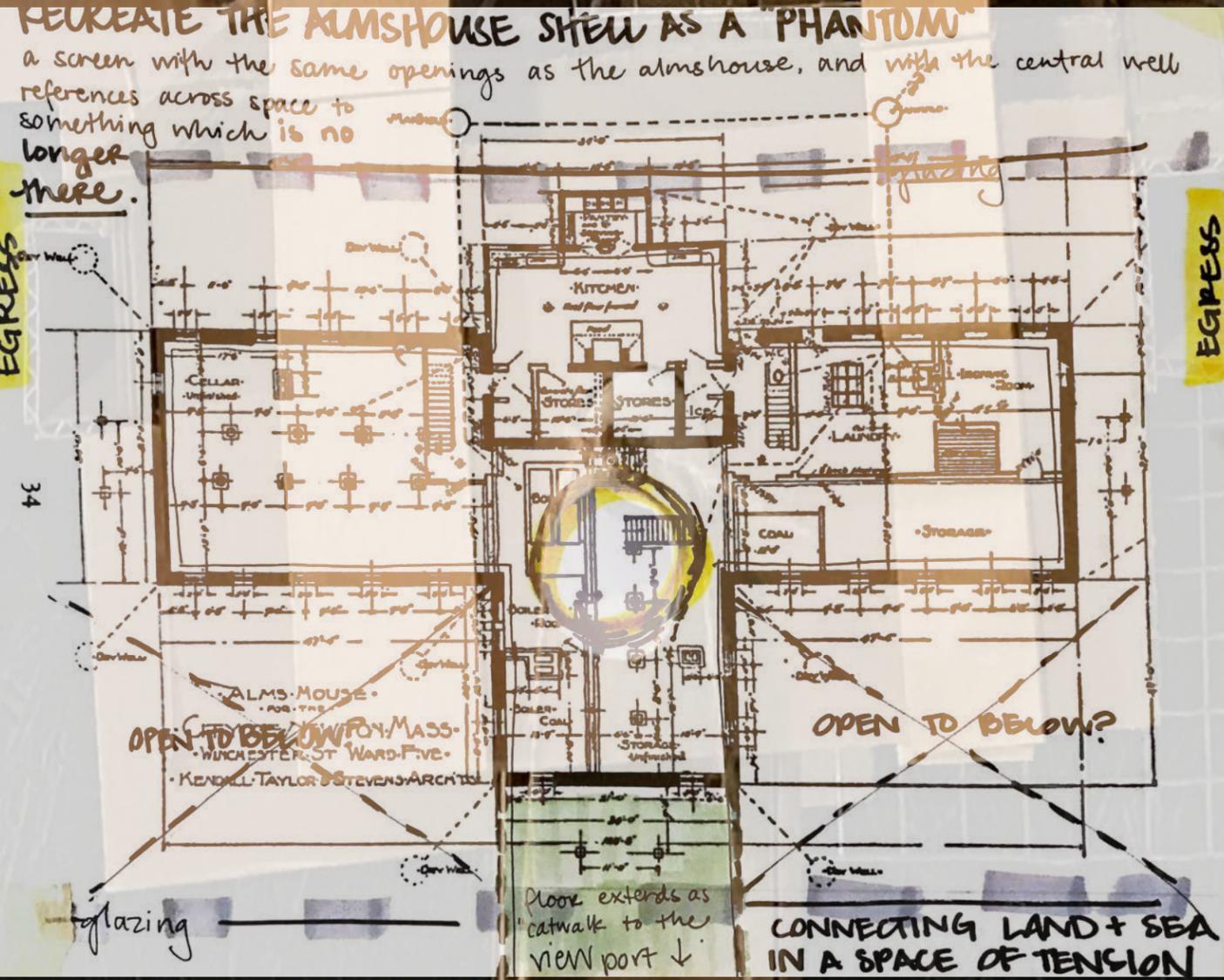


FIGURE 116 | Almshouse Inverse Concept Sketch and Model Overlays

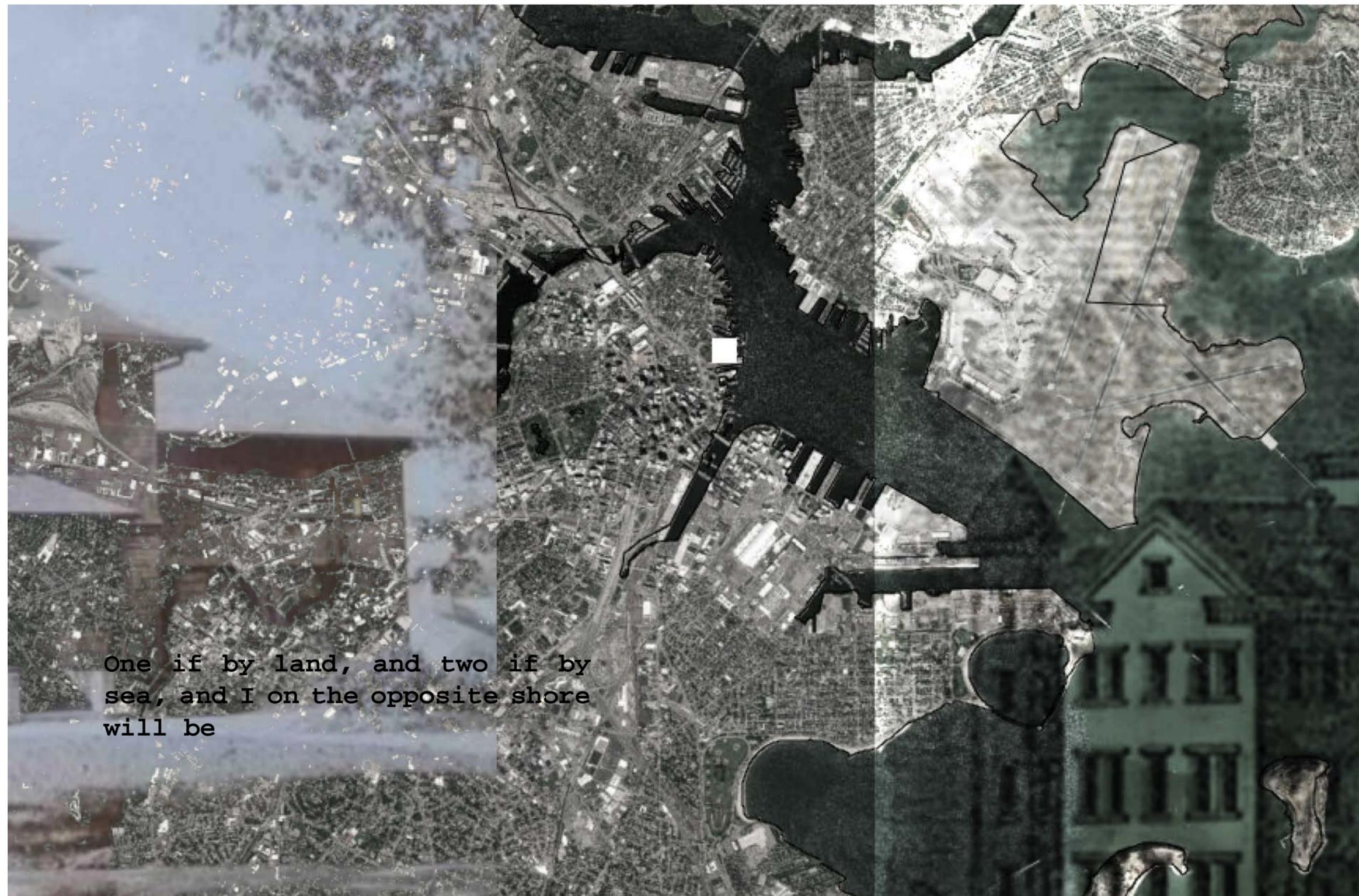
BOSTON HARBOR

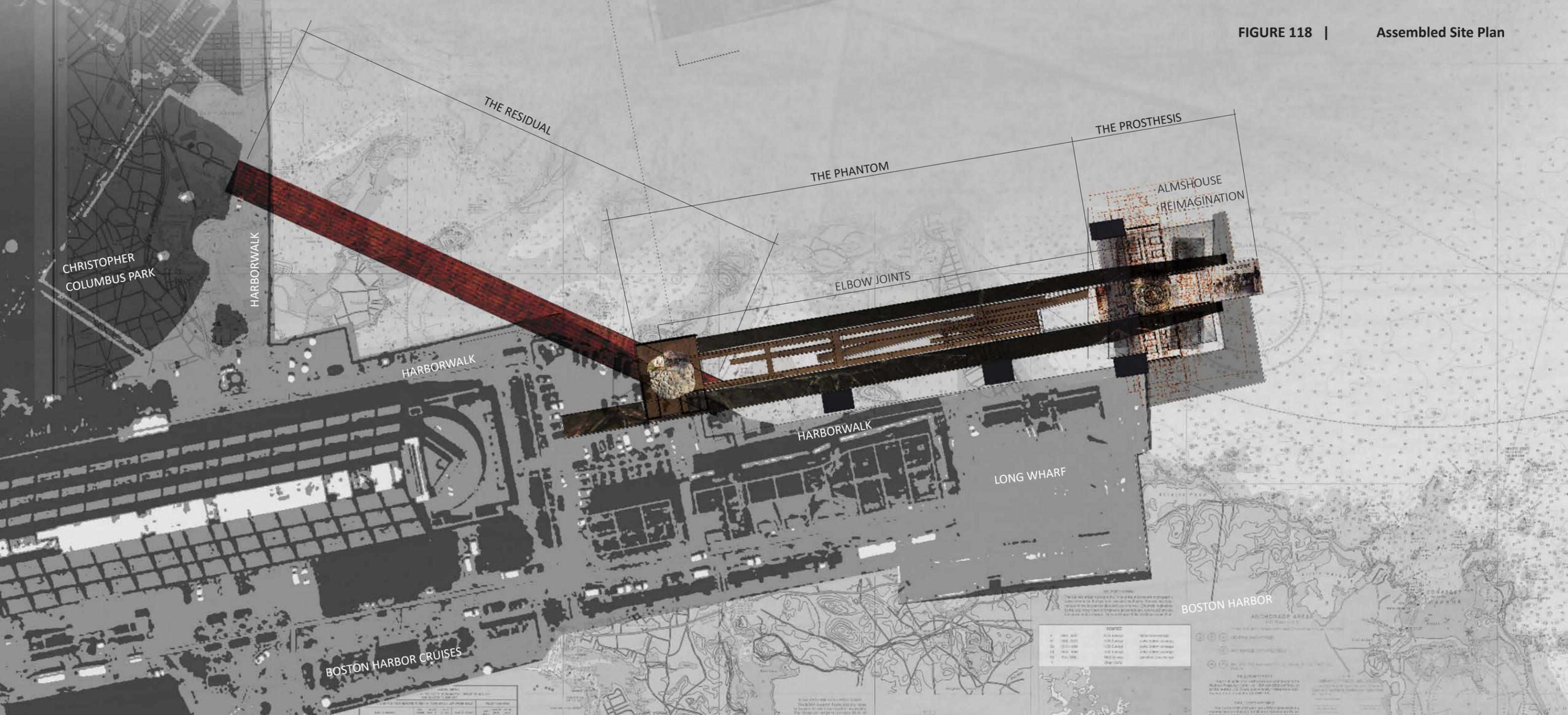
DESIGN

ASSEMBLY OF HISTORICAL FRAGMENTS

The museum finds its home as an appendage to the historic Long Wharf, a stretch of some of the oldest manmade land in Boston as well as a bustling center of tourism and urban activity. As the former site from which residents of the harbor almshouses were shipped out of the city, Long Wharf is the site of amputation. It is now the departing place for tours of the Boston Harbor Islands. Despite this rich history, until its visitors encounter the museum, nothing present at Long Wharf will tell them of the Harbor almshouses. To enliven cultural memory in Boston, the museum unites spolia of the Newton Almshouse and the Harbor Almshouses in this place of tension between land and sea, reimagining these ruins in an assembly of new and old materials where they can be remembered by the public.

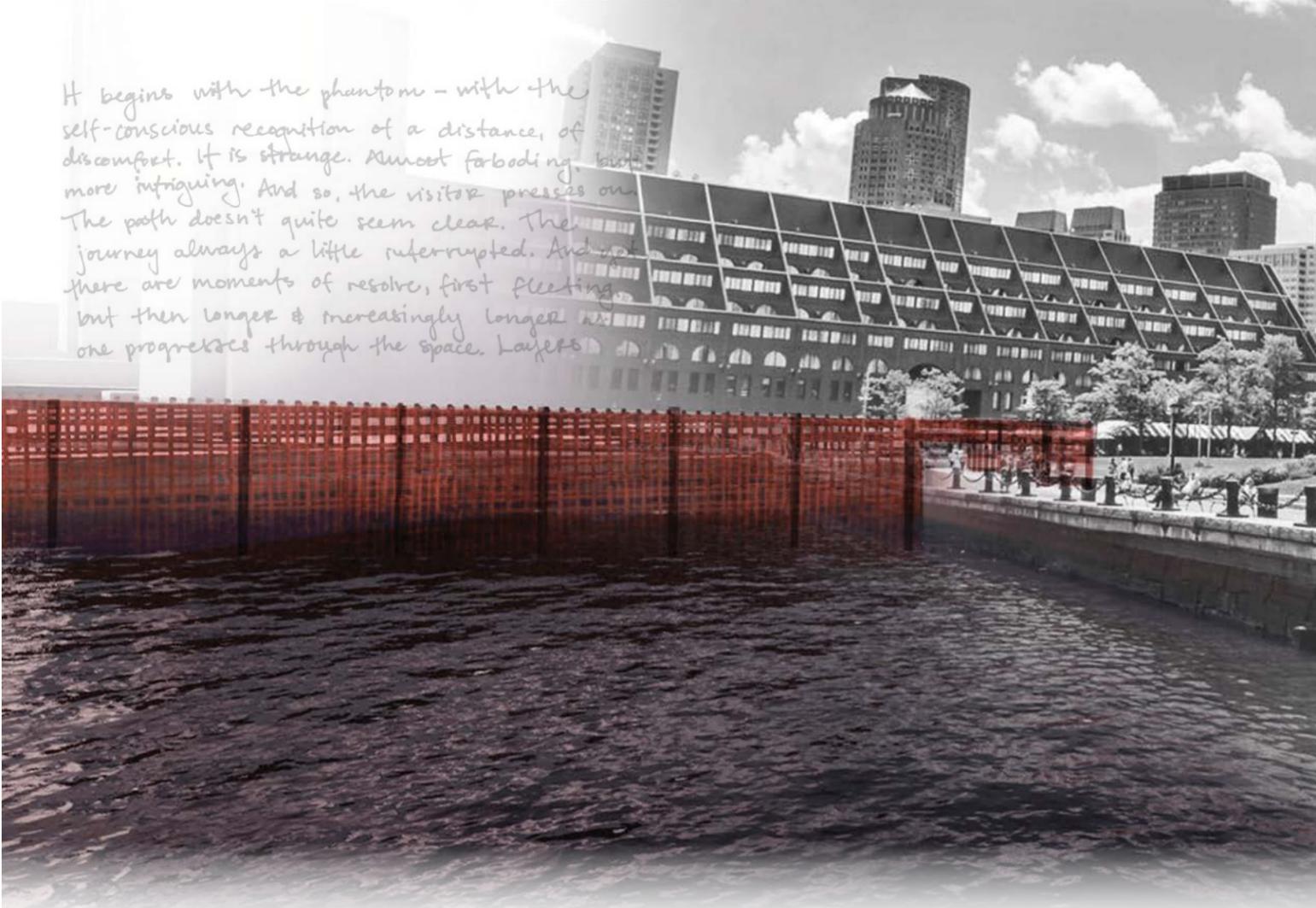
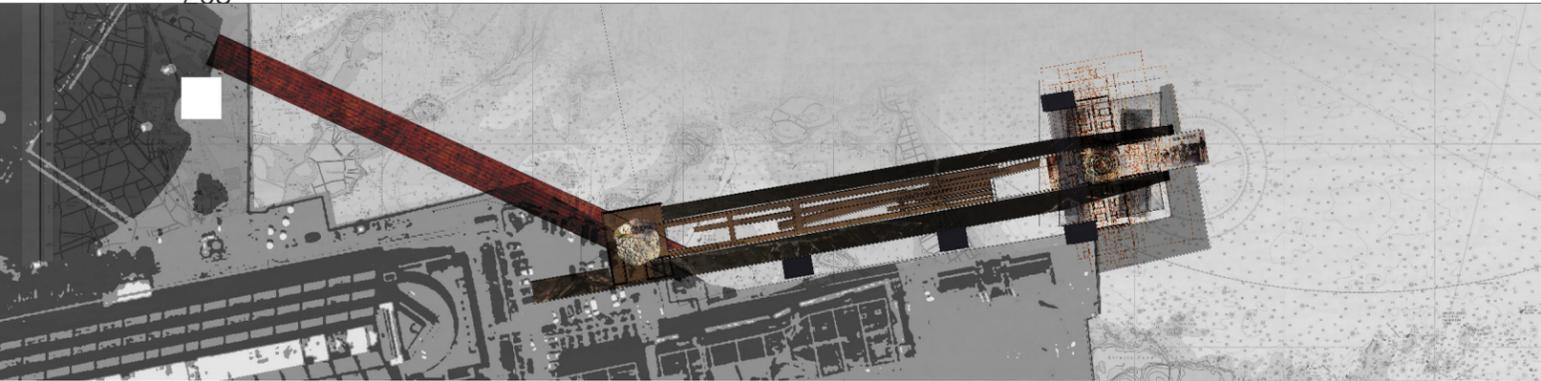
FIGURE 117 | Almshouses by Land and By Sea





Recreated at the end of the wharf, reaching out toward the sea, the reimagined Newton almshouse is a phantom to the original floor plan, referencing across time and space to a body which is no longer intact. The only ruin which did remain intact at the Newton almshouse was the well- giver of water, center of life. At the museum, spolia of the almshouses transform the well into elbow joints which animate the prosthesis. Grafted together at the joints of the almshouses are three major elements: the residual, the phantom, and the prosthesis.

The residual is an extension of the existing harbor walk which leads the user to the museum. The phantom is a disorienting descent through the forgotten stories of the city. Lastly, the prosthesis is a home for Boston to add to its history through further innovation, while always protecting the memory of its almshouses. All that is needed now is human life to animate the prosthesis, without which it is only a vessel of manmade material.



It begins with the phantom - with the self-conscious recognition of a distance, of discomfort. It is strange. Almost forboding, but more intriguing. And so, the visitor presses on. The path doesn't quite seem clear. The journey always a little interrupted. And yet there are moments of resolve, first fleeting but then longer & increasingly longer as one progresses through the space. Layers

FIGURE 119 | Museum Entrance as Harborwalk Extension at Christopher Columbus Park

THE VISITOR'S ENCOUNTER

The Residual

The user's experience begins at Christopher Columbus Park, where a peculiar pedestrian bridge diverges from the coastline as an extension of the harbor walk. This is Boston's residual limb. From the park, figures can be faintly made out within the pedestrian bridge. Upon entry into the walkway, the mesh takes on an entirely different interior persona than its exterior had implied. The sunlight filtering through its mesh skin casts a blanket of shadows that fall across the path as well as atop the bodies of those who enter the enclosure, grafting them into its flesh. Echoing the artefact, the body of the city is imposed upon the body of the visitor to become part of Boston's exquisite corpse.

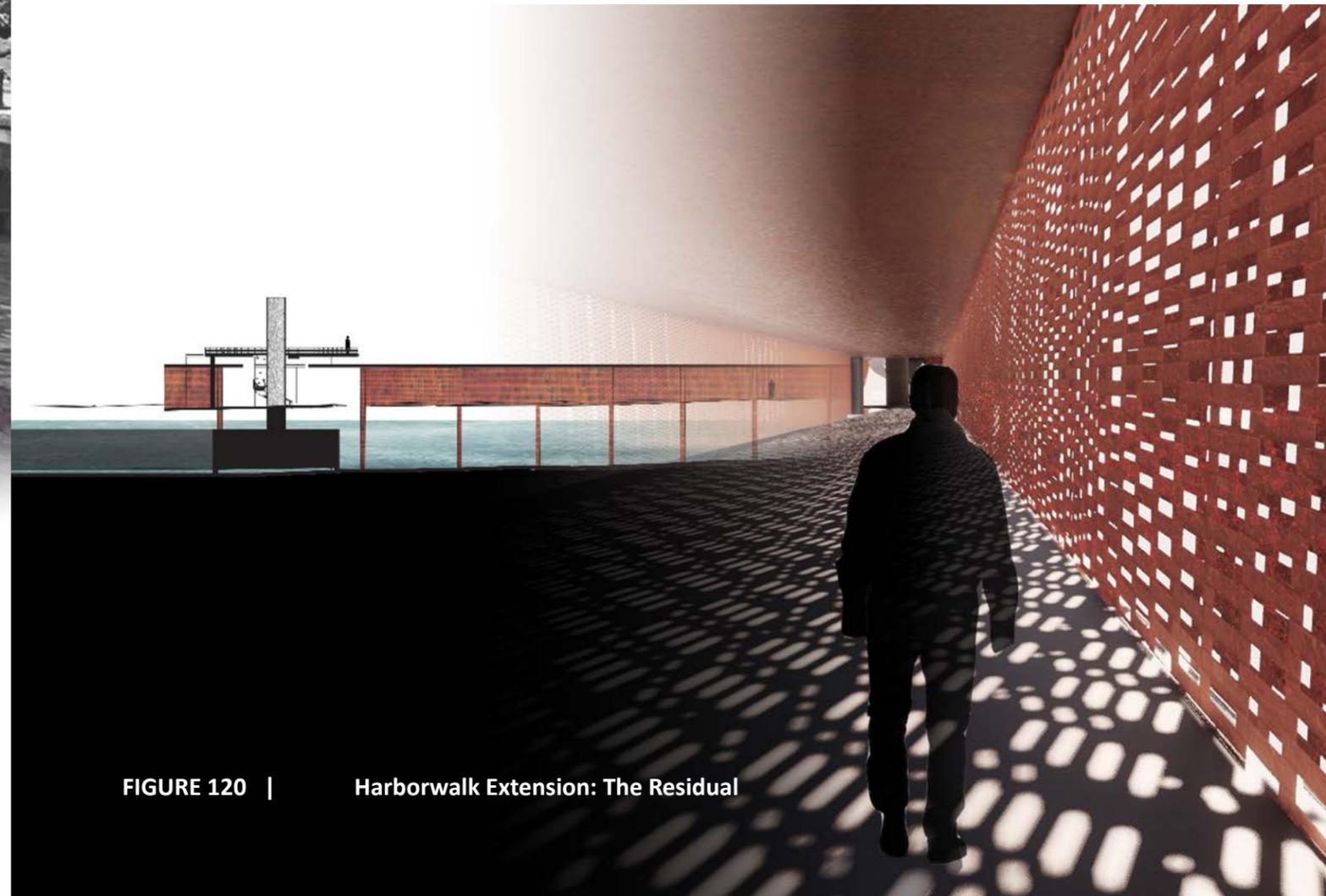
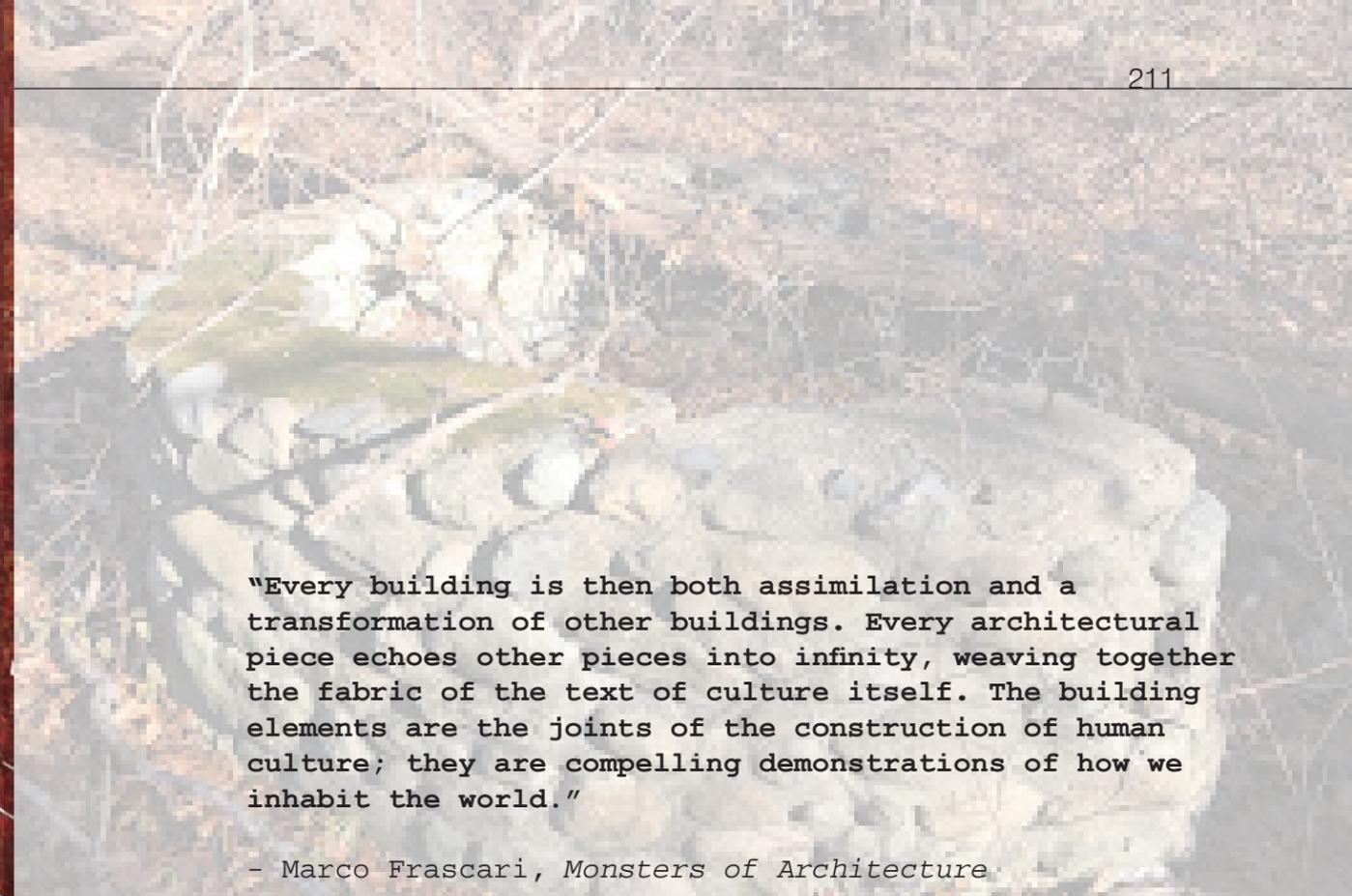
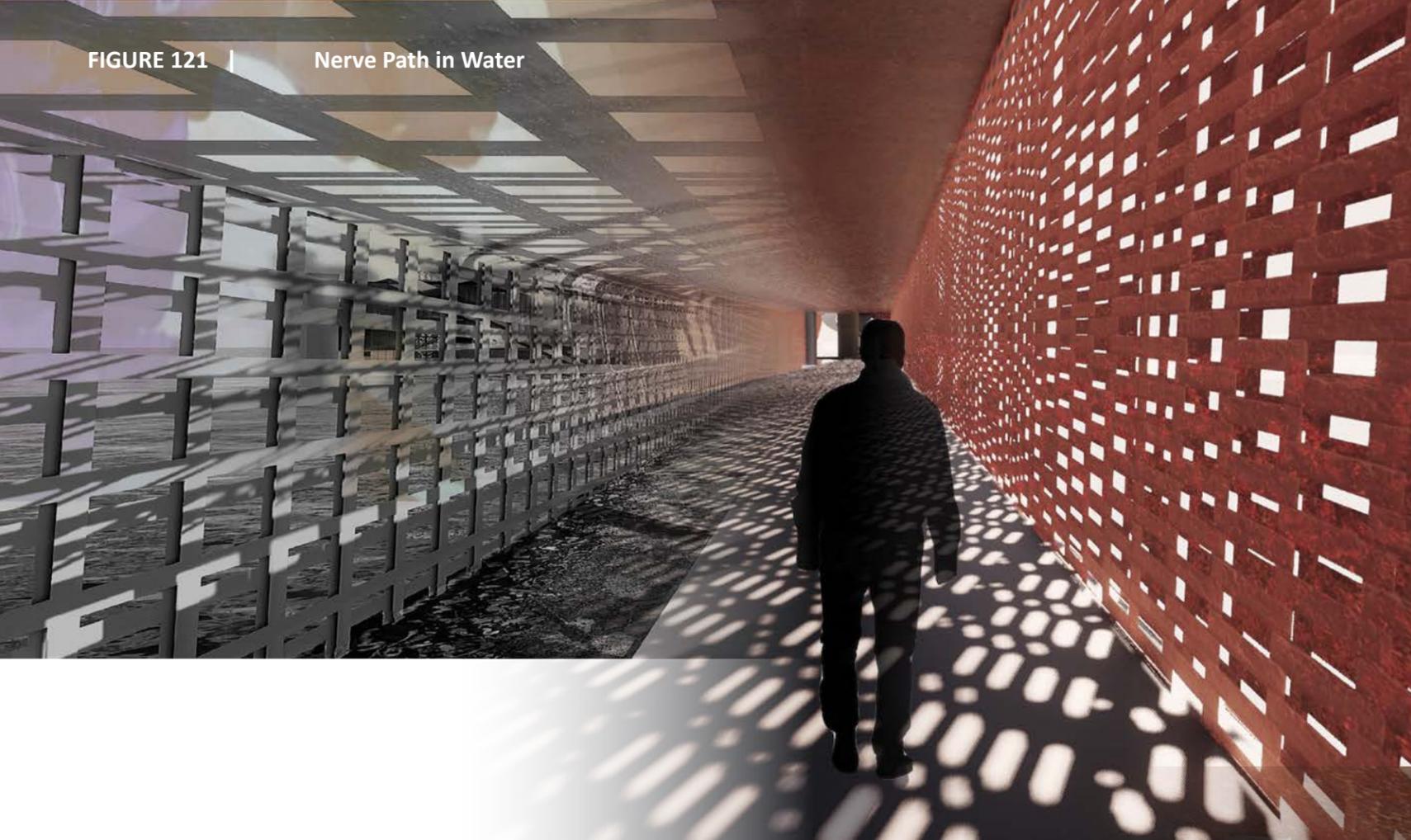


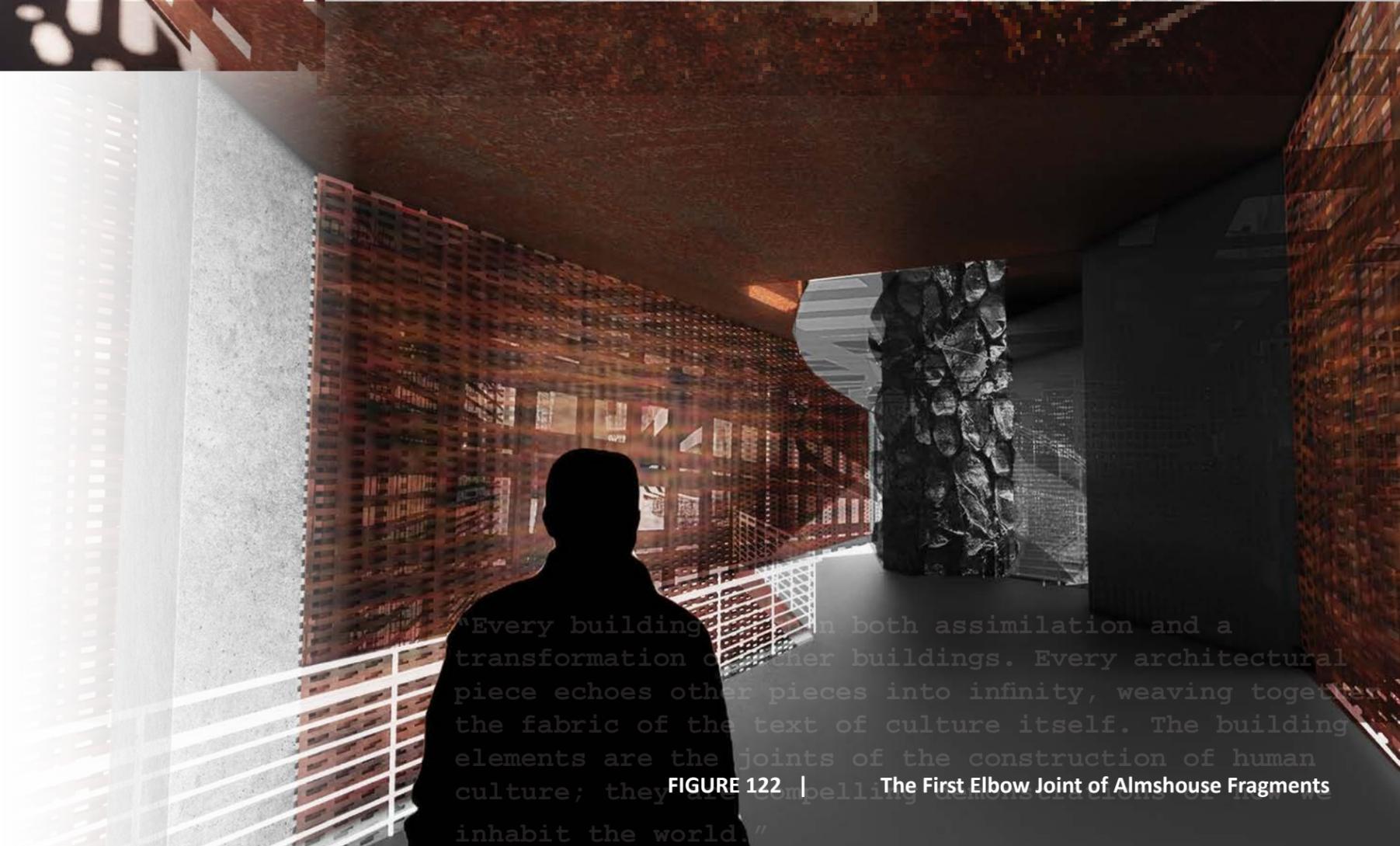
FIGURE 120 | Harborwalk Extension: The Residual

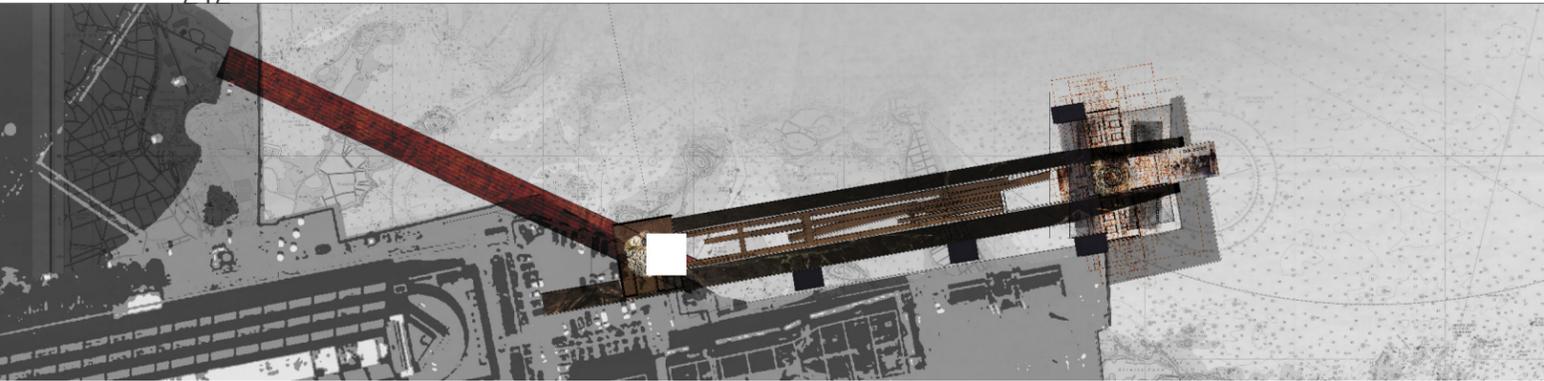


"Every building is then both assimilation and a transformation of other buildings. Every architectural piece echoes other pieces into infinity, weaving together the fabric of the text of culture itself. The building elements are the joints of the construction of human culture; they are compelling demonstrations of how we inhabit the world."

- Marco Frascari, *Monsters of Architecture*

As the visitor presses on, a portion of the floor falls away as if it has been dismembered, plunging one half of the mass directly into the water and out of reach from the other half. The void opened by this trauma reveals a second path in the depths below which rips through the water as it leads to a shaft ahead. As the user follows its edge, they become like an electric pulsation fired through the nerve, curiously in search of the path's end. Though the visitor likely assumes that this bridge will extend straight to Long Wharf, it is amputated frustratingly close to this connection, being interrupted and impaled by the museum's first joint. Rugged stone fragments of the city's almshouses wear their age as they adorn an elevator shaft wrapped with a spiral stair. The joint is an echo of the well at the Newton Almshouse. However, it is not until the user ascends the elbow joint that they learn the significance of these weathered stones.



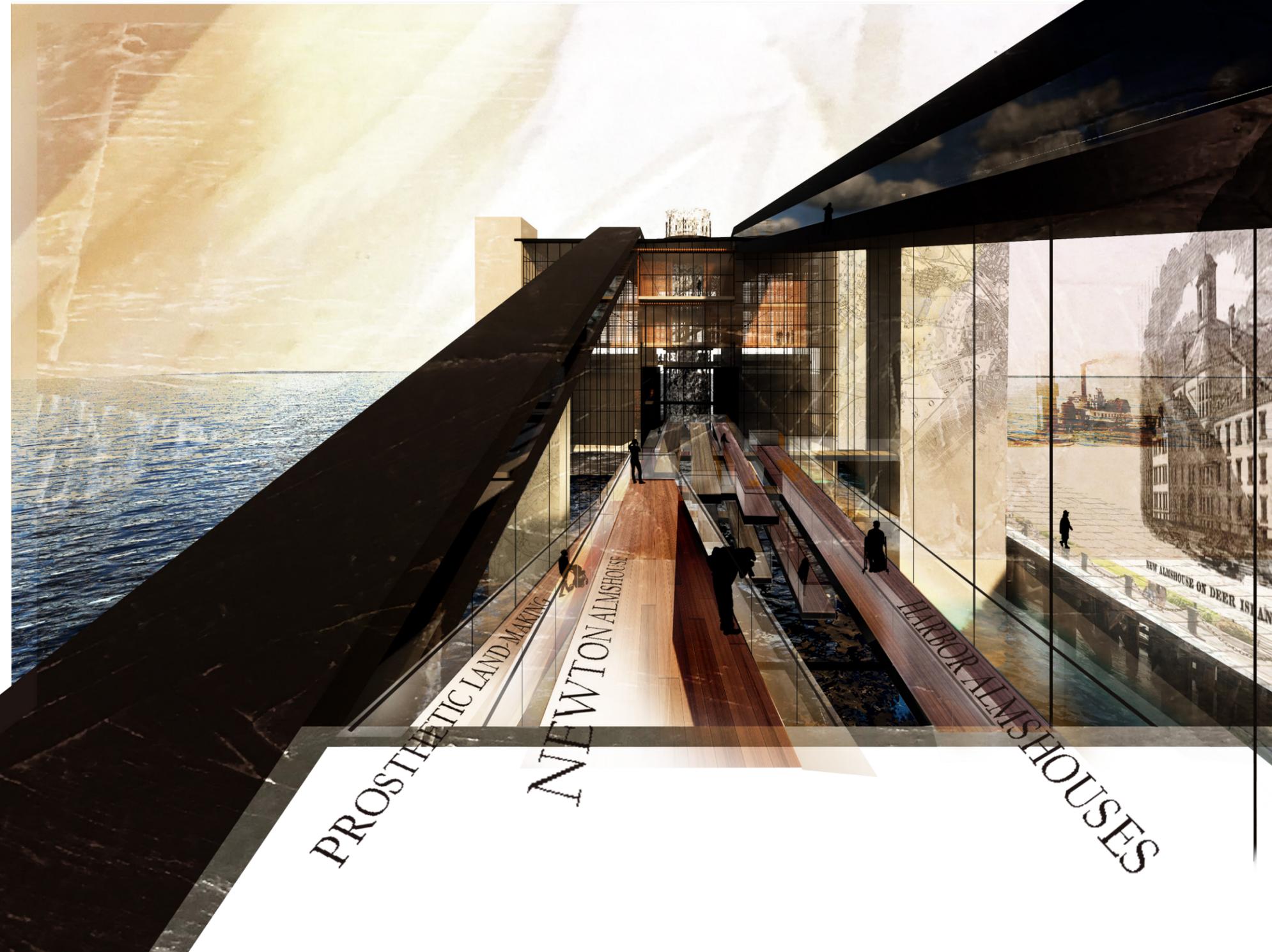


The Phantom

Upon emerging at the top of the shaft, the user navigates beyond the boundary of the flesh and into the phantom limb. Twisted by the joint, the amalgamation is fastened as an appendage along Long Wharf's edge. A new path unfolds in front of the user as the sum of many smaller, descending walkways- tangled, fragmented, knotted up and turning in on themselves like nerves in search of the phantom limb. Comprised of wood and suspended above the water, the nautical walkways are reminiscent of the docks that scatter Boston harbor, but at the end of these paths is a vessel unlike the ships and boats of the harbor, but a second, larger elbow joint.

The joint binds together pieces of new and old: of sleek, dark masses which frame the delicate screen of ruins that adorn the joint. The same mesh of the walkway just navigated thrusts through the glittering facade, reaching back toward the residual and begging to be united. Through the cubistic view that is framed, the bodies of others can be seen emerging from and disappearing behind the many screens and visual interruptions, like the artefact had split and divided the bodies of those in the room, blurring boundaries of self.

FIGURE 123 | The Twisted Walkways of the Phantom Looking Toward the Prosthesis



Overhead, the edges of the walkways are suspended by two, heavy, masses sloping the opposite direction. Linger just inches below the water's surface, a dark mass seems to have ripped away from these two, leaving only the bundle of nerve paths in its wake as it looks up through the water to its lost connections. Bridging the space between the two elbow joints, the walkways create a timeline of Boston's disability history, demonstrating history to be the link which not only records cultural failure and triumph, but also transforms and adapts it toward cultural evolution.

As the user begins their descent, words and images burned into the paths tell the stories of Boston's disability history. The tangled paths reveal the relationship between historical events to be a complex cultural web, requiring the user to adapt and backtrack at the "dead ends" of Boston's progress.

FIGURE 124 | Section Cut through Phantom Shows Mass Relationships

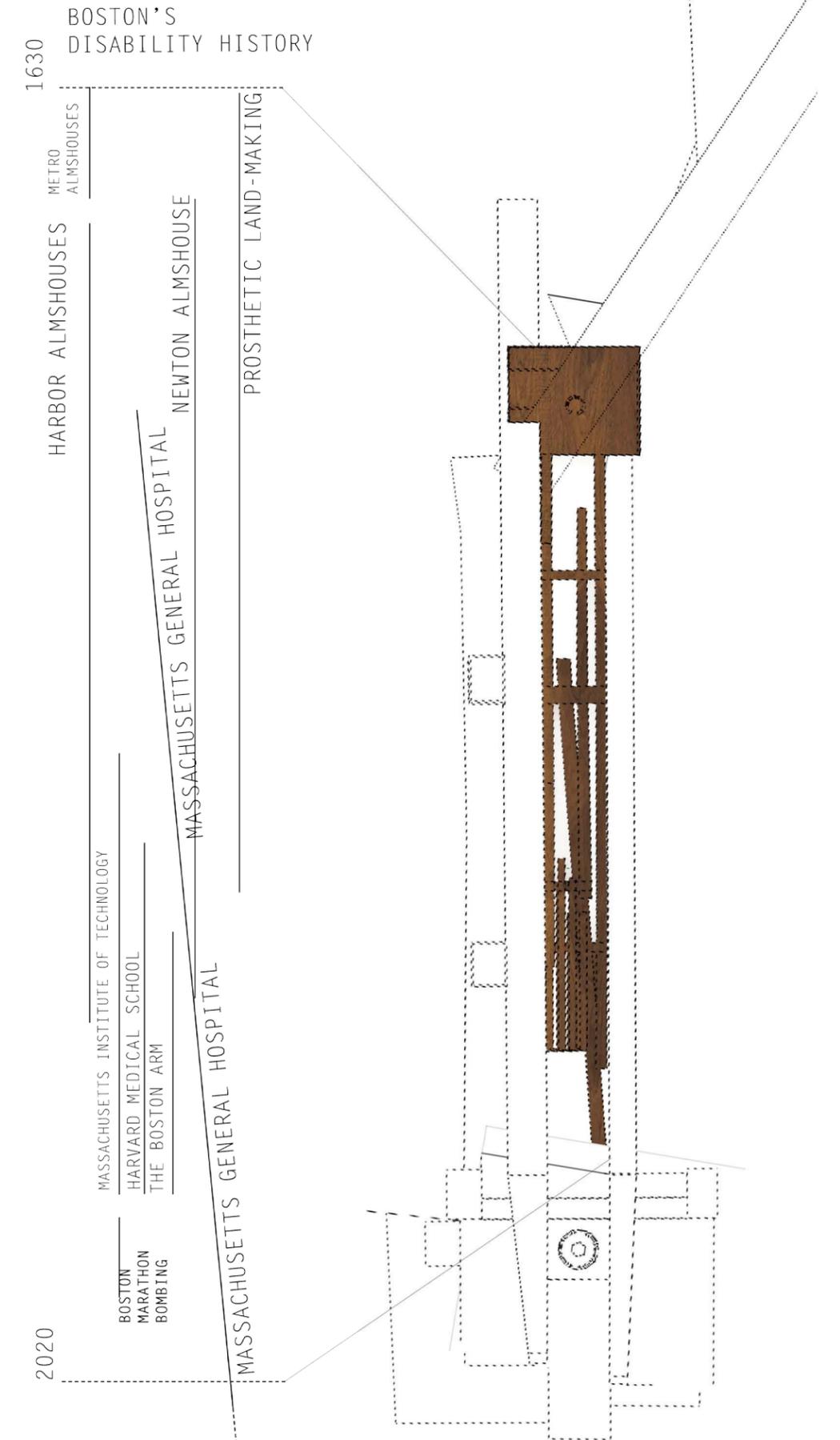
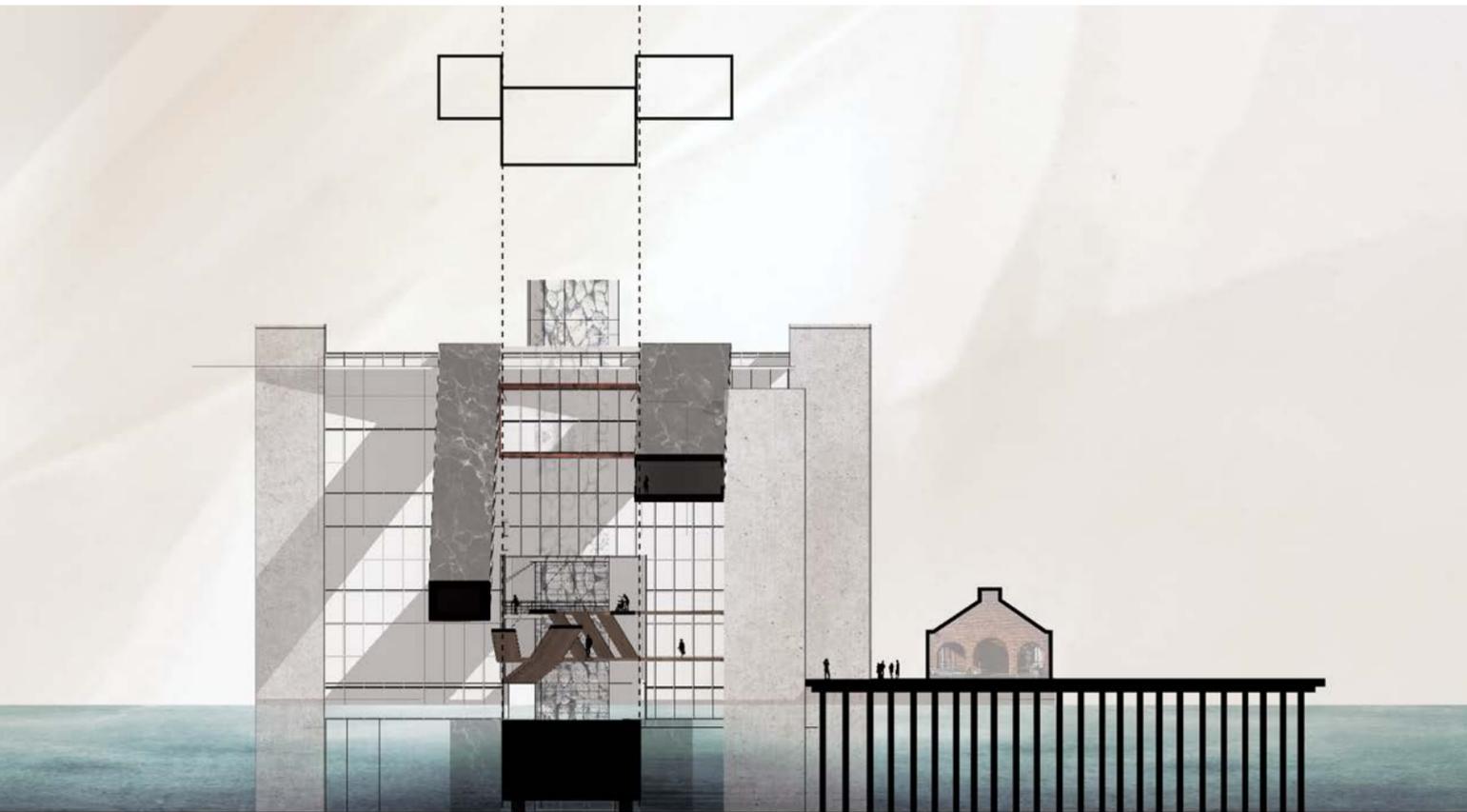
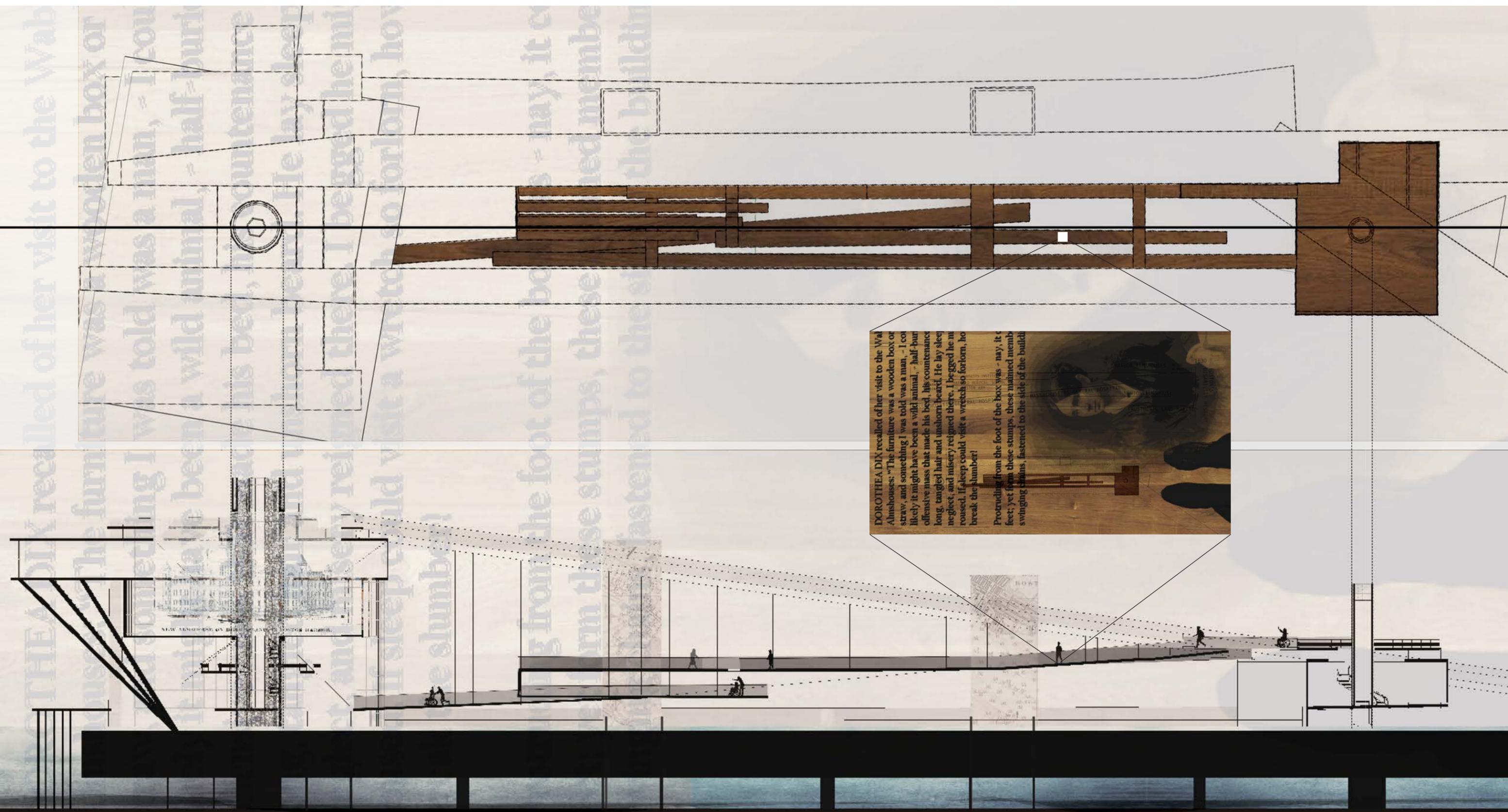


FIGURE 125 | Timeline of Boston's Disability History as Hanging Walkways



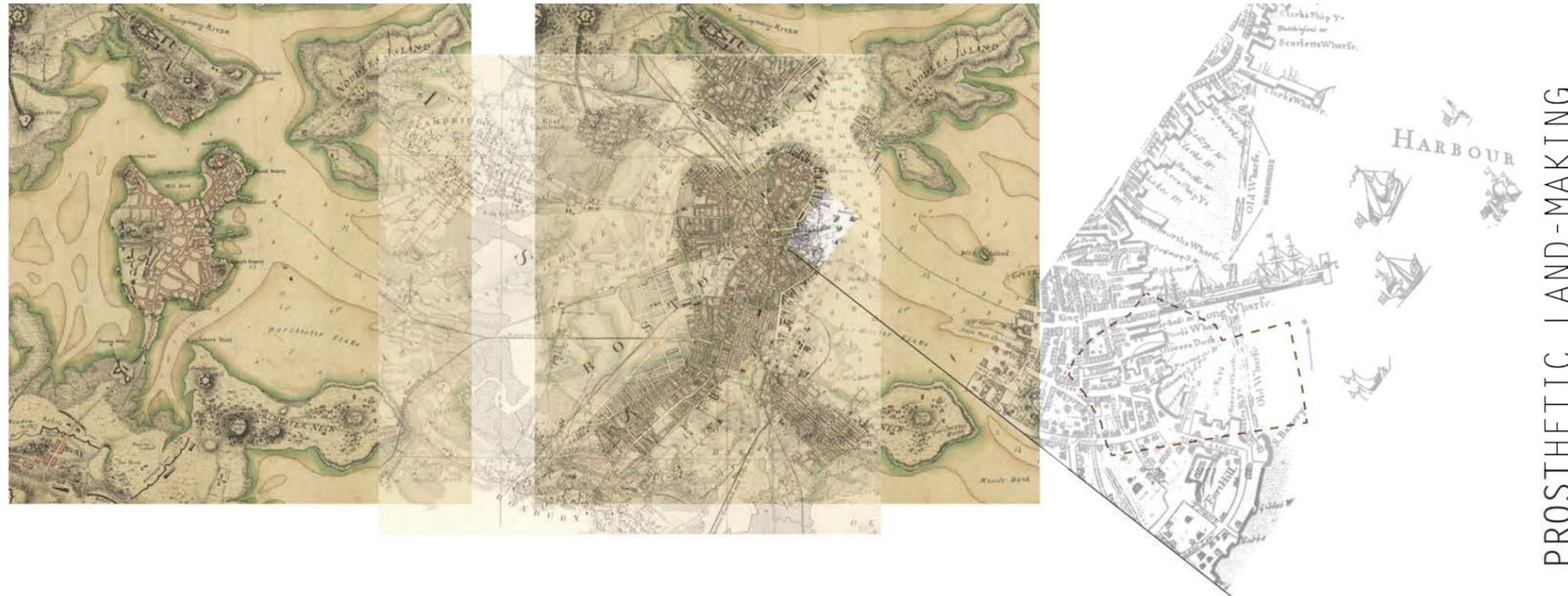
DOROTHEA DIX recalled of her visit to the Wal
Almshouses: "The furniture was a wooden box or
straw, and something I was told was a man, - I con-
likely it might have been a wild animal, - half-bur-
offensive mass that made his bed, his countenance
long, tangled hair and unshorn beard. He lay sleep-
neglect, and misery reigned there. I begged he m-
roused. If sleep could visit a wretch so forlorn, ho
break the slumber!

Protruding from the foot of the box was - nay, it c-
feet, yet from these stumps, these maimed memb-
swinging chains, fastened to the side of the build-

FIGURE 126 | Timeline of Boston's Disability History as Hanging Walkways with Burned Stories

Prosthetic Land-making

The user assembles stories of land-making, learning that one third of Boston sits on prosthetic, manmade land, including Long Wharf. The city has reimagined its own body many times. Although the city had to grow bigger, it was still was not big enough for everyone, which the user learns as the paths spill them into the stories of almshouses.



PROSTHETIC LAND-MAKING

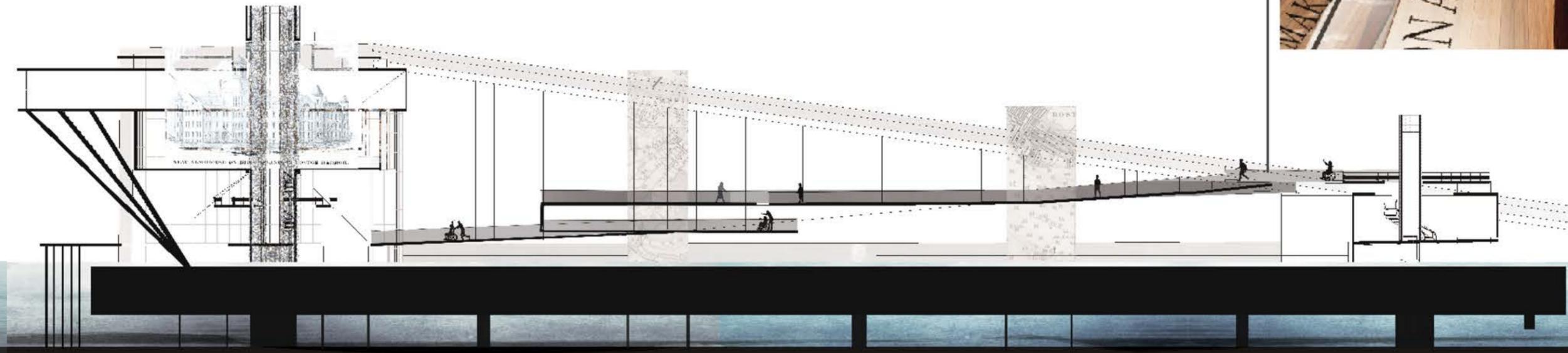
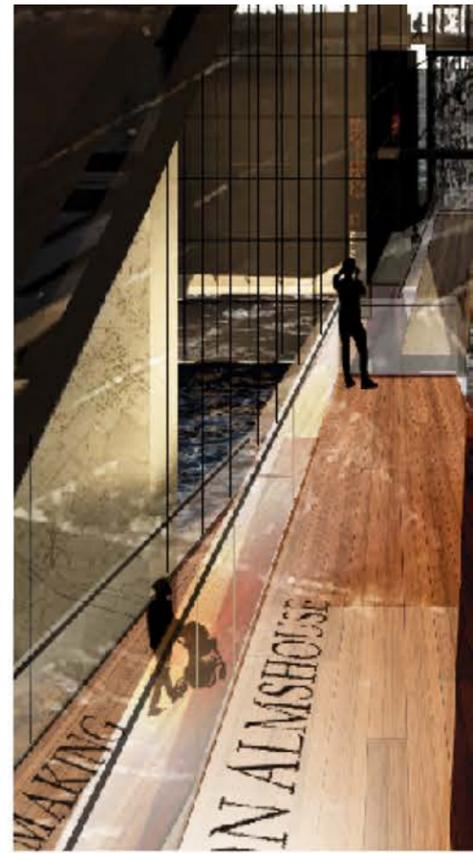
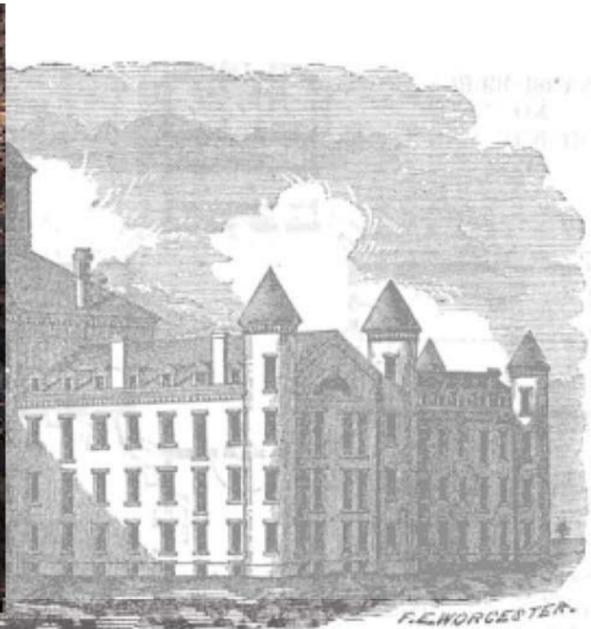


FIGURE 127 | Walkway of Prosthetic Land-Making

Boston's Almshouses

Established with good intent, Boston's almshouses became societal recycling bins for the disabled and vulnerable. The user learns that fragments of these almshouses are dispersed throughout the museum, evoking a memory to the elbow joint of ruins just navigated - a remembered body image returned as if from Ramachandran's mirrors.



NEW ALMSHOUSE ON DEER ISLAND, IN BOSTON HARBOR.

BOSTON'S ALMSHOUSES

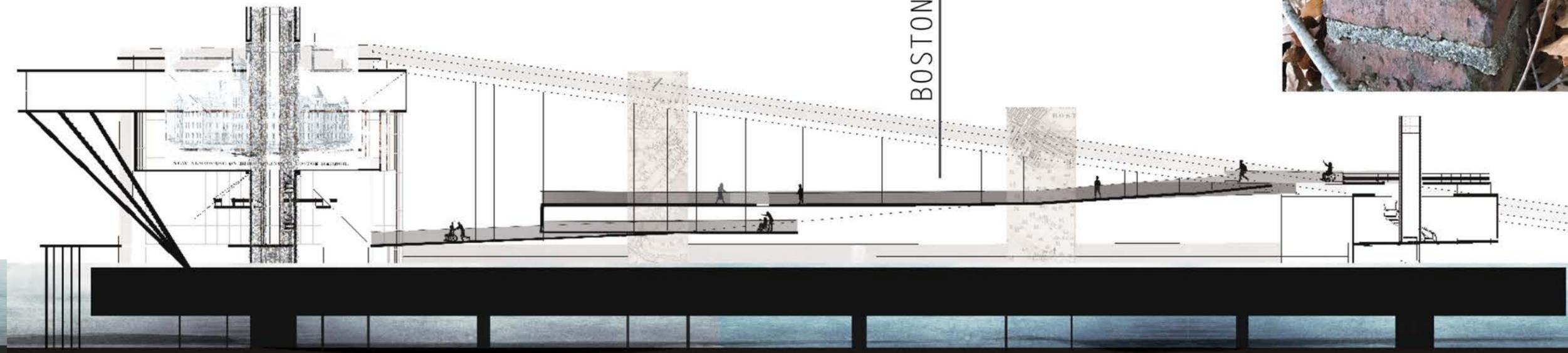
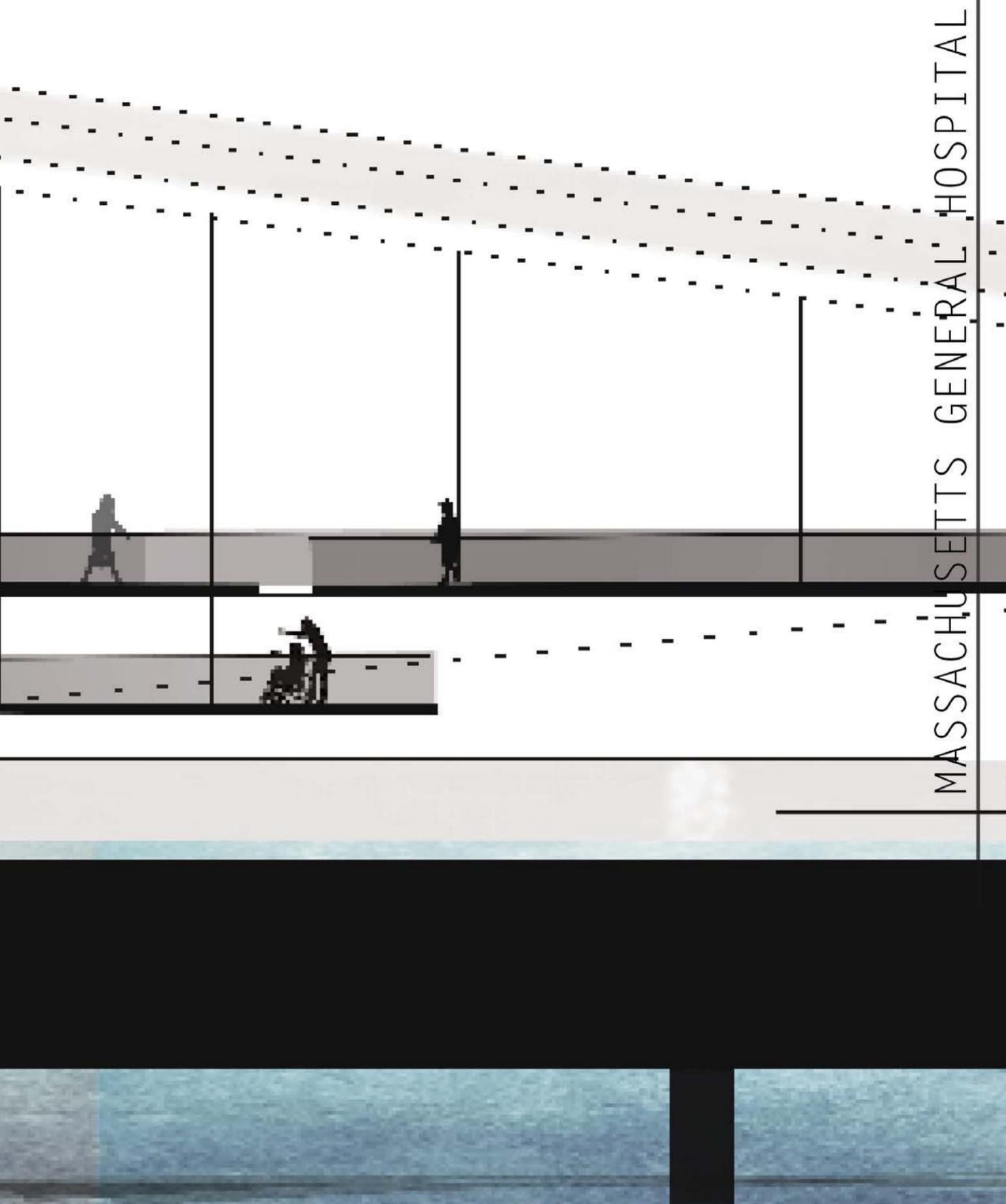
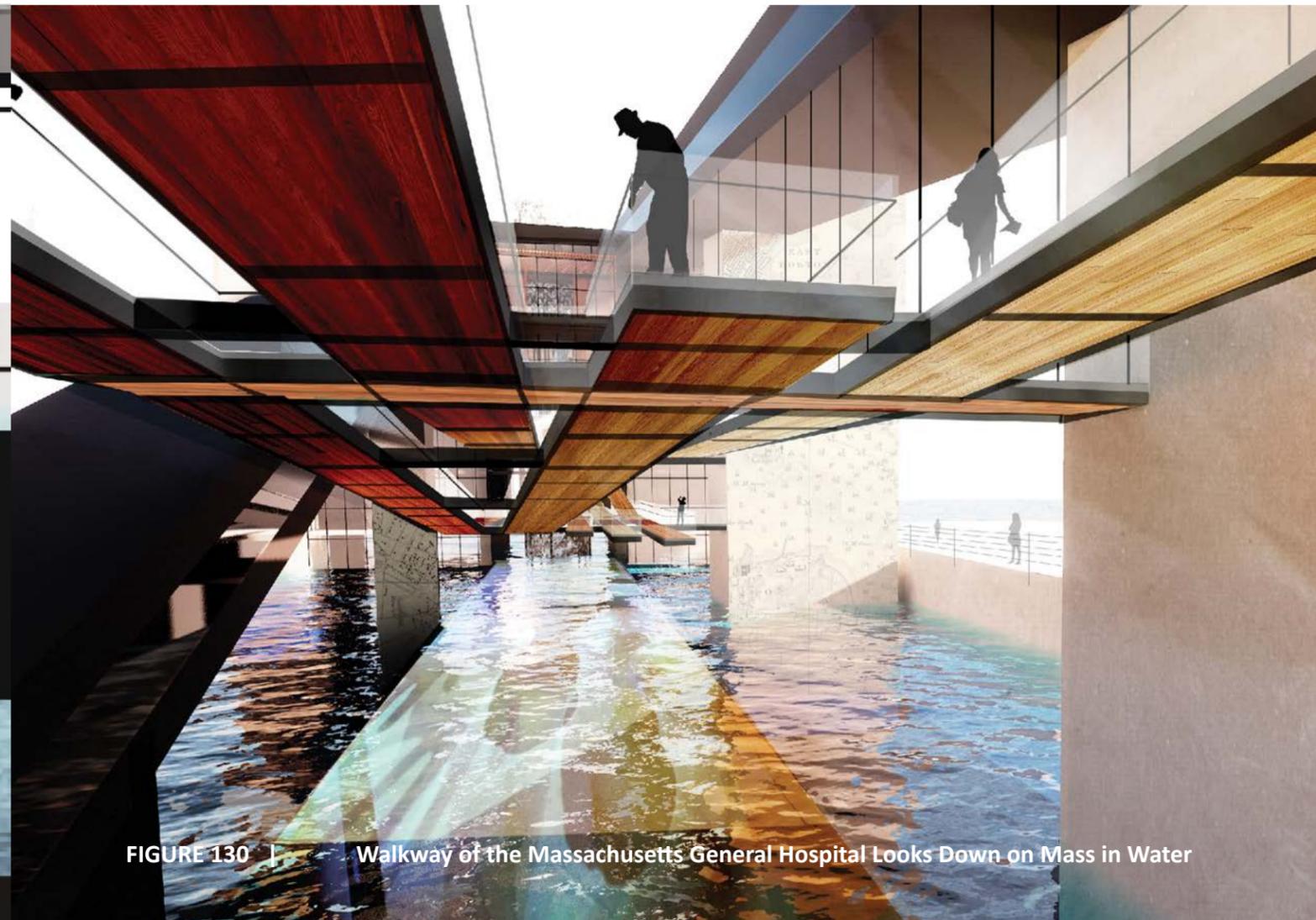


FIGURE 128 | Walkway of Boston's Almshouses



Massachusetts General Hospital

Winding into the next path, the user learns that out of desperation for the disabled and ill, Boston's first hospital was established. Just as the founders of Massachusetts General Hospital looked out upon the almshouses and saw the need for change, from the head of the hospital's path the user gazes down into a void framed by the paths of the almshouses, noticing the dark phantom mass sitting just below the water's surface, intriguing and compelling, but inaccessible. Becoming more and less visible with the changing of the tides, it is elusive at all hours of the day. Like the artefact's aqueous images, the water reflects the suspended walkways with ghostly distortion. This evokes the phantom, a distance from oneself, as the user is suspended in a state of tension between the masses overhead and the one underfoot. In a state of empathy for those who lived in the almshouses, the user is confronted with a reminder of our cultural fragmentation.



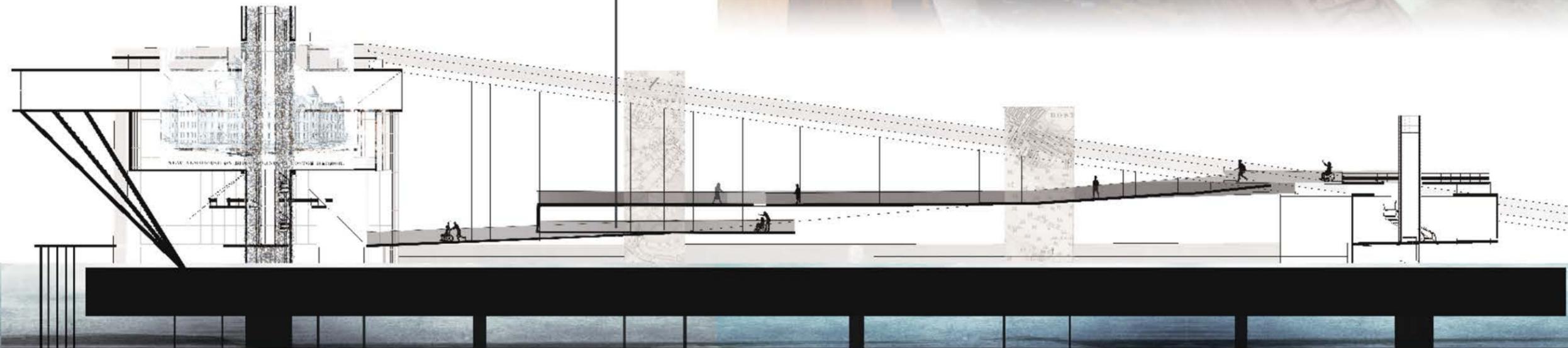
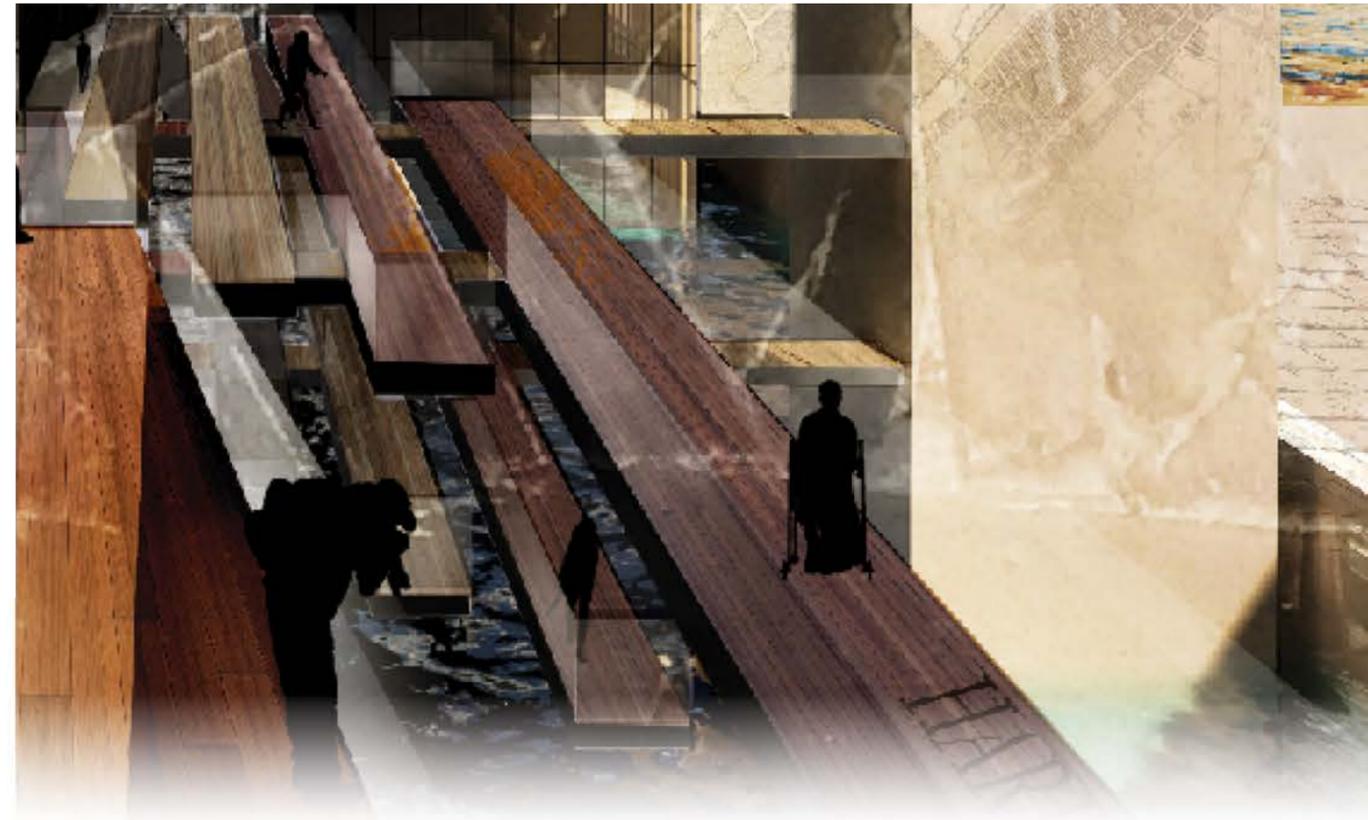
The Boston Arm

Moved to draw nearer to this mysterious phantom below the water, the visitor pushes forward through the stories of Boston's cultural and medical uprising, learning about new institutions that brought the disabled back into the city and about ground-breaking medical advancements.

Diverging paths join and flex backwards at the recollection of the Boston Arm, the world's first electric prosthetic arm which marked the beginning of Boston's specialty in prosthetics. As the user is provided another chance to look backward at this point, the user sees how far they have progressed, how far Boston has come, as well as how much closer they have drawn to the phantom beneath the water's surface as they have descended history.



THE BOSTON ARM

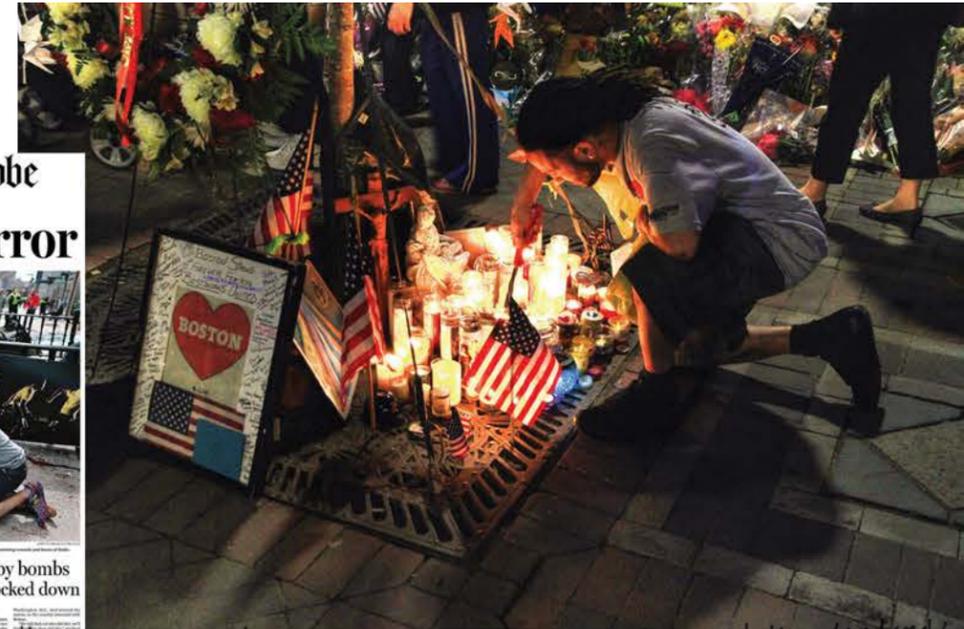


Boston Marathon Bombing

Due to the city's medical and cultural sophistication, the user finally learns that even the tragic Boston Marathon Bombing served as a catalyst for opportunity in further prosthetic innovation and disability support programs, with many survivors becoming well-loved philanthropists within the city. From adapting to its fragmentation, Boston drew nearer to the phantom than ever before, now just barely below the visitor's foot.



BOSTON MARATHON BOMBING



Some events will be recognizable, as they are more modern, yet they will be fragmented beyond the standard context. A kind of recognition of self across a distance. How can the visitor make the distance smaller? By reconstructing prior conceptions & adapting to see an untold story in the things that felt known, ordinary, & commonplace.

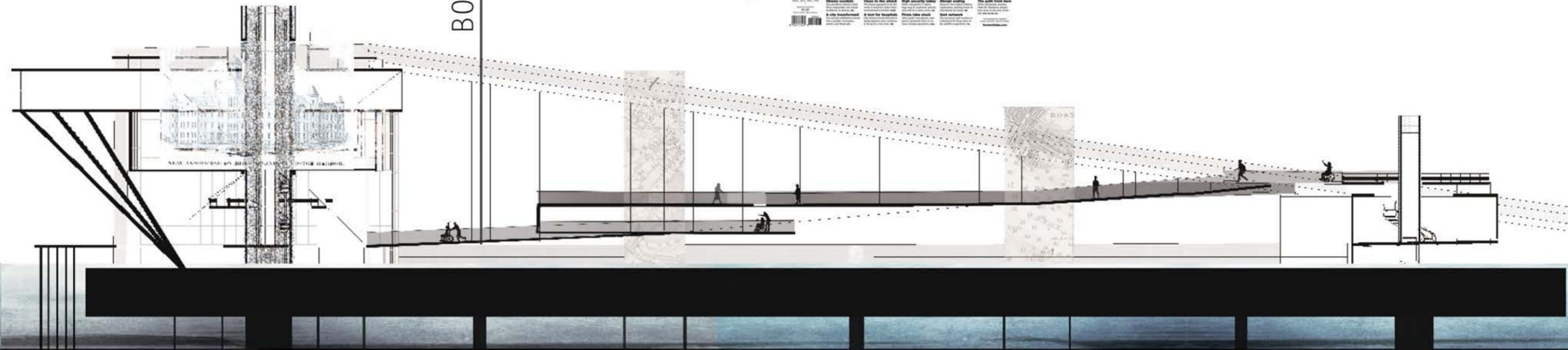
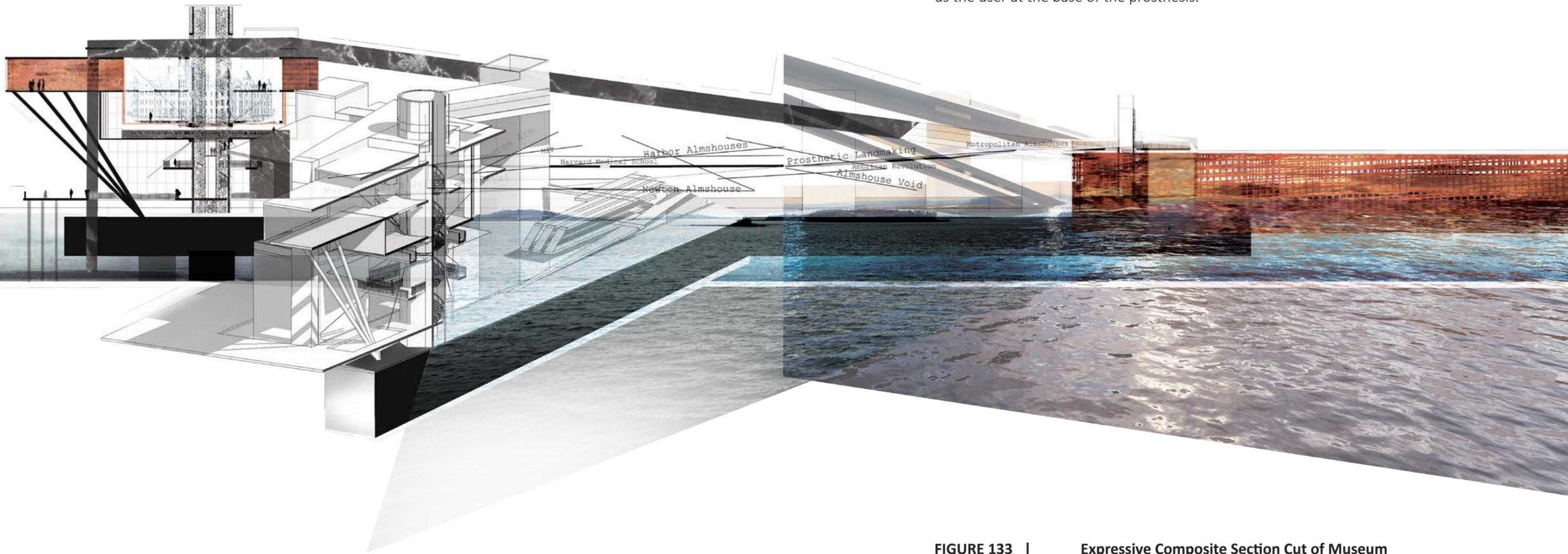


FIGURE 132 | Walkway of the Boston Marathon Bombing



As the user has navigated Boston's untold stories, the phantom has transformed history into a disorienting labyrinth of tension and desire for wholeness. Gravity pulls the user downward, compelling one to navigate through the tangled web of nerves as they chase the phantom into the depths below. As the visitor presses onward learning more about history, one makes cultural progress, descending closer to the heart of the truth just below the water, to wholeness. Tropic the timeline and redeeming the ramp- the architectural symbol of the disabled body- the phantom reveals the treacherous experience of history as a restorative fragment as it lands us the user at the base of the prosthesis.

FIGURE 133 | Expressive Composite Section Cut of Museum

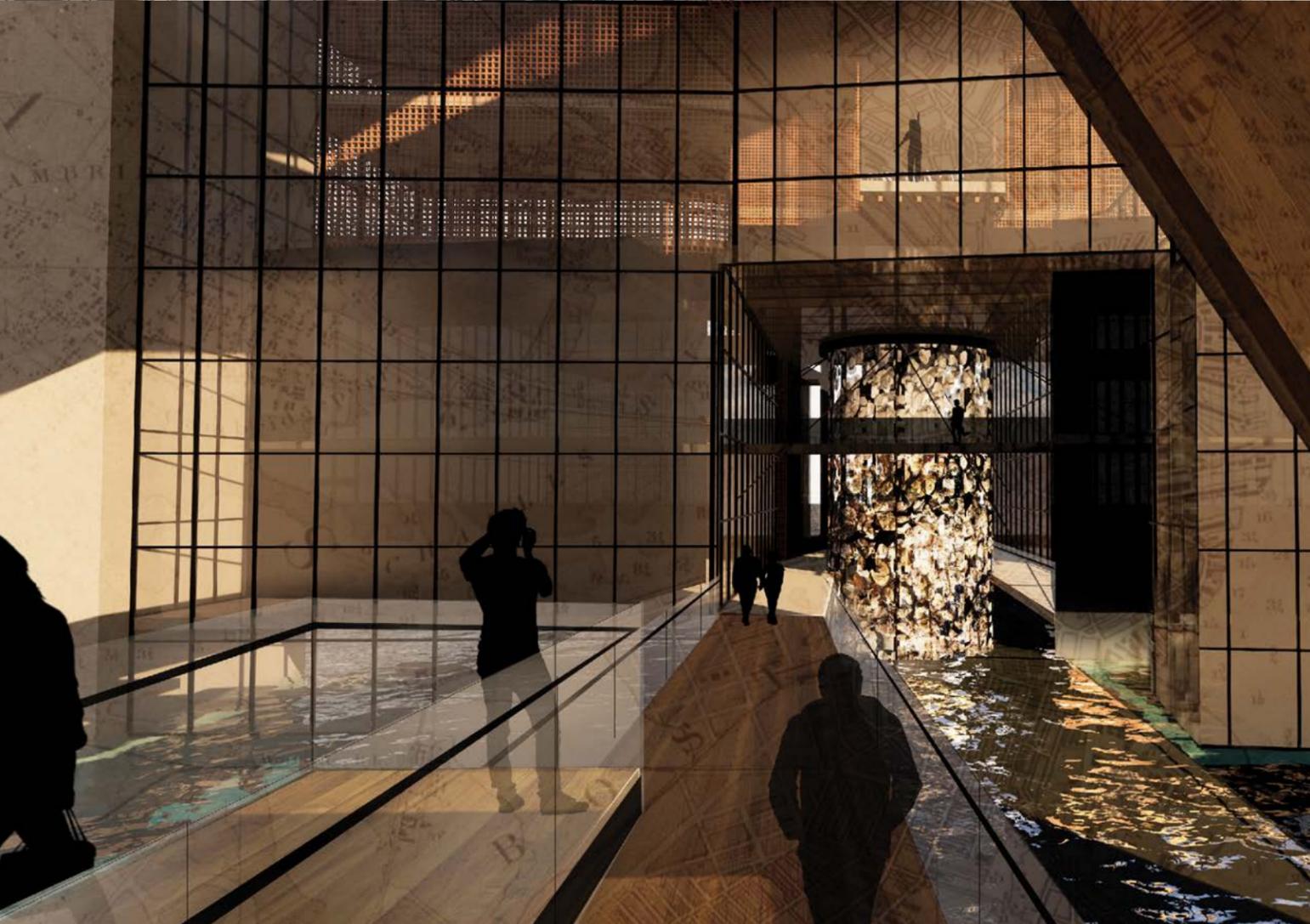
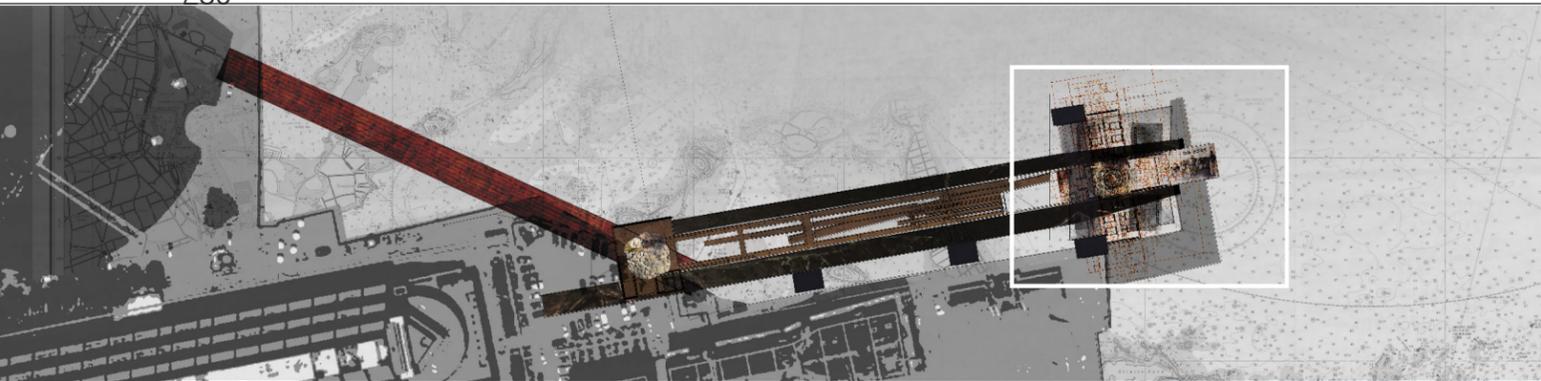
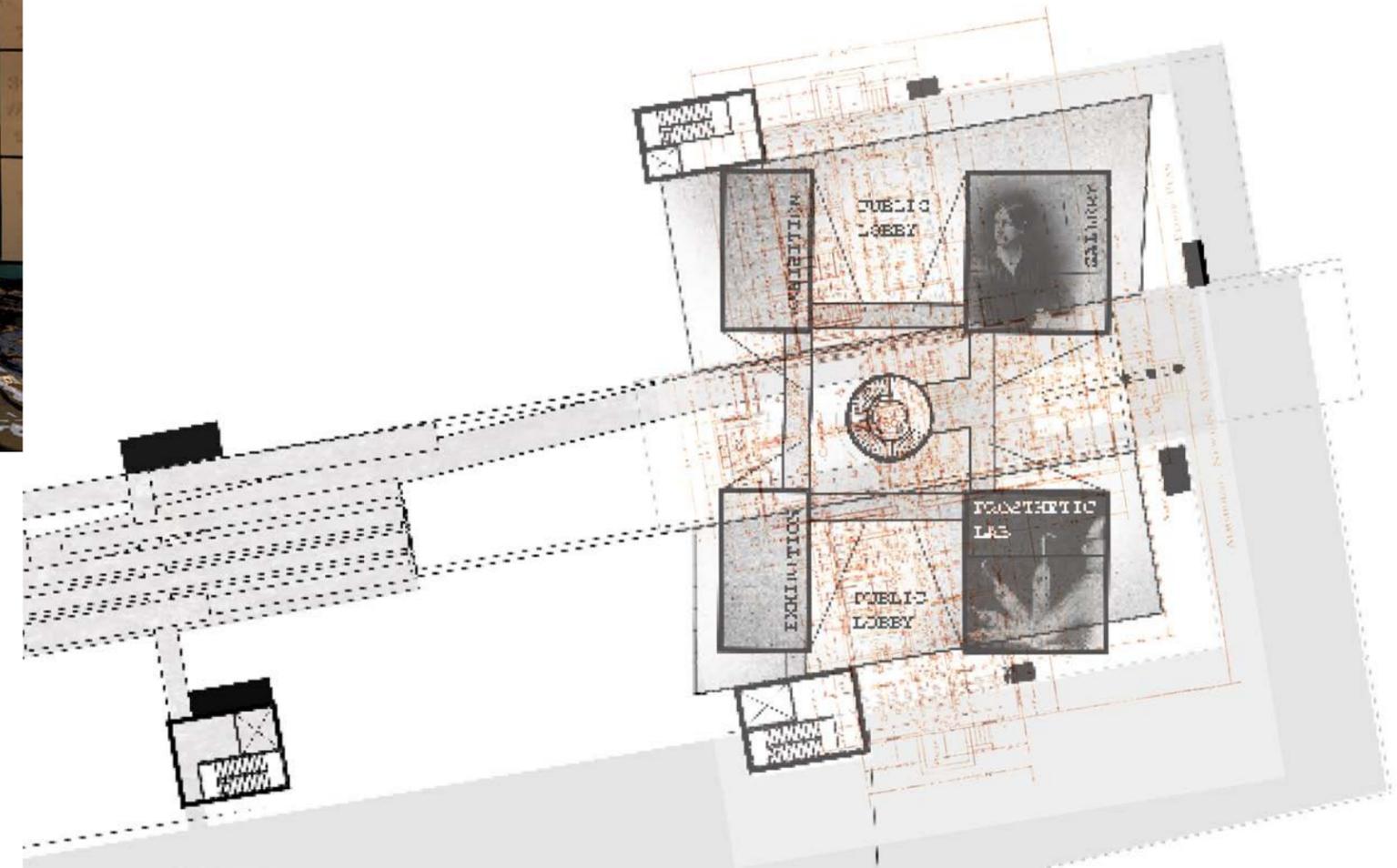


FIGURE 134 | Walkways Approaching the Elbow Joint in the Atrium

The Prosthesis

The user finds themselves in an atrium which carves a void through the building's base. The second elbow joint emerges from the structure above and plunges into the water, interlocking with the phantom. The phantom now serves as the unseen connection between the residual and the prosthesis. The prosthesis forms itself around the plan of the old Newton almshouse. On the north half of the ground floor is a flexible presentation space and gallery- a public platform for disability activism. On the south half is a small prosthetic research lab.

FIGURE 135 | Composite Floor Plan of Lower Floors

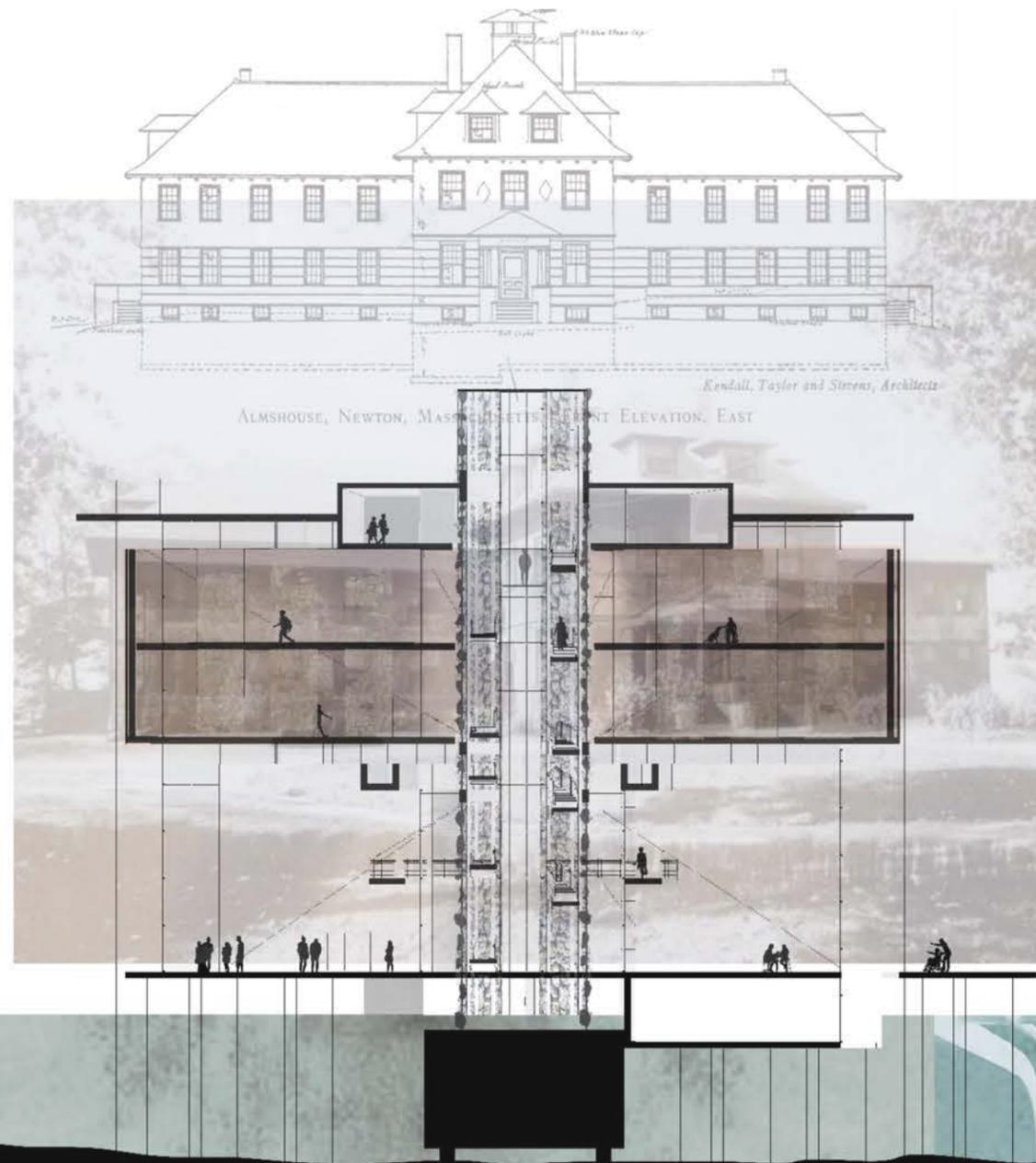


Large windows frame views of the unfamiliar process or limb fabrication to the public plaza at the end of the wharf. Just as the city continues to reimagine itself as a response to its history, the encounter with these underrepresented activities compels the user to reconstruct their own beliefs about disability alongside the city. As the user moves through these spaces, the prosthesis is constructed around them and within them.

FIGURE 136 | Prosthetic Lab which can be Observed from Lobby and Pier



The prosthetic fabrication lab & maker space, amidst these stories provides a new context for the act of making: of designing limbs, furniture, space, society... The presence of an opportunity for innovation among the good, the bad, and the ugly of the past reminds the user that we are not powerless or passive in this aspect of history, but rather are active & responsible, in creating a society that treats all as equally as possible, and as equitably as possible.



Since the prosthesis is fabricated to reflect cultural body image, this reimagination is fueled by a memory: that of the Newton Almshouse. Overhead, a suspended almshouse mass reflects Boston's remembered body image as if from Ramachandran's mirrors. Referencing across a distance to a body that has been lost, it is a phantom to the original Newton Almshouse. Intriguing, the mass draws the user upward.

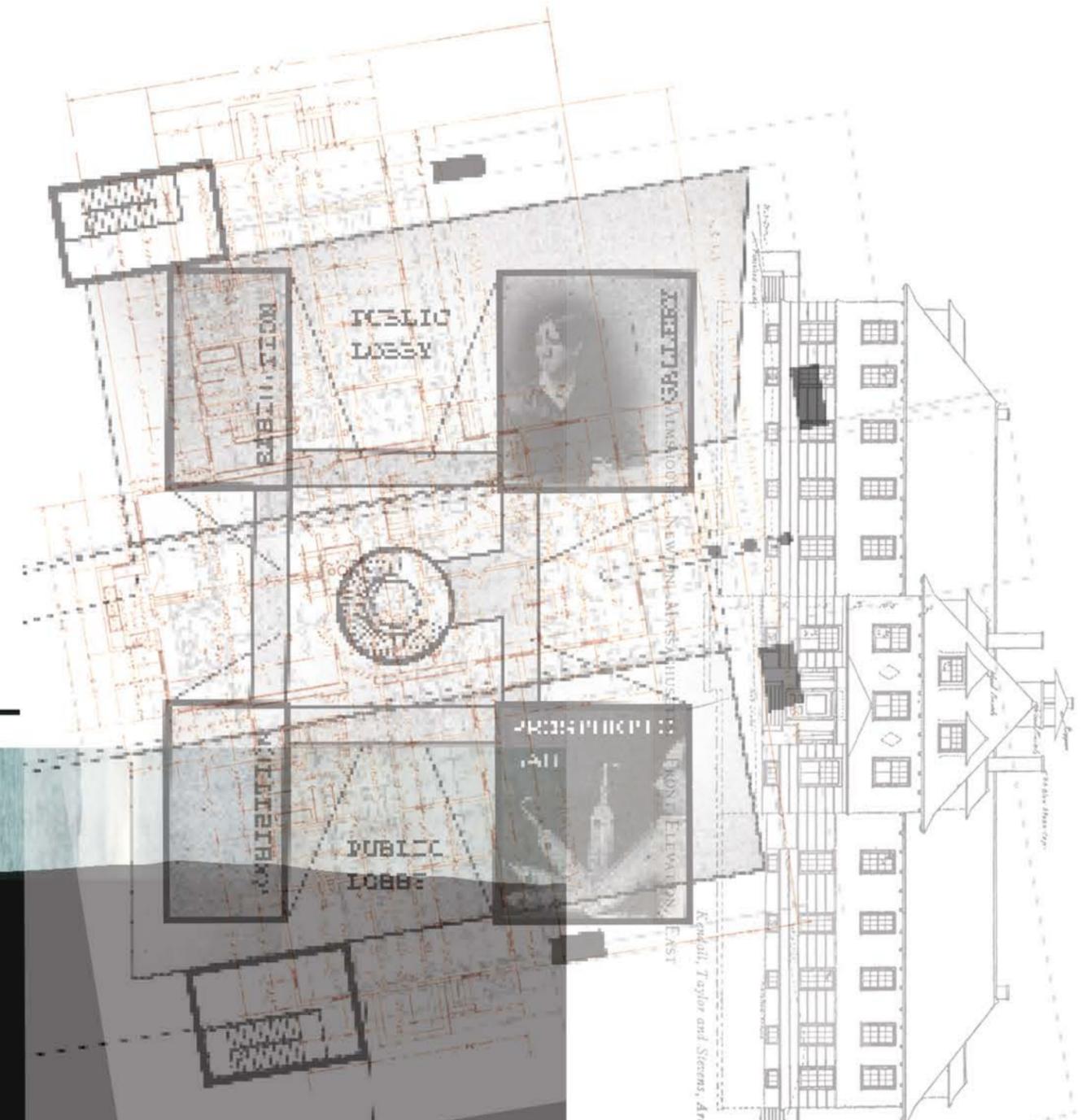
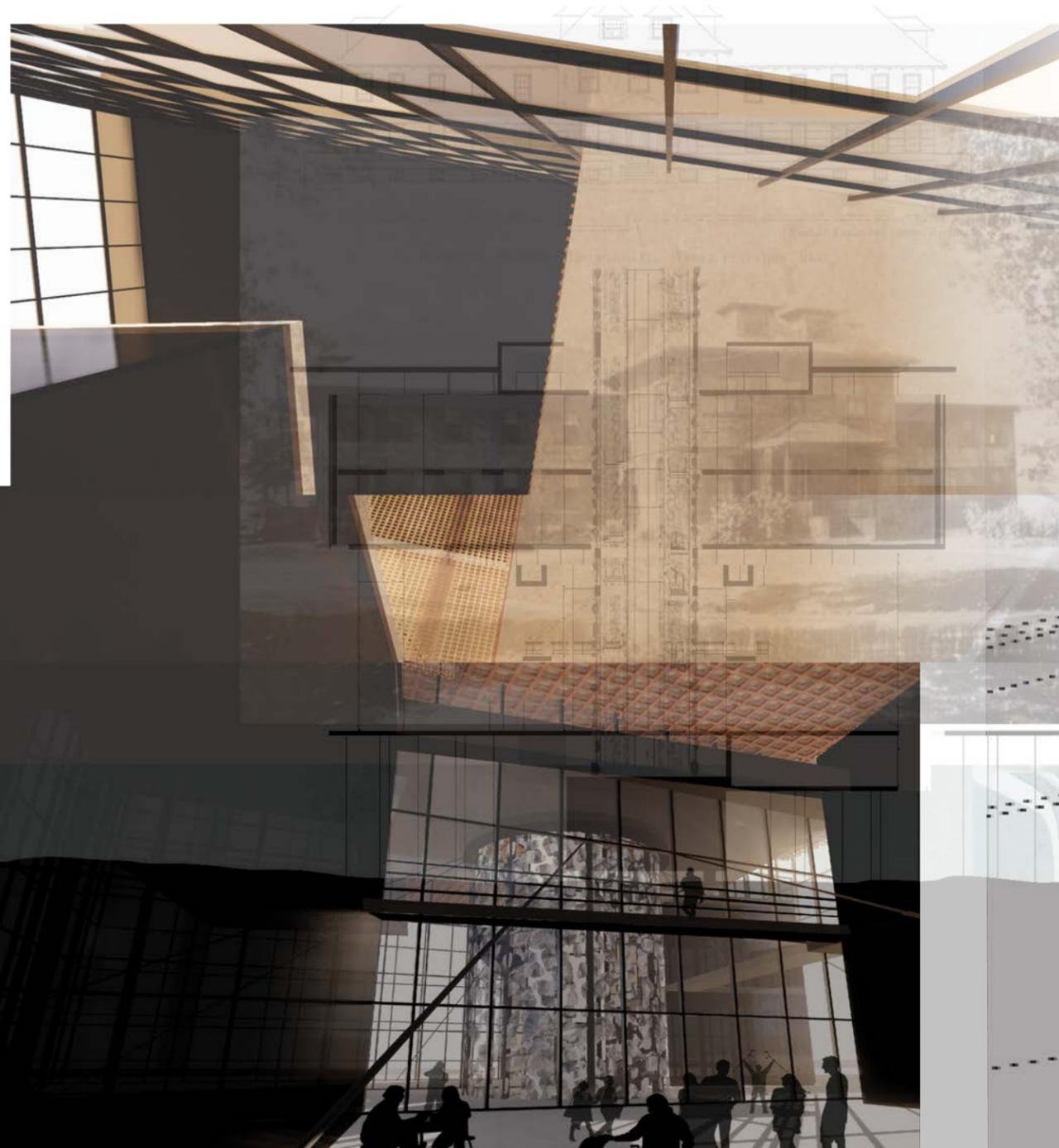


FIGURE 137 | Building Section with Almshouse Overlay

FIGURE 138 | Public Lobby

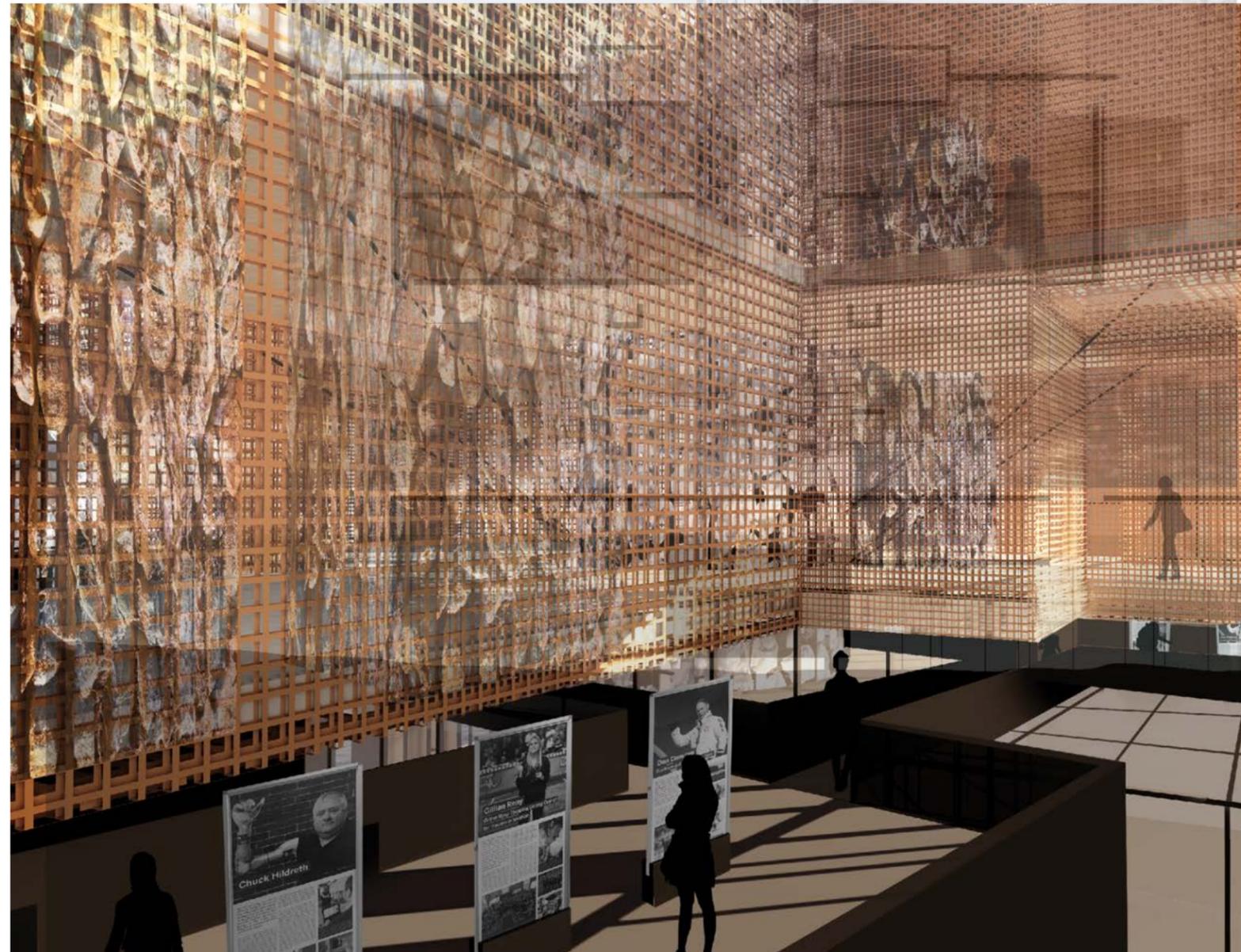
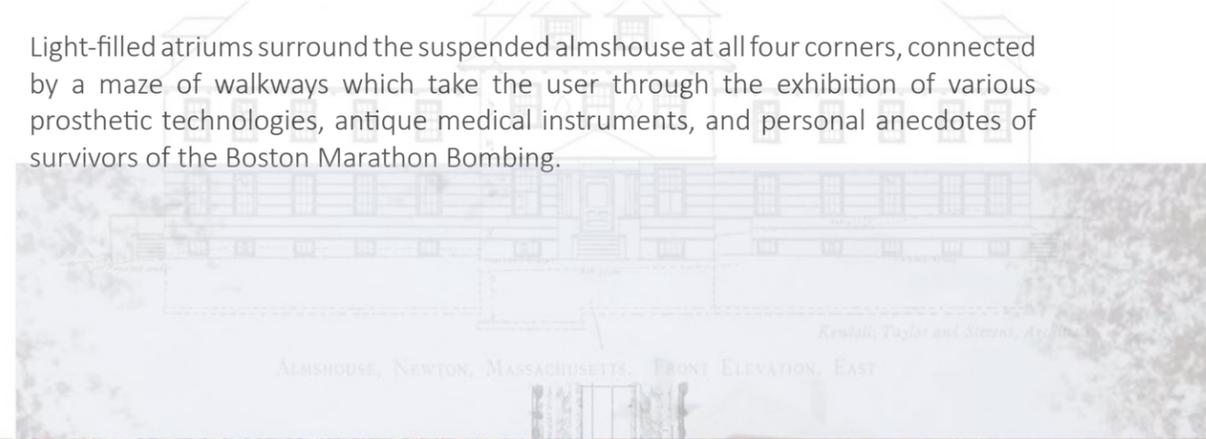
As the user ascends up the spiral stair or glass elevator housed in the second elbow joint, tendons around the joint's perimeter grasp to the edges of the lower and upper masses, giving the sense of an attempt to align them as the user did in the artefact, and as the fragments have been gathered from around the city and wound up here into one exquisite corpse.



Galleries & presentation spaces provide a platform for the thought evoked by the building & similar movements to be shown. Here new stories can be told, new works can be exhibited, and actions can be taken.

FIGURE 139 | Exhibition Halls

Light-filled atriums surround the suspended almshouse at all four corners, connected by a maze of walkways which take the user through the exhibition of various prosthetic technologies, antique medical instruments, and personal anecdotes of survivors of the Boston Marathon Bombing.





A space of tension between new and old is held as the user can walk beneath the misalignment of the almshouse skeleton and its inverse masses below. The user's mind works at putting together these pieces, pulling them into alignment and snapping them into place.

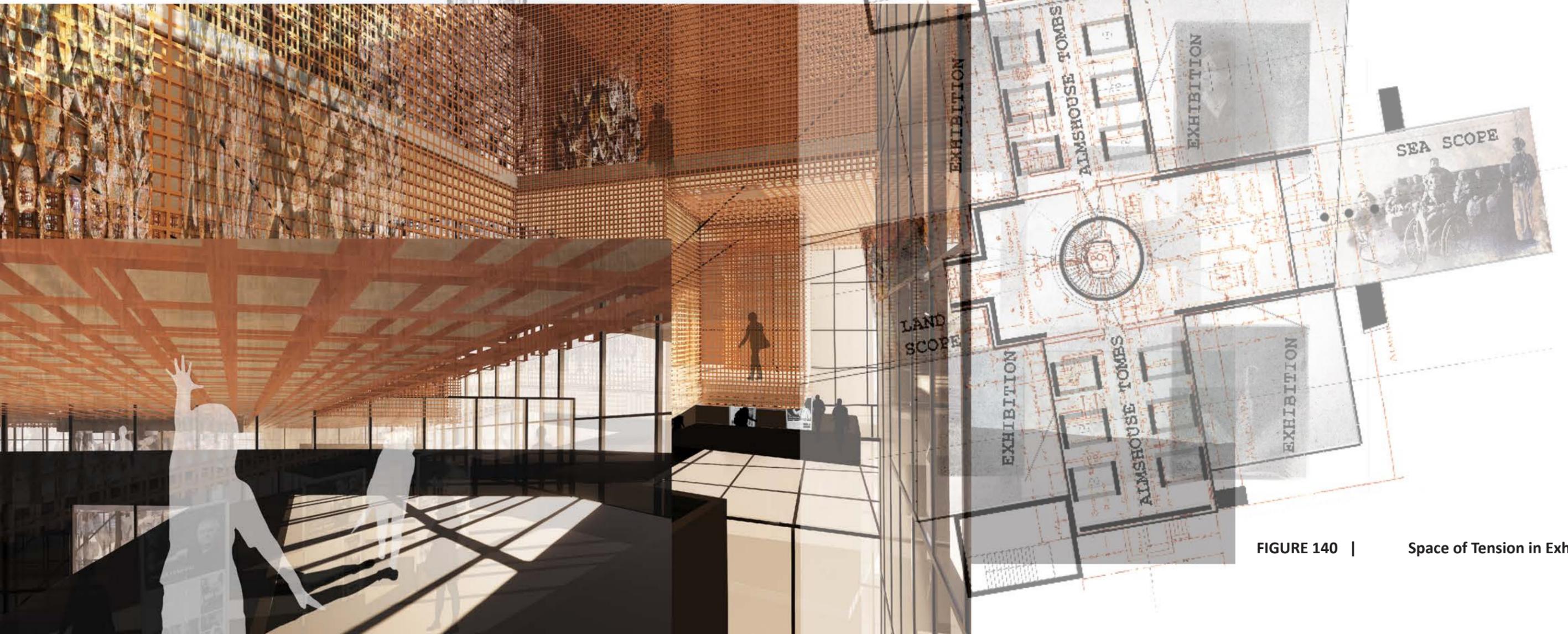


FIGURE 140 | Space of Tension in Exhibition Halls



FIGURE 141 | Weathered Spolia Constrasts New Corten Material

Returning to the elbow joint, the user ascends to occupy the trace of the Newton almshouse. Taking the form of the almshouse which is no longer intact, a corten skeleton becomes a modern-day prosthesis to the phantom that is the Newton Almshouse. Hardly perceivable until this point in the journey, the skeleton's prison-like body encases the spolia of Boston's almshouses beneath its skin, layering the remembered body image of history beneath contemporary, manufactured flesh. The ruins in the shell of the old Newton almshouse evoke the memory of those who lived in almshouses everywhere, a restorative fragment.

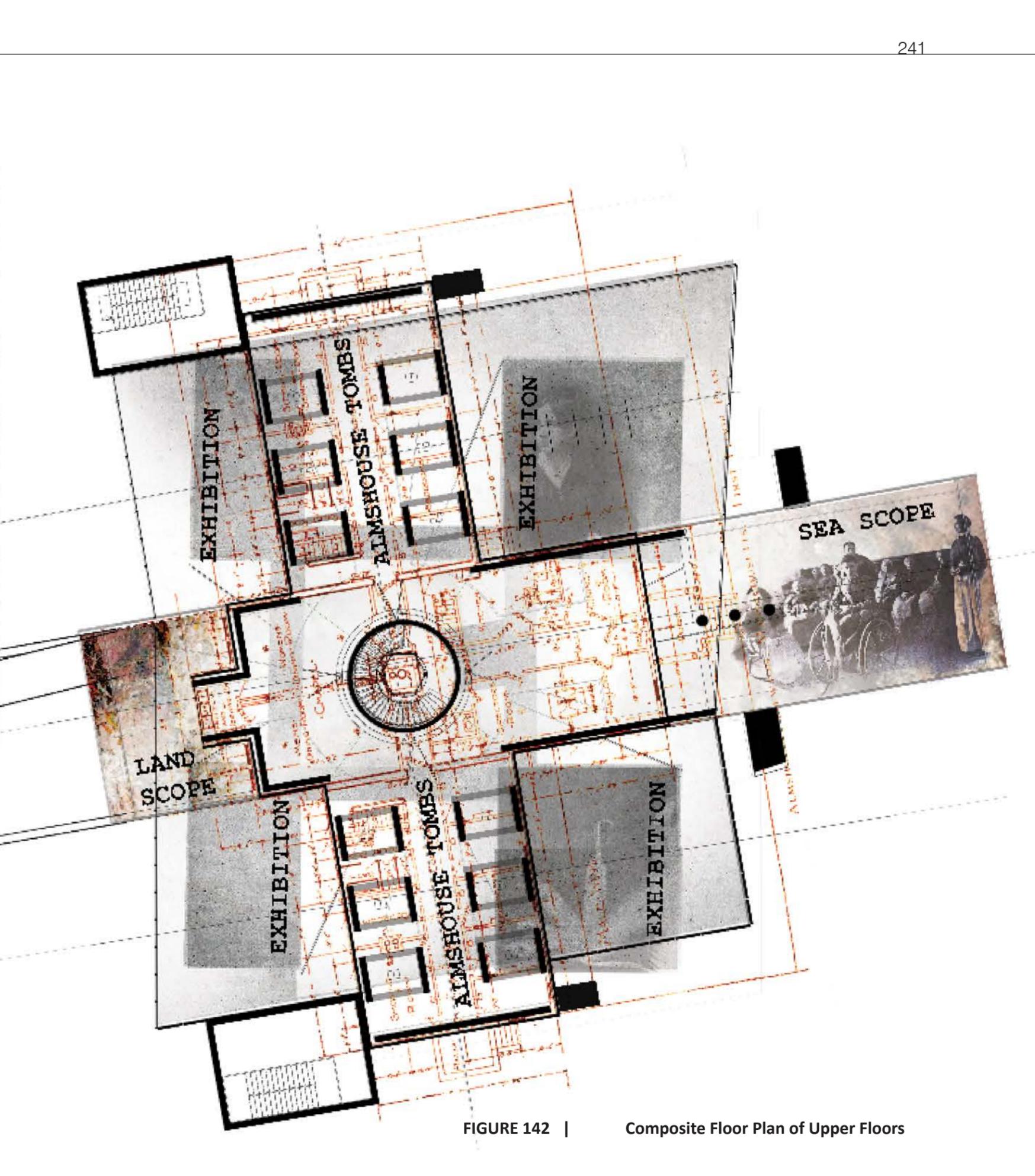
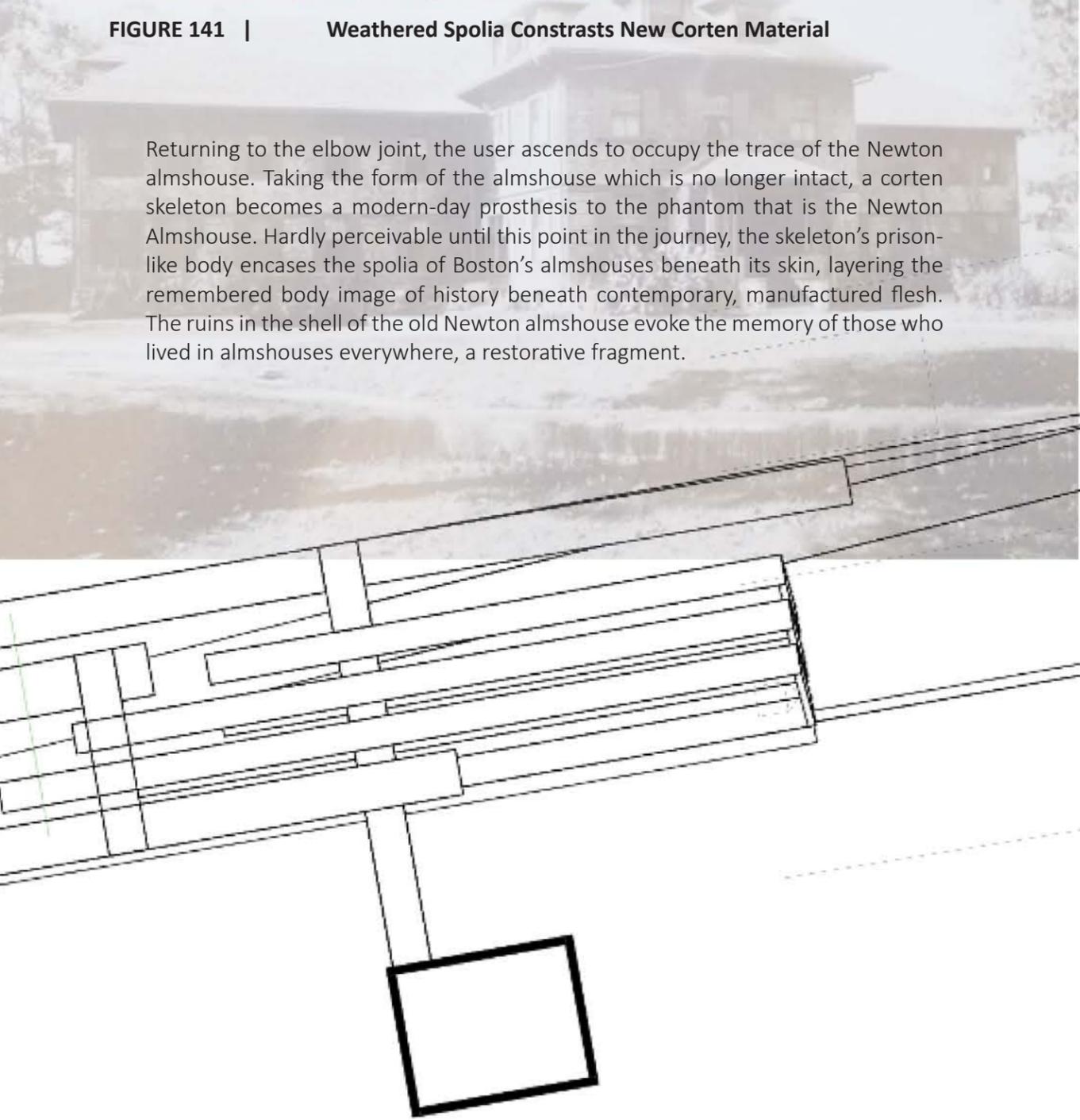


FIGURE 142 | Composite Floor Plan of Upper Floors

The fragments of what would follow the almshouses presented within & projected upon the memories of the past which the almshouse fragments represent. History wraps the visitor, an experience outside of time, and one which has hints of recognition & alienation simultaneously. Ruins are reconciled to the future, troped from their purpose into a canvas for evolution. This is not without a somber undertone, though.



Spolia of Boston's almshouses are reassembled into shafts along what were the central corridors of the Newton Almshouse. Reminiscent of the small sleeping rooms that once lined the almshouse halls, the ruins have become a mausoleum bearing the tombs of the architectural bodies that history had previously forgotten. Reimagined here, they are given new life.



When I stood on what remained of the Almshouse foundation, I felt a pulse of energy run through my body. I felt, for the first time, close. I was close, for a moment, to the people who lived here, and in Almshouses everywhere. I felt that little feeling that you get from heaven when someone you lost is thinking of you. I felt a small bridge, for just a small moment, to the eternal souls of these people. I felt that they were watching me from above, and that they were glad



FIGURE 144 | Section Cut Showing Projections upon Almshouse Spolia

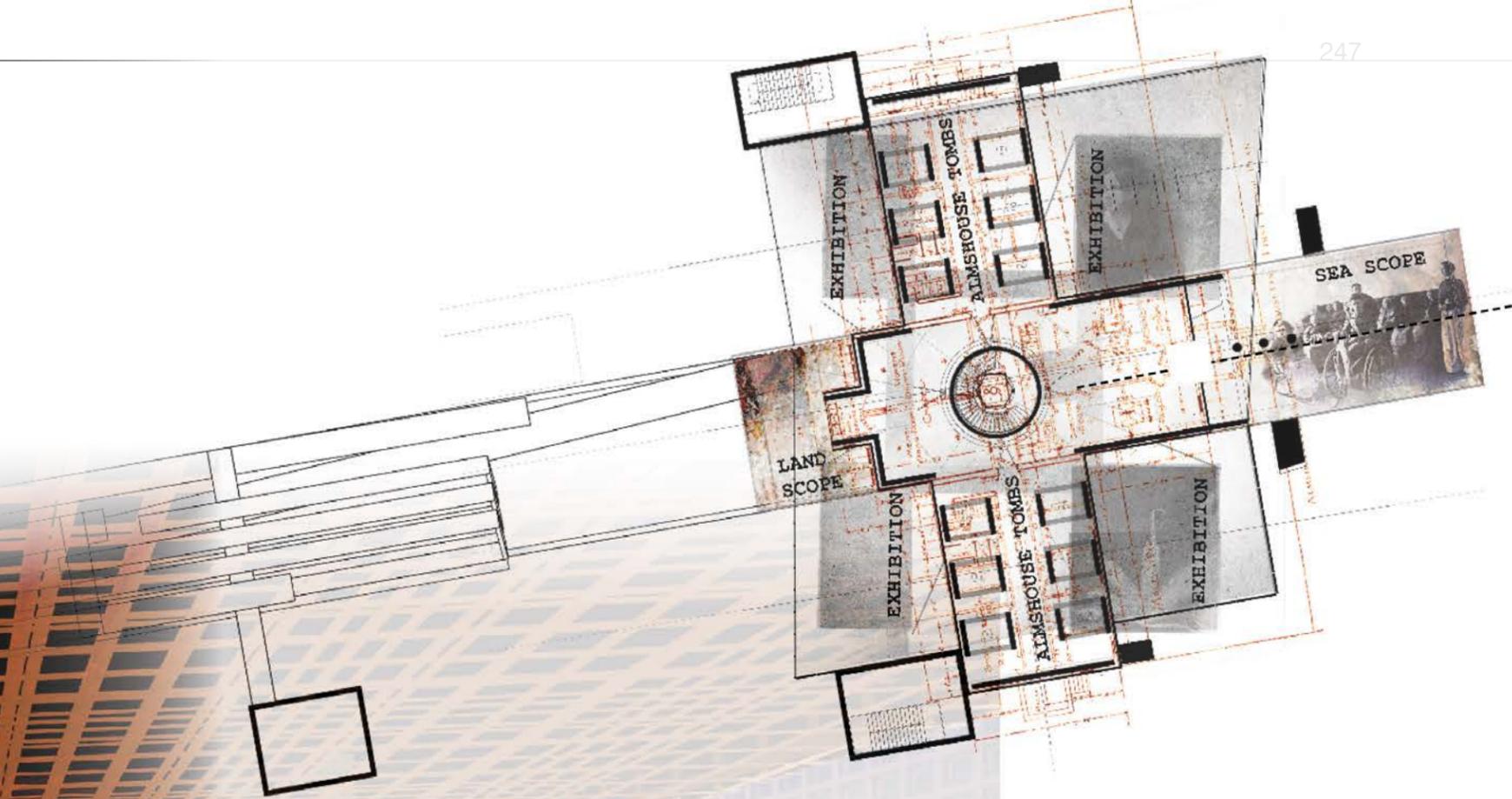
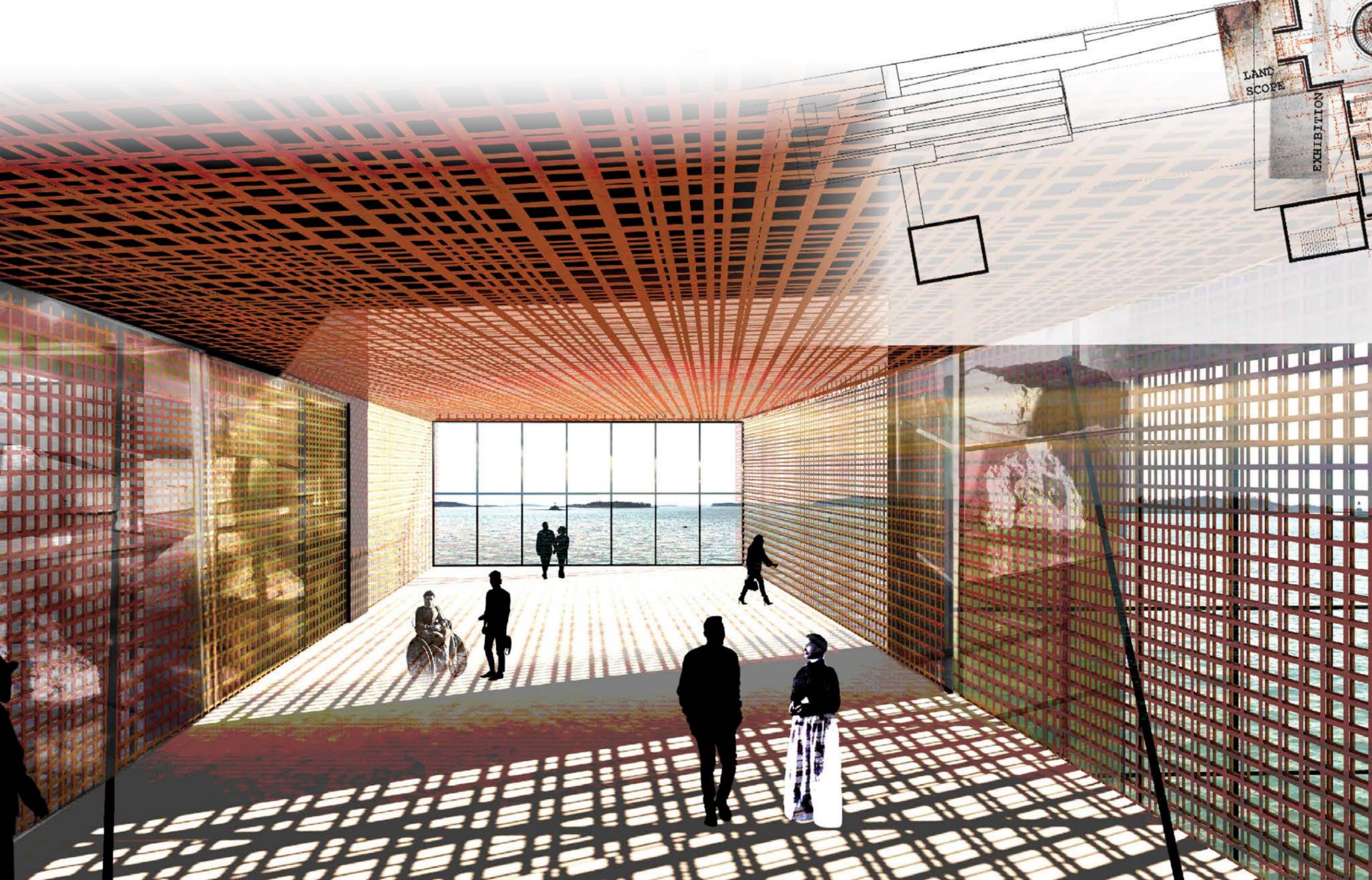
"I feel myself looked at by the things, my activity is equally passivity - which is... a sense of narcissism: not to see the outside, as others see it, the contour of a body one inhabits, but especially to be seen by the outside, to exist within it, to emigrate into it, to be seduced, captivated, alienated by the phantom, so that the seer and the visible reciprocate one another and we no longer know which sees and which is seen."



FIGURE 145 | Projections upon Almshouse Spolia

Space to traverse beneath these dark cavities reveals images of Boston's almshouses to be projected upon the ruins, echoing the distorted images of the artefact and meshing the residual, the phantom, and the prosthesis into one moment. As visitors move around the projector mounted upward, their shadows are also cast into the collage of history which they have just assembled, blurring the boundary between past and present, self and other. On the top floor of the almshouse, visitors navigate "a small bridge" through a forest of ruins which the visitor can touch, looking down on those below.

FIGURE 146 | Sea Scope Looks to Harbor Islands



Sea Scope

An axis extends the central corridor of the Newton Almshouse to become a vast, empty scope for looking out. Toward the harbor, the scope points to the home of the harbor almshouses: the islands that appear as mere specks on the horizon. As the visitor encounters the expanse of this distance once imposed between the city and the city's disabled, one can only imagine the way that water could distort one's perception of another.

FIGURE 147 | Land Scope Looks to City and Timeline



Land Scope

Toward the city, the scope points to the almshouses far inland and frames a view of the timeline which has just been navigated. As one gazes out upon the events they have traversed to reach this point, history now frames not only the present, but also the future - a Janus-like encounter. Across a distance, one sees oneself in another: in those that have preceded them, those who navigate history alongside them, and those who now follow in their path. This is a historical experience of the phantom like that created in the artefact.

FIGURE 148 | Collage of Boston's Fragments Create the Exquisite Corpse of Culture



The Exquisite Corpse

The user at last sees the exquisite corpse and recognizes their own fragmented image within this “other” body: a body whose bones are history and whose flesh is fiction, bound together by tendons of imagination. A body whose strength is in evolution, whose nerves refuse to stay within their boundaries, and whose hand never stops reaching for more. The body who is culture herself, natural and manmade, ever old and ever new, of which the user themselves takes part in fabricating.



The exquisite corpse becomes a captivating presence through which its visitors can reconstruct individual perceptions of disability by participating in history, bringing this experience back into the world as builders of a cultural body, and as architects of a prosthetic world.

FIGURE 149 | Land Scope Creates a Moment of Reflection

FINAL PRESENTATION

Because of the global Covid-19 pandemic, all campus activities and classes were moved online following spring break. This meant that about a quarter of the contents in this book were ideas formulated through video chats with classmates and Stephen, and this also meant that our presentations took place online. As much as I was sad that I didn't get to present on the 5th floor as the finale of my architectural education, I was happy that this meant more family and friends were able to tune in than would have been able to attend in person. I was also honored to be selected as a finalist for the McKenzie Award for the Best Thesis.

NDSU suspends in-person classes due to Coronavirus



COVID-19 UPDATES

See current information about [campus preparedness and response](#).



Congratulations Class of 2020

BOSTON MUSEUM OF DISABILITY AND PROSTHESES

How does architecture approach disability? Might this play a role in forming our cultural beliefs? Increasingly specialized attitudes of the modern era have led us to approach disability with code-driven formulas as an afterthought, often displaying these "other" bodies to the margins of cultural life rather than integrating differences. Can architecture itself be seen as a prosthetic extension of our shared cultural body? How can it engage bodies of all abilities in connections between environment, self, and others? As Federica Goffi has suggested, architecture can be an inventive medium for participating in history, and this thesis explores cultural memory to advance cultural perception of bodies labeled as "other."

Boston's Museum of Disability History and Prostheses assembles historical fragments of the city's untold stories along with spoils of its crumbling almshouses into an exquisite corpse on Boston Harbor. Acting as an extension of the user's body, the museum itself becomes a prosthesis for the user to reimagine one's own body image through reinterpretation of the well-known condition of phantom pain. A cubistic encounter of restorative fragments reconstructs conceptions of disability in architecture and culture, reframing a reality for the user to imagine new ways of perceiving self and others through embodied experience.



FIGURE 151 | Thesis Boards

THESIS APPENDIX

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Personal Identification

ZOE A. RANDAZZO

North Dakota State University Libraries Addendum

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Previous Studio Experience

SECOND YEAR 2016-2017

Fall: Darryl Booker
Tea House & Garden | Moorhead, MN
A space for tea ceremonies in a riverside park

Spring: Cindy Urness
Small Dwelling | Cripple Creek, CO
A passive, mountainside home
Sound House | Transportable
A hand-crafted, noisy birdhouse for a woodpecker

THIRD YEAR 2017-2018

Fall: Regin Schwaen
Harnish Cabin | Nevis, MN
A small cabin for the Harnish family on East Crooked Lake
Partner: Haley Holzwarth

Nekoma Rehabilitation Center | Nekoma, ND
Opioid recovery center at former Stanley R. Mickelson Safeguard Complex
Partners: John DiGiorno & Paige Omberg

Spring: Mike Christensen
IIT School of Design | Chicago, IL
A semester-long project where projects were traded with classmates each month, resulting in a total of four designs for the IIT School of Design

FOURTH YEAR 2018-2019

Fall: Bakr Aly Ahmed
Prisma Miami | Miami, FL
A vibrant, kaleidoscope-inspired high-rise in Miami

Spring: Paul Gleye
Vergote Basin Urban Complex | Brussels, Belgium
An urban complex on the Vergote Basin in Brussels, Belgium

FIFTH YEAR 2019-2020

Thesis Advisor: Stephen Wischer
Architecture as Prosthesis: A Cultural Reimagination of Disability on Boston Harbor

Undergraduate Work

Graduate Work