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Richmond River Center: Condensing a Line to a Point, Connecting a Narrative to a Moment

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Richmond River Center

Angela Roy
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Master of Fine Arts . 2011
My heartfelt appreciation to Camden for believing in me, pushing me, and inspiring me. Christiana for being a consistent source of support. K, K, ES, K, T, E, L, E, SB, E & M for being an extended family, the voice of reason, the much needed distraction at 3am, the pep talkers, studio dance partners, and the most amazing group I could have ever asked for. My mother for being my biggest fan and best friend. My wonderful friends who have supported me, believed in me, encouraged me and cheered me on. You are more than friends, you are truly my family. Thank you to the entire VCU Interior Design Department for imparting your wisdom and knowledge.

Someone so special he gets a line all of his own - my husband Rob. Without your love, support, and sacrifice this would not have been possible. I am truly grateful.
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Abstract

This thesis explores the integration of the built environment into an existing extrinsic experience. It considers how a place can become incorporated into a series of experiences in nature, while still maintaining its integrity as a singular space. It questions how the lines between nature and interior can be blurred, and how responses to essential existing conditions can provide a coalesced experience.
In design, I believe it is as much about creating an experience as it is about creating a structure. In design, experience is primary. Feeling, memory, sensation, excitement, emotion, connection, senses - these components ordered by design create an experience. Spaces should speak to people in a way that transcends the physicality of the design. While individual architectural elements are important, it is more valuable that the whole, the impression, the experience of the space be impactful. The places which move and inspire are the ones which are so thoughtfully designed that every element and detail creates a unified whole. The movement through the space, the ritual, the procession and the pace - these combine to exceed the physicality of the space and create a unified experience, in which the sum of the parts is greater than the whole.
Project Introduction

The James River is one of Richmond’s most prolific assets, both currently and historically. It has shaped the city’s economic and socioeconomic development. It played an extremely significant role in the slave trade; it has flooded the city numerous times, it serves as a watershed and as a source of energy. It is what this city was built on. It is a defining landmark in Richmond and it serves as both an organizer of the city and a testament to it’s past. It’s significance is the compelling driver for this project, with the goal being to bring attention to the Richmond riverfront and to provide a place of experience and a point of unification.

There are many restaurants, shops, and businesses within the downtown river district, however there is not a place adjacent to the riverbank where people can rent outdoor equipment to support river activity. This program would provide rental capabilities, transportation services for equipment put-in, and additional components to support activity along the James River.

Through both a programmatic and theoretical investigation, this thesis will consider the following:

Can a space provide both an experience in itself and an opportunity for connection with the James River?

Can an interior play a role in a larger extrinsic experience?
Tredegar Iron Works is an historic iron foundry located on the banks of the James River in downtown Richmond. What was once one of the largest producers of iron in the confederacy, the site now houses the American Civil War Museum and the National Park Services. Located in the heart of Richmond, the site is surrounded by a business district.

The Tredegar Iron Works site consists of several buildings - the Pattern building and the former Gun Foundry. Buildings on this site are some of the only pre-civil war buildings still standing in Richmond, due to their survival of the Evacuation Fire in 1865. The central location to the river, Browns Island, Belle Isle and other nearby points of interest make it an ideal opportunity for exploring the relationship between the built environment and the James River.
1861
Largest ironworks in confederacy - virtually the sole producer of heavy guns, projectiles, gun carriages, wheels, and axes.

1865
Survived the evacuation fire of the Civil War.

1868
Major contract to supply Chesapeake and Ohio railroad with rails and bridgework for entire line.

1876
Several of T. J. Darby's major clients forced into bankruptcy, severely hurting the business.

1865
Survived the evacuation fire of the Civil War.

1867
Reorganized to Tredegar company.

1876
Several of Tredegar's major clients forced into bankruptcy, severely hurting the business.

1867
Reorganized to Tredegar company.

1870's & 1880's
Iron gives way to steel. Tredegar doesn't have capital to make conversion. Continued producing ammunition for Spanish American war, WWI + WWII.

1870's
Several of Tredegar's major clients forced into bankruptcy, severely hurting the business.

1870's
Several of Tredegar's major clients forced into bankruptcy, severely hurting the business.

1876
Several of Tredegar's major clients forced into bankruptcy, severely hurting the business.

1877

1902
Albemarle Paper Co is purchased by Ethyl Corp. and assumes Ethyl name. Tredegar becomes Ethyl property.

1957

1952
Ethyl pays for restoration of gun foundry and chimney.

1992
Ethyl pays for restoration of gun foundry and chimney.

1955
Valentine Museum est. museum at site. Outdoor machinery and structure restored.

2006
American Civil War Center at Historic Tredegar opens.
The site has evolved substantially since 1831. The map to the left illustrates the site as it stood in 1885. The Kanawah canal is still present and connecting back to the James river. There are also multiple buildings present at the site which have since been demolished. The building highlighted in red is the original gun foundry.

In the map on the right, the site is shown prior to the development of the ‘Valentine on the James’ museum, and before the local architecture firm 3North constructed the most recent addition.
Legend
- hiking/biking trail
- kayak/canoe route

1 pony pasture
2 wet lands
3 powhite parkway
4 byrd park
5 pumphouse park
6 maymont park
7 boulevard bridge
8 north bank park
9 reedy creek take out

10 canoe run park
11 dry rocks
12 tredegar
13 lee bridge
14 browns island
15 manchester bridge
16 mayo bridge
17 james river bridge
18 great shiplock park
19 ancarrow's landing
Program

With the James River remaining integral, the program will encourage exploration and activity along the river. There are many restaurants, shops and businesses located in the downtown district, however there is not one destination which offers services that support river and park activity. This location will serve as both a destination and a stop along the river route, and will have programmatic responses to serve both functions.

Rental Equipment: Kayaks, Canoes, Bikes, Inner tubes, Stand-up Paddle Boards
Retail
Cafe
Bar
Outdoor Patio
Outdoor Lounge
Women’s Changing Room
Men’s Changing Room
**Interior Conditions**

Top to bottom:
- Entrance and museum gift shop with historical ruin (arch)
- View through historical ruin
- Gift shop near office
- Entrance area
- Interior of museum
- Truss system in museum space

**Exterior Conditions**

Top to bottom:
- Exterior showing newest structure on left and gun foundry on right
- Southwest view
- Historic ruins on site
- East view
- Zinc panels and glazing
- South eastern view
As Built Floor Plan

1 entrance/foyer
2 ada ramp
3 gift shop
4 offices/storage
5 wooden wall
6 original brick arch
7 landing between gift shop and museum
8 wall partition
9 entrance to women's restroom
10 cleaning supply closet
11 women's restroom
12 men's restroom
13 cleaning supply closet
14 entrance/exit to patio
15 entrance to museum
16 HVAC unit
17 HVAC output and exhaust
18 storage (exhibit)
19 stairs (exhibit)
20 elevator
21 storage (exhibit)
22 stairwell
23 emergency exit
As Built Drawings

All as built drawings shown provided by 3North Architecture
Spatial Diagrams: Existing Conditions

Diagrams illustrating the existing conditions relative to geometry, proportions, small to large spaces and structural elements within the space.

Geometry + Proportions: It is evident there are various angles represented within the building. The original foundry structure is organized in one manner, whereas the 2006 addition is organized in another. This will play a large role in future concept development. Early on, it was important to understand the nature of the various segments of the structure, as they relate to each other, the river and the surrounding site.

Small to Large: Both the foundry and the 2006 addition are open volumes of space, uninterrupted by interior walls. The middle segment contains the most interior divisions: the restrooms, electrical closet and circulation space between the other two buildings.
Spatial Diagrams: Existing Conditions

Diagrams illustrating the existing conditions relative to construction, natural light, and circulation.

Construction: The materiality of each structure varies drastically from the foundry structure to 2006 addition. This is one of the reasons the building was so appealing. The contrast between the zinc panels and glazing of the modern addition, against the pre-civil war brick is beautiful and poetic. It speaks to two different time periods, and honors the original, all while remaining as one cohesive structure.

Natural Light: There is ample natural light found throughout, which is another reason this structure provided so much promise for the investigation at hand. With 15 fenestrations in the foundry and a structure made entirely of glazing, the ability to use natural light as a strong design influencer is present. In it’s current state, there are 6 fenestrations in the foundry which are blocked and able to be manipulated to maximize daylighting.
The building's engagement with the surrounding landscape is made possible by the copious use of glass.

The nature of the geometry lends itself to occupancy. Because the floors and roofs slant and are positioned in a way which forms promenades, people are invited to exit the building and engage with the landscape. The lowest roof is positioned in a way which allows occupants to exit and touch the Oslofjord.

The main entrance to the building does not take visitors into the interior, but instead puts them directly on the platform which touches the fjord, and thus leads you into the ‘exterior’ element of the space.

By using materials which allow the visitor to constantly be visually engaged with the exterior, the architects are able to create a sense of place which embodies both the inside and outside. Creating an extension of the interior on the surrounding roofs and platforms, the visitor in turn does not feel isolated within the opera house, but instead invited to experience the surrounding Oslofjord as if it were an extension of the interior space.
Site:
The opera house is located in Oslo on a harbor. It serves as the foundation for urban development within the harbor and links historic downtown Oslo and the Ekeberg Hills.

Concept:
The concept was developed around three main ideas: wave wall - factory - carpet

Wave Wall: the architects envisioned the site as a meeting point between the harbor city and the rest of the world. They saw the opera house as the dividing line between the ground, or city, and the water. In response to this idea, they created a large wall at the meeting point between the two.

Factory: this idea was born out of the desire to have a self-contained area within the opera house which could be both functional and flexible, in order to meet any programmatic changing needs.

Carpet: to fulfill the competitions requirements that it be of "high architectural quality" and "monumental in its expression", Snohetta interpreted this through the idea of "horizontal extensions". Their expression of ‘carpet’ was sloping and horizontal surfaces, which relate back to the cityscape and provide a sense of ‘togetherness’ on the buildings exterior surfaces.

Material:
- white stone/carrara marble - wave wall
- timber - wave wall
- metal - factory
- glass - allow for visibility of the underside of the ‘carpet’
ARCHITECT: Zaha Hadid
LOCATION: Zaragoza, Spain

SQUARE FOOTAGE: 69,050

Zaragoza Bridge Pavilion

Case Study: Contextual

Site:
Zaragoza, Spain (northeast)
Bridge for pedestrians across the Ebro River
Entrance to the Zaragoza Expo area
Multi-level exhibition area
Spans over 900 feet
Total square feet: 69,050

Goal:
The goal of the exhibit was to illustrate water as a resource. Naturally, the design for the bridge took this into consideration. The overarching design driver was to incorporate the notion of ‘pavilion’ and ‘bridge’ into one space, proving that a bridge could be inhabitable. The design was comprised of two elements: infrastructure element - bridge architectural element - pavilion
The design intent was to provide multiple ways to appreciate the river and challenge the idea that a bridge is strictly engineering.

Material:
Steel plate deck substructure
Concrete base
Skin - FibreC - glass reinforced concrete
Architecture:

Hexagonal box beams at top serving as a top chord

Steel plate deck structure at bottom serving as a bottom chord

Parallel ribs in between serving as support for glass reinforced concrete panels

The bridge is broken down into two parts, section 1 and section 2, as illustrated to the right.

The design of the pavilion is based on a diamond shaped section. This offers both structural and programming properties to the space.

The stacking and interlocking of the truss elements allows for natural differences within the interior and creates different pathways and interior spaces. As a result, each pod is able to have its own specific exhibit space.
From a structural perspective, the intersecting pods brace each other and provide support. Loads are able to be distributed across the four trusses/pods instead of across only one element.

Because of the overlapping and interlocking of the structural elements, interiors become complex spaces. Pockets of small, in-between spaces act as filters/buffer zones. These zones diffuse sound and visual experience from each exhibit and provide a clear understanding of each installation as a separate, isolated experience. The identity is maintained within each pod and the experience within each given it’s own, special importance.

Diamond shaped design results in triangular pockets underneath the main area which are used for utility storage, etc.

Connection to Exterior

The lightly curved architectural form mimics the gentle flow of water, providing a connection to the exterior. Through use of Fibrec, different shades of gray are achieved and when hit with sunlight, the material resembles fish scales. The skin shimmers in the sunlight and reflects the water, providing a more literal translation.

The design of the space takes into account the importance of visual connection to the surrounding landscape and through the use of compression, the interior spaces creates a flow which allows the user to choose their own course and experience both completely closed off and entirely open spaces.

Because each space is unique unto itself, the zones have their own identities and, if desired, a different program can be specified for each area.
French River Visitors Centre  

Case Study: Programmatic + Context

Architects: Baird Sampson Neuert

Completion Date: June 2006

Square Footage: 7,850

Location: Alban, Ontario

Site: French River, city of Alban, Ontario, Canada

From the 1600’s to the 1820’s, the French river was the main water highway to the west in Canada. It links lake Nipissing with the Georgian Bay via a variety of interconnecting waterways. These include lakes, gorges, and rapids. In it’s earliest days, before Europeans arrived, the river was used by aboriginal people as a meeting place to conduct trade and exchange goods. Before Canada became a country, the river was used to transport furs by canoe to market in Montreal. The river is part of a larger path “called the Voyagers Highway”. This is located within a part of Canada known as the Canadian Shield. The center itself is located in a rather remote part of Alban.

Canadian Shield

The Canadian Shield, or Laurentian plateau, is a geological area mostly comprised of igneous rock. It has a deep, jointed bedrock region that stretches from the great lakes to the Arctic ocean. It covers over half of Canada. Population in this area is more scarce and not as dense as other areas in Canada.
Landscape: The nature of the landscape was mostly shaped by the Canadian Shield. Water trapped over time under extremely high pressure ultimately sculpted the granite found at the site. This resulted in a unique rolling landscape of dunes made of stone. It was this natural landscape that served as the architectural concept for the building.

Project Considerations: It was important to the project members to take into consideration the multi-cultural elements of the area. Evaluation of the site, and impact on wildlife was important. The intent was to deliver a larger impact while occupying a small physical area. In order to establish a sense of place, the center was designed to sit within the bedrock and ‘emerge’ from the natural landscape.

Materiality: Concrete was seen as the best choice for the design. The architects took into consideration the idea that concrete “begins fluidly as an element and becomes formed into shape”. It is viewed as a natural extension of the grounds rocky plane and is used as the main element of construction, both internally and externally. In addition, the large concrete column supporting the exhibition area creates a void beneath which mimics an ‘evocative cave-like’ environment.
Relationship to the River:
It was important that the center communicate a strong relationship with the river. Also located on the site are trails and picnic facilities. The response to these conditions was to design a building that descends down the natural slope of the landscape. The external design connects the upper level area with the river below, providing access directly to the river bank.

The design of the interior reflects the desire to provide a ‘barrier free’ connection to the river and exterior. Different levels of interior spaces exist, reflecting the inclined topography. As a result, the interior elements and flow of the space serve as an extension of the natural environment.

Goal of the Design:
flowing, episodic interior space + full site integration = a building that is not interpreted as a single object, but rather a part of the natural landscape.
From a programmatic perspective, the building has six private spaces that support the functions of the center. These are primarily located in the vessel which projects southward and includes the restrooms, retail space, guest services and mechanical functions.

The primary organization of the space is broken down in to two ‘vessels’. The first vessel projects north and towards the river. The space houses the primary functions, including the exhibit hall and a multi-purpose space.

The second vessel serves as the primary space for information, retail, and mechanical functions.

The primary organization of the space is broken down in to two ‘vessels’. The first vessel projects north and towards the river. The space houses the primary functions, including the exhibit hall and a multi-purpose space.

The circulation through the space is meant to echo that of the natural landscape. Tiered terraces help connect one to the surrounding site.
Exhibit Design:
Materials were chosen to evoke a sense of the surrounding landscape. Timber elements reflect the wooded qualities of the site and slate floors speak to the jagged stone elements of the landscape. The permanent exhibit is designed in tiers. The top of the stairs serve to conceptually evoke a sense of the start of the river, and the consequential journey throughout the exhibit mimics the journey from Lake Nipissing to the Georgian Bay.

Interior Materiality Considerations:
Much of the interior is made of wood. This was done as a counterpoint to the concrete and to suggest an idea of using an assembled material next to a monolithic material.

The design of the center honors the existing site and speaks to the former ‘life’ of the river. The architects took their concept from the landscape itself and the geological formation of the site, and used this as a basis for the building and interior design. Focus was placed on creating a strong connection to the river. Positioning the main vessel towards the river and including different levels within the space to mimic the natural landscape also help bring the exterior inside. The choices for materiality further emphasize interior/exterior connection. The concrete speaks to the natural rock found at the site and the topography from which the building extends from. Like the thesis site being studied, the space itself consists of three segmented areas.
La Candida

case study: programmatic

Location: Buenos Aires, Argentina
Architects: Adamo-Faiden

Located on an artificial lake within a gated community outside of Buenos Aires, La Candida serves as a club house to the community within which it resides. Completed in 2008, the building occupies 3,068 square feet.

Program:
Locate within the clubhouse is a spa, gym, bar and restroom facilities.

The goal of the space is to create a place which is isolated in its interior, but also affects the dynamic of the lake. Per the architect, “the two actions intend to invert the inertia of each element in order to become fused with the emergence of an experience specific to this new scenery.

The dramatic curved entrance aims to call attention to the passage from land to water. With the copious use of windows and the compressed spaces on the interior, the visitor is able to choose their level of connectedness to the exterior.
As illustrated in the diagram above, the space is divided into 2 basic proportions. shaped like a pill, the areas to the north and south flank a central space, which can be further broken down into equal parts.

Within the heart of the space lies the spa and restroom facilities. organized around this area are the gym and bar. the main areas - gym and bar - are positioned on the outside of the core to provide for maximum views of the lake.
Perkins+Will Branded Environments: Case Study: Process

Perkins + Will is one of the leading architecture and design firms in the country. With locations in the US and Europe, they have been in the industry for over 75 years and have grown to be one of the largest firms in the country. Among many cutting edge philosophies they employ to propel their success, they are specifically know to be leading the way in the Branded Environments movement. After acquiring Eva Maddox Designs in recent years, Perkins+Will has become the leader in the industry for the research based, strategic approach to design.

The overarching idea behind Branded Environments Design is centered around an interdisciplinary team approach. Studios are comprised of architects, interior designers, graphic designers, brand strategy specialists, researchers, marketing specialists and communication specialists. This integrated approach allows the design solution to identify and integrate the clients DNA into tangible experiences. By not only providing spatial design services to their client, but also brand communication, strategy and identification services, they see this approach as a way to integrate architecture and design into the fiber of the company, and create a total package where every element presents a cohesive brand to the customer - be it print materials or the built environment.

NYU Stern School of Business

Branded environments design philosophy has found a lot of success within retail, museum and higher education design. Based on research conducted by Perkins+Will, a distinct brand experience is becoming increasingly important for higher education institutions, especially as competition for student enrollment has increased. As a way to differentiate themselves and attract the right applicants, higher education institutions need to be able to project their brand through their built environments. Different campus buildings such as student unions, cafes, housing and recreational facilities are important tools in branding.

In an effort to create a branded environment for NYU’s Stern School of Business, Perkins+Will took an undesirable space, with long, underground hallways, and transformed it into a place that more accurately represents the schools brand. Vibrant spaces now occupy the once undesirable areas. Through the use of skylights at the grade-level plaza, natural light is able to filter in to the below-ground concourse and glass rooms, bringing a sense of openness. The daylighting promotes interaction among students and faculty and creates gathering spaces in otherwise underutilized areas.

Square Footage: 110,000
Completion: 2009

NYU Stern School of Business
Design Solution
**Programmatic Requirements**

**Entrance Area**
- Retail
  - cash wrap
  - display racks
  - display cases
  - shelving
  - reach-in cooler
- Office + Small Seating Area
- Women’s Restroom Facilities
  - bathrooms
  - lockers
  - shower + changing area
- Men’s Restroom Facilities
  - bathrooms
  - lockers
  - shower + changing area
- Front Terrace
  - seating area
  - benches
- Rental Space
  - hanging storage
  - rental desk

**Kayak Training Area**
- training pool
- seating
- storage
- towel storage

**Dining Area**
- various tables and seating

**Kitchen**
- stove
- food prep area
- food storage - wet + dry
- dish washing area
- ventilation

**Bar**
- seating
- prep area
- sink

**Back Patio**
- seating area
- lounge area

**Square Footage Allocation + Adjacency Matrix**

**Square Footage Allocation**

Total Approximate Square Footage: 15,000

<table>
<thead>
<tr>
<th>Space</th>
<th>Size (sq. ft)</th>
<th>Major Adjacencies</th>
<th>Unwanted Adjacencies</th>
<th>Daylighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail</td>
<td>1233 sq. ft</td>
<td>Restrooms, Entry/Exit</td>
<td>Yes, needs task+accent lighting</td>
<td>Retail, Terrace, Kayak Training Pool</td>
</tr>
<tr>
<td>Office</td>
<td>215 sq. ft</td>
<td>Entry/Exit, Retail</td>
<td>Yes, needs accent lighting</td>
<td>Retail, Terrace, Kayak Training Pool</td>
</tr>
<tr>
<td>Terrace</td>
<td>2073 sq. ft</td>
<td>Entry/Exit, Retail</td>
<td>Yes, needs accent lighting</td>
<td>Retail, Terrace, Kayak Training Pool</td>
</tr>
<tr>
<td>Women’s RR</td>
<td>342 sq. ft</td>
<td>Terrace, Rental</td>
<td>Yes, needs accent lighting</td>
<td>Women’s RR, Terrace, Kayak Training Pool</td>
</tr>
<tr>
<td>Men’s RR</td>
<td>370 sq. ft</td>
<td>Terrace, Rental</td>
<td>Yes, needs accent lighting</td>
<td>Men’s RR, Terrace, Kayak Training Pool</td>
</tr>
<tr>
<td>Rental Equipment + Storage</td>
<td>932 sq. ft</td>
<td>Terrace, Rental</td>
<td>Yes, needs accent lighting</td>
<td>Rental Equipment + Storage, Terrace, Kayak Training Pool</td>
</tr>
<tr>
<td>Kayak Training Area</td>
<td>436 sq. ft</td>
<td>Terrace, Rental</td>
<td>Yes, needs accent lighting</td>
<td>Kayak Training Area, Terrace, Kayak Training Pool</td>
</tr>
<tr>
<td>Back Patio</td>
<td>2690 sq. ft</td>
<td>Terrace, Rental</td>
<td>Yes, needs accent lighting</td>
<td>Back Patio, Terrace, Kayak Training Pool</td>
</tr>
<tr>
<td>Circulation</td>
<td>2,735 sq. ft</td>
<td>Terrace, Rental</td>
<td>Yes, needs accent lighting</td>
<td>Circulation, Terrace, Kayak Training Pool</td>
</tr>
</tbody>
</table>
The James River Park system is comprised of 14 locations. The goal is to create a space that can be integrated into this existing framework and serve as both an addition to the experience of the river, and a place of experience unto itself. The location will serve as both a singular destination and a point along the river route.

In an attempt to achieve this, several strategies are employed, which will be discussed in the following pages. These include space planning and layout, as well as an axial system.
First Generation Concept Models:

Three ideas inherent to the project are identified.

01 choreographed experience
02 tension between different elements
03 site as part of a larger experience

These early concept models strive to express these ideas three-dimensionally.
As ideas are explored, the notion of a choreographed experience emerges as primary. Concept models are studied to investigate:

- circulation
- progression
- connection points
- areas of ‘pass through’
- relationships implied via connections
- hierarchy
Questions + Ideas raised:

- Connected paths + pathways
- Hierarchy
- Physical connection points to the river
- Penetration of a plane - interior connecting to exterior

An initial concept diagram on the right captures the response elicited from the concept models.
‘Condensing a line to a point,

Design communicates the experience of space. It informs people of what they can expect during their time within the environment. Will it be hurried, leisurely, minimalistic, plush, expeditious, lavish, systematic, relaxed, purpose-driven, sterile, inspiring, playful, adventurous? Design gives visual cues that are processed subconsciously and ultimately determine the relationship one has with a space. It communicates the identity and character of a space.

Experience is primary.
When designing, the experience of a space > functionality of a space.

People ‘experience’ in many ways. There is an experience of place and an experience of events, both of which can be affected by sequence and procession. There are unlimited ways to experience the James River and the park system, with the manner of progression influencing the way in which the experience is perceived.

In an effort to create a place which is part of a larger, existing extrinsic experience, the progression through the space and the order in which the space is experienced is considered. The goal is for the space to have a dialogue with the extrinsic river experience in various ways. The following tactics are examined:

- procession and space planning
- maximization of exterior + interior connection points
- axial system

connecting a moment to a narrative’
Axial Development Process

Through site analysis, an axial organizing system is revealed. In the design of the 21st century addition by 3North, a historical ruin, highlighted below in red, served as a primary organizing element. This cardinal axis, which is parallel to the river, remains a principal organizer in the design of the center.

Main points of consideration in connecting the built environment to the extrinsic experience of the James River:
- existing fenestrations
- organization of the building relative to the river
- existing angles within the structure in relationship to the river bank
- adjacent exterior spaces
- potential points of connection to the river

Further site analysis revealed a secondary axis which runs perpendicular to the river. This axis proceeds through the foundry along the Browns Island footbridge. The evolution process of this axis is documented on the right.

From an aerial vantage point, the building and site are studied. Existing connection points, such as the patios and windows are considered. The Browns Island foot bridge serves as a primary cue for development of the secondary axis. This perpendicular axis, runs through the building, exits via a currently blocked fenestration, and continues along the path of the foot bridge to and then beyond the river.
Axes Evolution

These diagrams and writings document the exploration of the two axes. The desire to have each axis articulate something different from the other is considered.
This place will serve as both a stop along a route and a destination point itself. There will be visitors of all types - those stopping in to grab a piece of equipment before venturing to a bike trail, people coming to get something to eat after spending the day with their children on Belle Isle, and those who have spent the afternoon in downtown Richmond, be it on business or leisure, who would like to dine and relax close to the river. This is what will make the space so dynamic and allow it to be both a point of experience and a moment within a larger narrative - the river.

**Schematic Design**

**Bubble Diagrams**

Order and procession are analyzed for each of the programmatic requirements. Overlap and relationships between different elements are also studied.
The park locations and the built environment can be experienced in a certain sequence. The diagrams begin to explore the way in which the choreography of the river center can respond to the park system.

By allowing the sequence of the programmatic elements in the river center to relate to the procession of the park locations, a relationship can be implied between the two.

The diagram above shows the thought process through the conceptual process and schematic phase. The concept of a choreographed spatial experience lead to the realization of the parallel and perpendicular axes. A desire to have two different design languages to articulate each axis is explored and documented in the following pages.
Structure Sketch Model + Early Sketches

The perpendicular axis is envision as a less regulated configuration, extending from existing beams within the space. The 'arms' are imagined as elements which divided and puncture the volume to demarcate the different programmatic elements. These early sketches are informed by the sketch model to the left.
In determining the language for each axis, existing languages in Richmond are considered. A lot of the construction which runs parallel to the James River, especially during the time Tredegar Iron Works was in operation, are factories, warehouses and the like. These are very volumetric, large, open spaces. Structures which traditionally run perpendicular to the river are bridges. These are interpreted as very delicate, purposeful, economical, and refined. These languages are adopted for the different axes within the space, to both articulate them as divergent and to relay precedence.

Relating back to the word diagrams, the structure continues to evolve with the following considerations:

- Volumetric spaces along the parallel axis.
- Parallel axis visually clear upon entering space.
- Perpendicular axis - delicate, purposeful.
An initial sketch model of the structure helps to organize the different elements. Plans and volumes begin to form space and articulate the different axes. A central ‘spine’ is introduced to the perpendicular axis, which provides the support for planes to extend and delineate space.
First Generation:
Initial development of structure along perpendicular axis. Very linear and monolithic at this point. Volumetric spaces begin to form along parallel axis including the training pool, bar area, and elevated seating. Plan is very basic.

Second Generation:
Perpendicular axis much more robust. ‘Spine’ has emerged with beams extending and defining space. Dialogue between perpendicular axis and training pool defined by bench seating. South facing seating area more detailed. No longer a singular seating platform. Seating is defined by both perpendicular axis and parallel axis.
Initially the rental desk was positioned in the middle of the axis so that it would be the first thing seen upon entering the space. This was changed for the final design in order to allow for visual continuity along the parallel axis and also to address it from a hierarchical standpoint. Seating bays are also introduced in the final plan but are nonexistent at this point.
Final Plan

1. main entry
2. retail area
3. office
4. tredegar ruin
5. women's restroom
6. men's restroom
7. terrace
8. rental desk
9. bike + kayak hanging storage
10. built-in bench seating
11. kayak training facility
12. kayak storage
13. elevated seating
14. exterior landing
15. kitchen
16. bar area
17. patio
The structure articulating the perpendicular axis consists of beams which extend from a spine. These beams form the spaces which support:
- rental function
- bike and canoe hanging storage
- elevated seating bays
- west wall of the kitchen
This model represents a portion of the structure at a 1" = 1'-0" scale. The area of the structure that is modeled is highlighted in the plan above. The vantage point is looking down on the structure.

overhead beams

spine

forms west wall of kitchen
The design is regulated along the two axes as illustrated in the three-dimensional view to the right. Larger, more expansive spaces delineate the parallel axis, which include the kitchen and bar area, kayak training pool, and seating.

Along the perpendicular axis, an iron structure articulates the space between the back of the foundry and the south wall. This structure serves several purposes. Programmatically, it houses the equipment rental desk. Its linear nature allows it to accommodate rental equipment. Kayaks are attached to pegs and bicycles are hung from racks mounted to the structure. The eastern-most wall of the structure forms bench seating and kayak storage that supports the training pool.

As the structure approaches the south facing wall, it begins to organize two elevated seating bays and additional kayak storage. The elevated seating affords patrons greater views to the exterior. Because they are raised, a level of kayak storage is created under each bay. The structure helps visually guide people to the south facing wall, which in turn puts them in the greatest proximity to the river. An exterior platform was added to enhance the physical and visual connection to the river.
Kayak Training Pool + Kitchen/Bar Area

The portion of the large model to the right depicts the elevated seating areas and the kitchen. It is important to note that all existing boarded fenestrations have been restored to windows to maximize sunlight within the space and views to the exterior.
The kayak training pool will allow visitors who have limited experience with kayaks to become familiar with the equipment before venturing out to the river. The pool is made of concrete and the beams from the perpendicular structure extend down to form a wall which supports canoe storage. It also forms bench seating for the training area.

The east wall of the kitchen is a storefront curtain system, allowing for the light from the window in the kitchen to filter through to the space.
The floor for the seating area is elevated 2'. This makes it flush with the base of the windows. From this level, there is access to two additional seating bays which are 4' off the grade. This allows for an elevated view to the river as they are strategically positioned in front of windows. It also makes them even more purposeful as canoe storage is achieved underneath each bay.
The transition space between the rental area and the main foundry building serves as an access corridor for the restrooms and the terrace. Slate is used on the left wall to imply a visual connection to the exterior patio, which is also slate. A bright, durable, and water resistant flooring material will be used to imply a special condition, but to also maintain functionality. This space will afford a moment of repose and transition before people enter the expanse of the foundry.
The concept of choreographed experience emerged early on in the research process. Below, a series of concept models explores the notion. The concept of experience was heavily considered. People 'experience' in many different ways.

There is an experience of place and an experience of events, both of which can be affected by sequence and procession. There are unlimited ways to experience the James River and the Richmond riverfront and to provide a place of experience and a point of unification.

Richmond riverfront and to provide a place of experience and a point of unification. It serves as both an organizer of the city and a testament to it's past. Richmond is a defining landmark in Richmond, VA. It's history is copious and will be delicate and purposeful in nature.

Along the perpendicular axis a 'bridge' like design language is employed. Bridges run perpendicular to the river and provide a pathway to traverse. As such, the design language employed will provide a course, factories, warehouses, buildings of expanse.

The James River is a defining landmark in Richmond, VA. It's history is copious and separate design languages are created. Along the perpendicular axis, an iron structure articulates the space and seating.

In response to the axial organizing element, two parallel axis - 'Factory'

- 'Factory'

- Retail

- Cafe + Bar

- Indoor Kayak Training Facility

- Kayak Training Pool + Kitchen/Bar Area

- Outdoor Seating

- North Section

- South View

The park locations and the built environment can be experienced in various stages diagram - preliminary + perpendicular stages diagram - transverse - capacious - volumetric, expansive, - dimensional view to the right. Larger, more expansive spaces delineate the system.

The choreography of the river center can respond to the park hierarchy integrated into this existing framework and serve as both an addition to the experience of the river, and a point of unification.

Further site analysis revealed a secondary axis which runs perpendicular to the river. This axis proceeds through potential points of connection to the river adjacent exterior spaces existing angles within the structure in relationship to the river organization of the building relative to the river existing fenestrations.

Through site analysis, an axial organizing system was revealed. In the design of the 21st century addition by 3North, a historic ruin highlighted above in red, served as a primary organizing element. This cardinal axis, which

Main points of consideration in connecting the built environment to the extrinsic experience of the James River:

- Potential points of connection to the river

- Immediate site

- Surrounding park system

- Understanding areas of opportunity for connection with the community?
Tredegar + Site Information
“American Civil War Center at Historic Tredegar


Oslo Opera House


Zaragoza Bridge Pavilion


French River Visitors Centre


La Candida


Perkins + Will
