

The Design and Fabrication of the Bleachery Heritage Project

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ABSTRACT: This paper outlines the design and fabrication of a cultural heritage landscape project located in Rock Hill, South Carolina. The project involves the transformation of an existing median into a commemorative linear park, located on the former site of Rock Hill Printing and Finishing Company. Through an overview of the design methods and processes, this paper explores the importance of combined knowledge and methods from generally siloed topics of community engagement, construction technology, and digital fabrication.

KEYWORDS: cultural heritage, landscape, digital fabrication, community engagement, interaction design

1.0 PROJECT OVERVIEW

The Bleachery Heritage Plaza is located on the site of the former Rock Hill Printing and Finishing Company, known locally as “The Bleachery”, which was once the largest textile printing and finishing company in the world (Figure 1). The project provides a living memorial: to the Bleachery, its employees, and the sense of community that surrounded it, while also forming a new urban room for the city, a plaza that becomes “a monument to everyday life within a memory landscape” (Spencer 2020). The site is located at the center of University Center, a 23-acre mixed-use development.

The three goals for the project were driven by the community and the client, Rock Hill Economic and Urban Development, a local non-profit organization representing community interests of the city while promoting jobs and supporting urban growth. The first design objective for the project was to create a commemorative place that honors and fosters an appreciation for the history of the site. A second goal was to incorporate preserved historic roller textile printing machine parts and the original archway entrance from the Bleachery in the project. Lastly, a third design objective was to enhance the visitor experience by inspiring a deeper sense of place and community.



Figure 1: Aerial view photograph of a median transformed into the Bleachery Heritage Plaza. Source: (Dickey 2023)

2.0 COMMUNITY, HISTORY, AND PLACE

To address these objectives, during the first three months of the project, we, the design team, conducted community engagement workshops to understand more about the residents, site history, and place. The first session involved storytelling workshops where we interviewed 57 community members, gathering their stories which were later compiled as a commemorative set of audio and video recordings linked to QR codes on site.

During these interviews, we heard stories about employment, about how the Bleachery at its height employed one-third of the population of Rock Hill. We heard stories about the community, and about the many benefits the Bleachery provided for its employees and their families, including Christmas parties and gifts, park events and picnics, and a textile league baseball team. We heard stories about families. Jim Gordon told us of how his father, who started working at the Bleachery in 1932, worked there for 55 years, which was his only job other than when he went into service during World War II. Jim explained, when talking about his sister Susan, “People used to think she had the largest shoe collection because my father would bring home pieces of fabric from the Bleachery and Susan would take the pieces of cloth and glue them to her shoes to match her dresses.”

Also, like many stories of humanity throughout history, the stories shared involved celebrations, milestones, work, and home, but we also heard incredible stories of brave people willing to take personal risks. Willie James Ellison shared with us the story of his father Reverend Dr. Leroy Ellison who started working at the Bleachery in 1954. After the federal Equal Employment Act (1966) was passed, he told of how his father rallied 300 workers in 1972 to come together with him in support of filing a lawsuit, fighting for equal pay for women and black employees. Willie described the horrific threats and backlash that followed. He also described the weighted undertaking of going against the Bleachery at the time, exclaiming, “It would be like one of Amazon's employees today filing a lawsuit against them.” Rev. Ellison later won the federal court case hearing in 1975 and continued to fight inequities as an employee until 1980. When discussing the plans for this project, Willie emphasized, “You have the opportunity to display to the world we existed at that time and that we made changes, not for ourselves, ... but like my father,” he said, “he didn’t do anything for himself but was doing it for those who would come after him.”

These stories influenced and shaped the design in several ways. For one, they provided the team with an understanding of the site and community by helping shape a design agenda that would not only commemorate the residents and their stories but also provide community-informed ideas of public space that is shared and realized through new construction. Additionally, the project became grounded in not just preserving history but also striving to provide an architecture where the lessons from those histories could guide the future of the place. Lastly, the video and audio recordings of stories were later referenced on QR codes and included on five historic interpretive signs on-site (Figure 2).

With the immense of content gathered, we selected and curated the content for the signage based on the aspirations portrayed by the community and the following shared goals outlined in the city’s interpretive foundations plan: (1) Visitors will report feeling interested in learning more about the Rock Hill community and their histories as a result of their interpretive experience at University center (2) Visitors will feel empowered to face their challenges with personal strength (3) Visitors will know that Rock Hill was a focal point during the Civil Rights movement, and The Bleachery featured prominently in the evolution of the African-American experience in Rock Hill (4) Visitors will know that Rock Hill has been and continues to be a community of great diversity (5) Visitors will feel a sense of being united for a common purpose while at the University Center (Conservation by Design 2018).



Figure 2: Interpretive signage with QR codes linking to an audio and video record of stories gathered from community members during community engagement workshops. Source: (Dickey 2023)



Figure 3: View through the textile roller machine part looking at a rocking chair. Source: (Dickey 2023)



Figure 4: View of textile roller printing machine part located in the Bleachery Heritage Plaza Source: (Dickey 2005)

3.0 SITE, LANDSCAPE, AND URBAN DESIGN

Working within the objective of creating a commemorative place and within the client’s constraints and confinements of a traffic median site, the design team proposed the transformation of the median into a commemorative plaza and sculpture garden. The design weaves the landscape with historic roller printing machine parts, rocking chairs resembling those machines, and a former Bleachery building archway standing anew as a gateway entrance to shared public space (Figure 3 and 4).

Budgetary constraints along with the ambitions for the project lead to prioritizing the transformation of the site into a plaza with a landscape buffer that separates pedestrians from vehicular traffic. These landscape and urban design strategies for the project learn from the median site conditions of La Condesa along Amsterdam Avenue in Mexico City and the High Line in New York City, using trees and tall grasses as a spatial divider to define zones and boundaries between circulation and areas for street furniture and historic objects (Figure 5).

A hexagonal planar grid, divided into six triangular quadrants, provides a means for ordering space through the delineation of hard and softscape elements and the division of slow paths with undulating spaces for objects and furniture. Additionally, the triangular quadrants within the hexagon grid inform a pattern logic for the stamped pavement design (Figure 6). The team designed and fabricated custom triangular concrete stamps, using patterns printed on fabric at the Bleachery. These stamped patterns run along the pathway of the plaza, an idea conceived by community members during an ideation community engagement workshop. The pattern design for these stamps was later developed by a local Rock Hill high school art class through a lesson on pattern and tessellation taught by the design team. The production of the stamps involved CNC-milled foam molds produced from a digital 3D model, coated with wax protectant then used to cast custom urethane rubber concrete stamps. These stamps were later delivered on-site to the contractor, allowing for a range of customization within typical means and methods of construction.



Figure 5: Textile machine parts, weathering steel signage, landscape buffer, and rocking chair in Bleachery Heritage Plaza. Source: (Dickey 2023)



Figure 6: The team designed and fabricated custom concrete stamps informed by patterns printed on fabric at the Bleachery. These were used to stamp patterns along the pathway of the plaza. Source: (Dickey 2023)

4.0 STREET FURNITURE AND FABRICATION

While the historic elements and signage provide reference to the history, and the site design provides delineation of space for an outdoor room, the incorporation of interactive street furniture invites visitors to enter, playfully engage, and participate in the site. The community in ideation workshops expressed a reoccurring desire for interactive elements on the site so visitors might actively engage with its history. Some of such requests included ideas for outdoor kiosks and screens; however, working within the budget and towards the goals, the design team prioritized the landscape design of the plaza and developed conditions for interactive elements with the design of the street furniture. The multi-occupant rocking chairs are an invitation for visitors to develop and contribute their own stories to the collective experience of Rock Hill by actively and publicly engaging in public space (Figure 7).



Figure 7: Rocking chair with textile printing machine in the background. The design of the street furniture extracts visual and kinetic attributes from the neighboring machine parts. Source: (Dickey 2023)

Community conversations for the rocker design explored how the chairs could extract visual and kinetic attributes from the neighboring machine parts and invite users to interact with each other and the site. Likewise referencing the region of the project, these discussions drew from the Southern United States cultural canon of rockers arranged on traditional porches and patios, like those of the surrounding historic mill homes nearby, converting the idea of a front porch into a shared space and public threshold to the surrounding new development. Galen Cranz in her book, *The Chair: Rethinking Culture, Body, and Design*, references the rocking chair history when writing, “The rocker is responsive to the body first and status second, [...] The rocking chair is an American invention. An ingenious inventor or perhaps more than one, attached rockers to chair legs around 1760 [...] So we must assume that rocking chairs were a vernacular taste, not an elite one. Yet the rocker became acceptable to those who could afford parlors, probably because of its familiar materials and homegrown connotations” (Cranz 2000, 49). Such familiarity and opportunities for interactivity excited the client along with the visual language the chairs shared with surrounding historical elements.

When developing the design, the team drew from precedents including *Swing Time* by Howler + Yoon in Boston, *Magis Spun Chairs* by Herman Miller along *Magnificent Mile* in Denver, and the Chicago Biennial installation titled, *The End of Sitting* by RAAAF. While the *Swing Time* and *Spun Chairs* explore playful kinetic chairs in public spaces, the RAAAF project looks at postures and positions of the body as a means for carving profiles within the furniture (RAAAF 2015). Also, the development of the chairs explored the relationship between form and performance referencing the external geometry based on the rocking motion and the internal form based on the form of the body. The design team studied the external form through a series of iterative scale 3D printed and laser cut models and later a full-scale prototype to test geometry and motion. The design of the internal form of the rocker involved the study of the body at various positions and postures. Profile curves based on a relaxed body position of multiple occupant bodies provide a carved opening for sitting within the thickened face of the rocker.

The fabrication involved a wood frame clad with weathering steel to blend with the surrounding rusted elements in the landscape. The team developed an approach for fabrication by using high-grade plywood CNC milled and layered for the front and back faces. These two faces were then supported with an internal wood framing. The weathering steel cladding involved precision laser-cut panels. The side steel panels were machine-rolled with a bending radius to match the curvature of the frame. To prevent any case of the rockers tipping, the design team developed an anchor system that would allow for motion but prevent overturning. The anchor works like a pin-in-slot mechanism, with a linear steel pipe acting as the pin and the slot cut from two parallel faces of the steel anchor box, with its opening shape informed by the path of motion (Figure 8-9). The slots are laser cut out of steel plates and then stitch-welded together to form an anchor box that is j-bolted to the concrete slab on site, while the pipe is connected and fitted within the internal frame of the rocker allowing it to dynamically rock between the slot openings. Lastly, the weathering steel cladding anchors to all sides of the rocker covering the wood frame (Figure 10).



Figure 8: Prototype of rocker and anchor box for testing the prevention of overturning while allowing for rocking motion. Source: (Dickey 2023)



Figure 9: View of rocker anchor box with pin and slot to allow for movement. Source: (Dickey 2023)



Figure 10: Rocking chair in progress fabrication photograph of wood framing and steel cladding. Source: (Dickey 2023)

CONCLUSION

In her book, “Belonging: A Culture of Place,” Bell Hooks writes:

We are born and have our being in a place of memory. We chart our lives by everything we remember from the mundane moment to the majestic. We know ourselves through the art and act of remembering [...] Paying tribute to the past acts as a resource that can serve as a foundation for us to renew our commitment to the present” (Hooks 2019, 9).

This idea of looking backward to improve upon ways of moving forward has been at the core of the Bleachery Heritage Project since we were first shortlisted to work on it in 2019. We started the project with ideas of designing a place, but we soon realized it was less about place making and more about place expressing. So, as an act of design for expression, we gathered the stories of the people who have stood, gathered, and worked on the ground where the project sits today.

Speaking with members of the community, we learned there is evidence of the many ways the people of Rock Hill have adapted to changing times. Whether in the story of Rev. Ellison working to develop the Bleachery into a place that further respected human rights or in the story of the Rock Hill Buggy Company (also formerly located on the site), which reinvented itself by shifting from production of horse-drawn buggies to the production of Anderson motor cars or in the story of today, a modern re-imagining of a historic textile site. It is clear in all these cases that the social fabric of Rock Hill demonstrates resilience and an unbreakable spirit in times of challenge and change.

At the Bleachery Heritage Plaza, the act of construction is a communal act of un-forgetting. At its best, the plaza tries to serve its constituents, while telling stories of the past, inviting visitors to enter and experience them, to slow down and notice what once was (Figure 11). The excerpt below is from our dedication speech for the Bleachery Heritage Plaza at the opening ceremony:

When entering the plaza, we ask you to take a moment of pause in your movement, to find a stillness, and to notice....

Notice the textile patterns stamped on the ground beneath your feet
 Notice the roller machine parts that employees once ran to produce miles and miles of printed cloth
 Notice the relaxed position of your body rocking in sculptural chairs resembling those machines
 Notice the former bleachery building archway standing anew as a gateway entrance to shared public space
 Notice the signs, scan their QR codes, and listen to the stories.

As you notice and allow for a pause in movement, there in the stillness, you'll find place
 A place inspired by a deeper sense of community
 A place of unforgetting
 A place providing a renewed commitment to the present
 A place to belong.

Damaris Hollingsworth in “Places and Spaces and the Behavior They Create” explains that architecture can cause interactions that promote belonging. She provocatively states, “When we find belonging, we find home.” Such concepts are often disparaged across our discipline and the connotation of “place” is frequently misappropriated (Hollingsworth 2018). Addressing such topics requires a rigorous engagement and understanding of people. Engaging people and addressing their wants and needs is a process far different from scientific methods and approaches to design, but instead requires “other ways of knowing” engaging in subjectivity, emotion, an often-messy exploration into communal identity, and a not-so-straightforward digging into what constitutes belonging (Frank 2007, 304).



Figure 11: Bleachery Heritage Plaza with rocking chairs, landscape buffer, signage, and historic machine parts. Source: (Dickey 2005)

However, this quest for a public architecture that supports communal identity requires overlapping studies of the social, artistic, and technical conditions of our discipline. Michael Murphey of MASS Design Group similarly articulates the common struggle in architectural discourse and practice to isolate innovative or artistic ventures from social agendas. This grappling is evident in Murphy's statements about letting the clients know they deserve both justice and beauty (Murphey 2019, 30). He explains that there is a point to being an architect in a room full of people with a social agenda. Here, Murphey describes the role of the architect, such as knowledge of design, materials, space, form, fabrication, and construction, which all help to facilitate conditions that improve the well-being of people.

In practice, forms of design knowledge are not contained in silos of community engagement, cultural heritage, building technology, responsive environments, digital fabrication, and so forth, as we see in academia. Rather design practice involves a holistic approach incorporating multiple formats of design knowledge. Perhaps this paper acts as a reminder of the potential embedded within the convergence of these specialties and asks for a resurgence of overlapping forms of thought recognized as academic contributions. When diverse teams focus on applying design knowledge to engage the community and explore applications for new technologies, only then are novel designs that address people and place made possible.

ACKNOWLEDGEMENTS

This project was produced by Studio Dickeya practice that uniquely involves students and professionals collaborating on the design and production of creative work. The practice operates under the following goals: (1) To gain inspiration from concepts informed by cultural, technological, and social dimensions and the belief that art and design can create meaningful experiences for a large and diverse audience (2) To produce creative work that shows a commitment to innovation through the use of leading-edge technologies and fabrication methods. (3) To provide opportunities for paid student employment, while also providing them with professional experience that supplements their architectural education. The project was completed in collaboration with TGR Landscape Group, Robby Sachs, Alex Cabral, Drake Cecil, Hunter Sigmon, Sierra Grant, Alex Casar Rodriguez Will Hutchins, Sheriyth Cain, Michael Miles, Nadia Anderson, and the City Building Lab.

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