Orientation Centre for the Wood Industry and Trades in the Chaudière Region

by

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ORIENTATION CENTRE FOR THE

WOOD INDUSTRY AND TRADES

IN THE CHAUDIÈRE REGION

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ABSTRACT

In a digital world obsessed with the image, how can we convey the importance of the trades to future generations? This project will explore the concept of architecture as a mirror for the trades; a space of observation and reflection for the trades themselves and for the public. Through the design of a small centre for training woodworkers on Amelia island, this thesis will use the site and its history, the building program and the materials and methods of construction to frame literal and phenomenological observation and reflection of the wood trades.

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INTRODUCTION

Within the Ottawa region, heritage conservation of historical buildings and urban constructs is one of the major concerns in present times. As time moves forward and buildings lose their functionality or purpose, the most common method for saving a building from demolition consists of the rehabilitation of the building by introducing a new use. This study explores why it is so important to save urban artifacts and built heritage, more specifically: Amelia Island, by the process of rehabilitation by transformation. Transformation is not just simply a functional makeover, nor does it mean changing the interior, exterior or function of the building. The proposed design approach integrates the past with the present, as both an anchor and catalyst for site strategies and design influences. As Rossi stated in his book, The Architecture of the City, the concept of permanence represents architecture as a living phenomenon and a process of creating history over a period of time through transformation. The transformation of historic structures and urban constructs is the course which keeps buildings alive, instead of becoming a decaying reminder of the past. Rossi's argument was that a city and its components must be studied and valued as an object constructed over time. In this thesis, the interest is in studying the transformation in heritage, city fabric, construction technologies and techniques, and social progress. This project will provide the city of Ottawa with a solution to the paralysis of Amelia Island and the Chaudière region. Looking into the historical dimensions of a site as an influence generator, can be a very valuable resource for the design process.

Figure 1.1 - 1 Eye Reflecting the Interior of the Theatre, Etching, Claude-Nicolas Ledoux. 1847.

The members of the audience are equal before the show and where each of them can have a view over the entire stage and the entire room. The power supervises and commands, but in a symmetric way everybody sees the centre of the circle, sees his own place and understands the whole.

¹ Oxford Dictionary "Observatory," *Oxford University Press*. Accessed 8 Nov. 2014. <http://www.oxforddictionaries.com/definition/english/observatory>.

CHAPTER 1.0 MIRROR

1.1 | ARCHITECTURE AS A MIRROR

A mirror is an instrument that allows the observer to look back at themselves and their actions. This thesis proposes architecture as a site of observation and reflection to enhance awareness of the material and methods of its assembly and its makers.

1.2 | OBSERVATION

The Oxford dictionary defines observatories to be rooms or buildings that house astronomical telescopes and/or other scientific equipment for the study of natural phenomena.¹ Philosophers, architects and theorists alike might argue that observatories are much more than just a defined space that contains a piece of equipment. Beyond the capabilities of advanced technology, lies a deeper understand of the archetype. Observatories can autonomously be constructed environments and/or spaces, which operate as the equipment itself – transmitting knowledge to the user through experiential understanding and observation.

Figure 1.3 - 1 The High Line

1.3 | OBSERVATORY AS SITE: CASE STUDY

THE HIGH LINE | NEW YORK, NY

Architectural intervention is the medium through which we find the framing and understanding of the world we live in. Architecture seeks to link the intangible aspects of nature with the built environment.

Stretching across one and a half miles and elevated over the New York City grid, lays the infamous High Line rails. Built in the 1930's and facing constant threat of demolition, the High Line railway has been unused since the 1980's. The abandonment of this immense piece of infrastructure has created deteriorated urban zones in the city core. Friends of the High Line (FHL) put forward a design competition "Designing to High Line", in hope to bring life back to the derelict urban artifact, and protect it from being removed from the city. The design proposal of James Corner Field Operations with Diller Scofidio and Renfro did just that. Understanding the fragility of the site - and its heritage value, their proposal transformed the railway tracks into an elevated urban park with careful alterations to the existing structure and elements. This project moves the site from an industrial scale landscape to the intimate human scale. Describing his perspective on the term land-

2 Wall, Alex. *Programming the Urban Surface, Recovering Landscape, Essays in Contemporary Landscape Architecture* (New York: Princeton Architectural Press, 1999), 2.

3 Weller, Richard. "Between Hermeneutics and Datascape (Part One)." Accessed November 4, 2014. <http://journals.lincoln.ac.nz/index.php/lr/article/view-File/92/63>.

4 Gastil, Ray. *Prospect parks: walking the Promenade Planteé and the High Line, Studies in the History of Gardens & Designed Landscapes: An International Quarterly* (England: Taylor & Francis LTD. 2013), 180.

scape, James Corner states "Here the term 'landscape' no longer refers to prospects of pastoral innocence but rather invokes the functioning matrix of connective tissue that organizes not only objects and spaces but also the dynamic processes and events that move through them. This is landscape as active surface, structuring the conditions for new relationships and interactions among the things it supports".² Through this project, Corner questions whether landscape theory and, by extension, praxis could rebuild an existential ground, a topography of critical continuity, of memory and invention, or of orientation and direction.³ By strategically using the form and scale of the elevated railway, the proposal allows for both the residents and visitors of New York City, to experience the urban fabric and city environment from a different perspective and a different pace. Ray Gastil, a city planner/urban designer noted, "Even before the first stroke of design intent, the redundant (no longer useful) elevated railway is both disengaged and urban, a place apart and a place connected. The design decisions about access, planes, materials, restoration, exploit and enrich this inherent tension".⁴ Rather than being seen as an urban eyesore and functionless antique, the High Line allows the artifact to continue to participate in the fabric of the city in a meaningful way over time.

Figure 2.1 - 1 Hand Crafting - Lathe

"Thus following the absolute measure of quality the writer will obsess about every comma until the rhythm of a sentence comes out right, and the woodworker will shave a mortise-and-tenon joint until the two pieces are completely rigid, needing no screws. Following the measure of functionality, the writer will deliver on time, no matter that every comma is in place, the point of the writing being to be read. The functionally minded carpenter will curb worry about each detail, knowing that small defects can be corrected by hidden screws, again the point is to finish so that the piece can be used. To the absolutist in every craftsman, each imperfection is a failure, to the practitioner, obsession with perfection seems a prescription for failure"

Sennett, Richard. *The Craftsman* (London: Yale University Press, 2008) 45-46.

⁵ Sennett, Richard. *The Craftsman* (London: Yale University Press, 2008) 81.

⁶ De Haan, H. *Wood Works Onix* (Rotterdam: NAI, 2009) 112.

CHAPTER 2.0 CRAFT

2.1 | THE LOSS OF "CRAFT"

In his book, *The Craftsman*, the sociologist Richard Sennett states, "The greatest dilemma faced by the modern artisan-craftsman is the machine. In the economic history of skilled manual labour, machinery that began as a friend has often ended up as an enemy...today, the advent of microelectronics means that intelligent machines can invade realms of white-collar labor like medical diagnosis or financial services once reserved for human judgment".⁵

The world is a sensorial place. Humans are sensory beings by nature and skin is the threshold to the tangible realm. Immanuel Kant states that "the hand is the window to the mind", which sets up a unique relationship between thinking and making. Explaining this relationship in the process of making, Hilde De Haan states, "while sketching, you are conversing with yourself. The thought is clear: it helps to truly get to the bottom of an assignment with both mind and body".⁶ Richard Sennett argues that there is something present in the process of hand crafting that is absent in machine crafted items. This thesis endorses Sennett's view that even the most humble of handcrafted objects have the ability to offer our prevailing technological culture a unique way of knowing things.

Figure 2.2 - 1 (Top) Log Construction
Figure 2.2 - 2 (Bottom) CLT Construction

⁷ Kasliwal, Angad. "Aldo Rossi: The Architecture of the City." *MA Architecture Urbanism*. Accessed 11 Jan. 2015. <http://architectureandurbanism.blogspot.ca/2011/01/aldo-rossi-1931-97-architecture-of-city.html>.

2.2 | CRAFTSMANSHIP AS A BUILDING PROGRAM

The program of this building proposal is a centre for wood craftsmanship. The building proposal will utilize a variety of wood construction techniques. The goal is to create a building that allows one to appreciate the craftsman's process by experiential observation of the spatial qualities and structure.

Also Rossi defines construction as a process inseparable from time. Civilizations construct buildings based on contextual conditions and the culture of the time.⁷ Due to social shifts and technological advancement, earlier constructs become transformed and intertwined with later developments in a changing urban fabric. The design proposal of this thesis explores Rossi's concept of value in architecture as construction over time. All buildings have functional and material life spans. Maintenance, environmental conditions and design are major factors in material lifespan. Functional lifespan refers to an absolute precision in task or building program with an absence of ambiguity. Modernists manifested this idea into architecture and design, in a sense, narrowed the scope of flexibility within building typologies. For example, Le Corbusier asserts, "Houses are

machines for living in". The building's assembly, structure and service to the user have notoriously been considered as a metaphor for how life is to be lived in such buildings. John Summerson, a British architectural historian stated, "the only singular characteristic of Modernist theory was the commitment to social program, that is architecture in the service of progressive tendencies in society".⁸ This concept has been the active agent of the Modernist movement that in turn, changed how buildings were conceived over time. If buildings lose their ability to fulfill their function, they are useless. According to functionalist belief, buildings would either fulfill their purpose or face demolition. One might ask, how can one engage function in design while allowing it to exist over time?

In opposition to the dogmas of Modernism and more specifically, functionalism, Aldo Rossi pioneered a movement called neo-rationalism. This movement responded against the prevailing tendency to treat architecture as a commodity. Essentially, Rossi underlined the autonomy of architecture and the necessity to rethink how we approach its rational combination of elements. Instead of accepting the notion that architecture ends and begins with technology and function, neo-rationalism insisted on the cultural and social aspects of existing urban constructs, and reasserted the historical forms as a prolific source of influence for

⁸ Scott, Fred. *On Altering Architecture* (New York: Routledge, 2008) 187.

architectural conception. Rossi's argument was that a city and its components must be studied and valued as an object constructed over time. He refers to this as "collective memory", monuments, which give structure and order to a city and a culture. Commenting on Rossi's ideas, Peter Buchanan states, "the deep fascination of Rossi's writings and architecture is that both project a profound disenchantment with this fractured world, acknowledge the impossibility and futility of resurrecting the pre-modern world complete, yet nevertheless attempt to salvage some of its essentials...Through typology the functional, mechanistic city of modernism is to be replaced with the urban artifact and city pregnant with psychological resonances. And so the inhabitants will be rescued from being mere users and reinstated to the dignity of citizens".⁹ Rossi and neo-rationalists saw urban artifacts as both catalyst and anchor for the life of a city.

Figure 3.1 - 1 (Top) Traditional Workshop
Figure 3.1 - 2 (Bottom) Sofa Frame Factory

¹⁰ Sennett, Richard. *The Craftsman* (London: Yale University Press, 2008) 53.

CHAPTER 3.0

WOOD TRADES

3.1 | THE WORKSHOP

Sennett defines a workshop to be the “craftsman's home.” Traditionally, this was an accurate statement as craftsmen would eat, sleep and raise families in the places they worked.¹⁰ Contemporary examples of workshops and fabrication factories are separated from the identity of the person/craftsman. They are sites of production focused on process and economics. How can a building represent the dignity of a craft in today's society?

Figure 3.2 - 1 (Top) Squaring Timber
Figure 3.2 - 2 (Bottom) Broadaxe + Cut Profile

3.2 | WOOD TECHNOLOGIES

| SQUARED TIMBER HAND CRAFTED

Powered by human strength and the driving force of a broad-axe blade, the traditional process of squaring timber was an extremely laborious task which required remarkable craftsmanship skills . Not only did this method utilize a fraction of the felled tree and leave an exuberant amount of debris laying about, if the selected tree was deemed to have too many knots or deficiencies after cutting, it would be left to rot. Although this practice had its disadvantages, squared timber proved to be a highly demanded product which created large profits for the timber squarer. As one could see from Figure 3.2 - 1 and Figure 3.2 - 2, the process of squaring timber leaves a narrative on the surface level of the object. This narrative expresses the skill level of the worker, quality of the material and a perceived sense of time.

Figure 3.2 - 3 (Top) Dimensional Lumber Profile Cut
Figure 3.2 - 4 (Bottom) Lumberyard

SAWMILL LUMBER MACHINE PROCESSED

Over time, the advancement in technology has virtually replaced traditional methods of wood processing. What was once manufactured by hand and tool, has now been industrialized into a mass production system - logs enter one end, and dimensional lumber exits at the other end. As one could tell from the Figure 3.1.2 - 3 and Figure 3.1.2 - 4, this method is much more efficient in optimizing material usage. Machine processing allows for a diverse range of cross sectional profiles and lengths.

Figure 3.2 - 5 (Top) CLT Layer Diagram

Figure 3.2 - 6 (Middle) Manufacturing Process

Figure 3.2 - 7 (Bottom) Wall Opening

CROSS LAMINATED TIMBER MACHINE MANUFACTURED

Alongside the advancement in machine technology is the innovation of building materials. Cross-laminated timber members consist of a series of successive perpendicular layers of dimensional lumber. These panels are precision cut by a CNC (Computer Numerically Control) machine, creating a construction-ready product. CLT products have the ability to have openings and detail features applied during the fabrication process. The true advantage to CLT panels is the diversity in applications i.e. floors, walls, roofs and even furniture. Although there are not many negatives aspects to CLT products, this modern method of wood assembly completely removes human interaction from the production process.

Figure 3.2 - 8 (Top)CLT Manufacturing

Figure 3.2 - 9 Ibid.

Figure 3.2 - 10 Ibid.

Figure 4.1 - 1 (Top) Timber Raft
Figure 4.1 - 2 (Bottom) Raft Caravan

CHAPTER 4.0

AMELIA ISLAND

4.1 | HISTORY: THE OTTAWA LUMBER INDUSTRY

In the early nineteenth century, timber became a top commodity in North America. Though at first, timber was a small industry in the domestic market, it became a large export due to an expanding European market. The hard work and refined skills of the *Ottawa river men* contributed greatly to the economic boom and formed the basis of a strong wood industry along with an expansion of associated wood crafts. The timber trade brought new opportunities at a local level in Ottawa. In the first half of the 19th century, Ottawa was a hub for the cutting, transport and sawing of trees.¹¹ These activities were at first all done by hand and replaced by mechanized processes. Wood craftsmanship and logging remained very much embedded in the culture of the area. As the Ottawa valley's natural resources were depleted, the Chaudière area was abandoned as a hub for cutting and milling wood.

¹¹ Wynn, Graeme. "Timber Trade History," *The Canadian Encyclopedia*. Accessed 4 Dec. 2014. <http://www.thecanadianencyclopedia.ca/en/article/timber-trade-history>.

Situated in Canada's National Capital Region, the area of the Ottawa River known as the Chaudière, links the cities of Ottawa and Gatineau. Historically, the Chaudière region was the socioeconomic birthplace of the area and had a significant impact on transportation and trade. The Chaudière Islands bridge the upper and lower water levels of the Ottawa River, and narrow the river creating large rapids in the current. Timber raftsmen passing through the region would be forced to dismantle their raft, remove the cargo, and reassemble them downstream. Overtime, several lumber chutes sped up the process of product delivery and led Ottawa to become one of the world's largest milling operations at the time.

At the beginning of the 20th century, the sawmills of Chaudière were clustered in the areas along the north edge of Lebreton Flats and the islands. The great Hull fire of 1900 destroyed the remaining sawmills, marking the beginning of the site's demise. Today, a few remaining building fragments on the islands are maintained, while others continue to crumble and become vandalized over time. Due to the historical overlay of the islands, the buildings on the site are frozen in time and are portrayed as relics of Ottawa's industrial past. Although the Islands have overcome many changes in physical landscape, identity and

12 Boucher, Louise N. "Chaudière Falls in the Outaouais Region," *Encyclopedia of French Cultural Heritage in North America*. Accessed 6 Dec. 2014. http://www.ameriquefrancaise.org/en/article-719/Chaudière_Falls_in_the_Outaouais_Region.html.

ownership i.e. hydro-electrical and pulp companies, they have yet to be embraced as significant elements of the capital's heritage in any way. From hydroelectric diversion dams to log flumes, the Chaudière district is composed of many independent and systematic mechanisms. The Chaudière Portage trail and majority of buildings in the Chaudière district received their designation as historical sites in 1927, as fragments of industrial history in the Outaouais region in the nineteenth century. This includes a select few buildings from the E.B.Eddy Company on the Gatineau side of the river as well as the Bronson Company office, Wilson Carbide Mill, Ottawa Electric Railway Company Steam Plant and Hydro Ottawa Building no.2 building on the Ontario side.¹² In addition, the land itself possesses a great value in the heritage of Ottawa and its founding trades and economy based on the wood industry.

On an urban scale, it is evident that the preservation of the buildings and site has paralyzed the site's ability to participate in the city. Regarding the integration of World War II ruins in European cities, Fred Scott argues that these urban artifacts should remain as much a part of the present as they do to the past by integrating them into the infrastructure of the city. Scott outlines the issue by stating "the sites have been cauterized and removed from the everyday life of the city, and remained

empty in perpetuity as a reminder to everyone of the peculiar fragility of civilization under certain conditions."¹³ Unquestionably, the Chaudière district can withstand time, but what is there to be said about their participation in the urbanity of Ottawa? Is it ethical to maintain a decaying fragment of history – with traditional methods of restoration, for the sake of preserving the past? Rossi reminds us that what was relevant centuries ago (including buildings and methods of construction) can be relevant in the future of a city. The abandoned Chaudière region has longed for a place in the modern urban context of Hull and Ottawa; this thesis will explore the derelict site of Amelia Island. Rossi explains architecture of the city as,

"First, the city is seen as a gigantic man-made object, a work of engineering and architecture that is large and complex and growing over time; second, certain more limited but still crucial aspects of the city, namely urban artifacts, which like the city itself are characterized by their own history and thus by their own form. In both cases architecture clearly represents only one aspect of a more complex reality, of a larger structure; but at the same time, as the ultimate verifiable fact of this reality, it constitutes the most concrete possible position from which to address the problem".¹⁴

- Aldo Rossi, *The Architecture of the City*

This thesis projects will attempt to capture the spirit of the site - to reconnect this artifact back to the city of Ottawa and its citizens.

¹³ Scott, Fred. *On Altering Architecture* (New York: Routledge, 2008) 197.

¹⁴ Rossi, Aldo. *The Architecture of the City* (Massachusetts: MIT Press, 1984) 29.

1 SOUTH ACCESS TO SITE VIA HYDRO BLDG. NO.2 (WALK)
2 PARKING LOT

3 BIKE PATH
4 WALKING PATH

1 HYDRO BLDG. NO.2
2 LOG FLUME
3 SLEUCE - OTTAWA RIVER

4 HYDRO DAM
5 WATERFRONT - SITE

CHAPTER 5.0 DESIGN PROJECT

This orientation centre for the wood industry and trades in the Chaudière Region is a counter-proposal for current development plans. Windmill Development Group (WDG) is suggesting to the City of Ottawa. The city is in dire need of change within its dead urban zones, and this thesis proposal aims to provide a more meaningful approach to redeveloping the site with architectural intervention. As WDG is a real estate developer, inherently their design proposal is based on long-term economics. Whereas, this project is based on the site's history and current relevance in today's society as a motive for design. The building attempts to capture an ephemeral sense of place, via observation of site, materiality and program. In contrast to the WDG proposal, this project does not exploit the island's valuable real estate, the building embraces it. Nestled within the island's foliage, lays an elongated mass protruding out towards the southern waterfront. This mass is intended to serve as a destination point for the citizens and visitors of Ottawa, and have a minimal impact on the historic site around [constructed as though it were inserted in position]. Additionally, this mass acts as a bridge, connecting the accessible parts of the islands to the unexplored southern region, which has a breathtaking view of the city, as well as a glimpse of the site's historical features i.e. log flume and hydro-electrical power station.

5.1 | FORM + LAYOUT

[Fig.5.1-1] MASS

The proposal takes form of an elongated rectangular monolithic mass which acts as a bridge that spans over the log chute on the site.

Figure 5.1 - 1

[Fig.5.1-2] DIVIDE

The mass is divided into three areas: the workshop, assembly/storage space and the retail/cafe space. The building entrance is located in the middle portion of the building, allowing for immediate access to all programs in the building.

Figure 5.1 - 2

[Fig.5.1-3] REVEAL

Pulling apart the mass creates a celebrated break in the form. This break exposes the structure, materiality and function; allowing one to witness from up close and from afar the methods of construction, density of program and allusions to historical influences via observation.

Figure 5.1 - 3

Figure 5.1 - 1

Figure 5.1 - 2

Figure 5.1 - 3

[Fig.5.1-4] PUBLIC SPACE

With immediate access from the main entrance, the corridor forces occupants to pass by the workshop upon reaching the retail/cafe space and the south end of the building. This tall but narrow passageway leads users close to the provocative building envelope, structure and unique design features which are associated with the depth of the wall assemblies.

[Fig.5.1-5] ASSEMBLY + STORAGE

Linked to the workshop by a small corridor alongside the east exterior wall, the assembly room and storage room help facilitate the featured program. The assembly room has also direct access to the outdoor assembly platform and storage room for efficient flow of material through the building.

[Fig.5.1-6] INSTITUTIONAL SPACE

The administrative and institutional spaces are located at the main lobby and second level overlooking the workshop. This insures privacy for those utilizing the school, and also immediate access for those who are visiting the building and/or school.

5.2 | STRUCTURE + MATERIALITY

Structure and materiality play an important role in the perception of space. This project will separate the structure and skin to achieve a sense of spatial awareness and understanding of the materials and methods of the building. The primary structure of the proposed building will use industrial modes of production now being used in the construction industry (assembly methods and building materials), the building skin and interior finishes celebrate the work of craftsmanship: both by hand and digital craft.

This project will be partly manufactured by cnc milling off-site. This process will establish a framework for which the handcrafted interior finishes and cladding systems will operate within – allowing one to see traditional methods of construction (hand and tool) coexisting with modern approaches of assembly (digital fabrication). These methods of construction both employ craftsmanship in its different modes, grounded by the material wood.

The main idea is to achieve a sense of density within a large wooden box-truss, and capture the essence of craftwork in the interior framing, cladding and depth of the wall assemblies. The primary structure of the building will combine a traditional wood truss structure with contemporary cross laminated timber (CLT). This box-truss will span like a bridge, across the ravine on the concrete piers. A sense of mass can be achieved through a combination of spatial density and material use. The heaviness of a material or at least the appearance of it in relation to a void contributes to a perceived sense of density.

Figure 5.3 - 1 Charred CLT

5.3 | WOOD

Wood is the most predominant building material in the proposal. Serving as both the primary structure and interior/exterior cladding, this building illustrates the diverse capabilities of wood in terms of formwork, slab, industrial truss structures, framing, claddings, finishes and furniture. The building and its construction provides a feedback loop to the students in the building.

The CLT walls will vary in thickness, height and orientation, perform as a thermal/noise insulator, fire separation and support vertical compressive forces acting upon the structure. Dimensional lumber will be utilized as both an interior partition wall assembly and exterior rain screen cladding system. From door handles to furniture, at every moment of interaction with the building, each element will be crafted out of wood. Found throughout the building, will be an array of finishes and wood species. The exterior cladding will primarily have a charred cedar finish, while being pressure treated in the northern portion of the building; CLT elements will be machine-sanded smooth. The floors and dimensional lumber on the framing wall are to be unfinished pine.

Figure 5.4 - 1 Cast-In-Place Concrete - Wood Texture

5.4 | CONCRETE + THE TRACES OF WOOD

Concrete appears once in the proposal as the footings for the wooden building. With a considerably low impact on the valley-like site, the building rests on two tapered cast-in-place footings. These components are similar in function and concept to existing footings nearby; which ground the log chute passing under the building. Concrete and wood have a unique relationship. Wood formwork is built into which concrete is poured. Once cured, only the traces of wood grain and seams are left; like a ghost on the concrete. These piers will have the traces of their wood formwork. The skill of the wood trades is seen.

Figure 5.5.1 - 1 Charring Process

5.5 | DETAILS: FINISHES + FASTENERS

5.5.1 | CHARRED WOOD

The charred wood treatment is a inexpensive traditional finish for cladding. This technique creates a thick layer of charcoal which prevents against an assortment of environmental factors such as, insects, fungal growth and salt corrosion. Shown in the diagrams BELOW are the steps one would take to achieve the charred finish. Additionally, during a building fire, the exterior layer of the CLT component will create a layer of insulation which prevents the further degradation of the wood layers underneath.

STEPS

- 1: Create a scaffold board chimney
- 2: Erect and secure the chimney
- 3: Ignite the chimney
- 4: Extinguish fire by a controlled collapse
- 5: Allow charred timber to cool

- 1** PALETTE PIT FOR CHARRING WOOD
- 2** CONCRETE PAD FOR COOLING WOOD
- 3** IN-BUILT STORAGE SPACE IN FACADE FOR FIREWOOD

Figure 5.5.1 - 2 Charred Cedar Finish

East Facade

West Facade

5.5.2 | STEEL CONNECTIONS FOR WOOD

Where required, steel will be utilized for fastening, structural connections and reinforcement. All steel work is to be pre-fabricated prior to construction and be manually installed on site. Steel connections allows the wood trusses to span the site with continuity and prominence.

5.5.3 | GLASS VIEWING PANES

The exterior curtain wall system will require steel plates and facets to latch onto the wooden structural members present. Instead of utilizing mullions on the exterior curtain walls, the spider clamp system will allow one to look into the building without the visual distraction of a perceived gridded wall plane. Though the glass will render a reflection of the site which surrounds the building, the architectural intent is to achieve an illusion of a mass being exploded and celebrating that void/reveal in structure.

NORTH - SOUTH SECTION

NORTH - SOUTH SECTION PERSPECTIVE

EXTERIOR WALL

Assembly M – Machine Crafted H – Hand Crafted O – Other

- H Horizontal Cedar Slats (Charred Fin.)
- H Battens / Drain Cavity
- M Plywood Sheathing (Black Paint Fin.)
- O Rigid Insulation
- M Cross Laminated Timber
- H Battens / Service Void
- H Horizontal Pine Boards (Charred/Stained Fin.)
- O Curtain Wall (Glazed Panels)
- O Spider clamp system

The exterior walls play an important role in perceiving the buildings urban gesture. The building envelope consists primarily of two main wall systems; Cross laminated timber (CLT) and curtain wall glazing (spider clamp system). Having thus, one wall type being solid and the other transparent, the two assemblies achieve an appearance of a solid mass with an exposed interior void space. This celebrated void space and revealing of structural elements and materiality are the core design features which express a narrative from within and outside the building. The South portion (retail) of the building has a semi transparent cladding which reveals the angled columns which resemble that of earlier traditional methods of bridge design; heavy-timber box truss. This also allows occupants to observe the site from within the building.

FRAMING WALL

Assembly M – Machine Crafted H – Hand Crafted O – Other

- O Curtain Wall (Wood / Glazed Panels)
- O Service Void
- H Dimensional Lumber (Unfinished)

Dividing the public corridor and workshop, this interior partition is the key feature wall in the proposal. The double-skin cavity wall consists of a glazed curtain wall system (corridor side) and an adjacent wooden frame (workshop side). Supporting the notion of observation and craftsmanship, this wall serves as a training device for the construction of wooden frame components and the installation of mechanical/electrical fixtures within. The glazed portion of this wall assembly bridges the public realm and the private space, highlighting the process of wood crafting and the training of tradesmen. This cavity wall also serves the building as a conduit for all electrical/mechanical services that lead to the retail space from the institutional area. The depth of this wall assembly allows for a built-in racking system (workshop side) and seating/shelving space (corridor side).

CAFE WALL

Assembly M – Machine Crafted H – Hand Crafted O – Other

- H Dimensional Lumber (Unfinished)
- O Curtain Wall (Wood / Glazed Panels)
- H Dimensional Lumber (Charred Fin.)

The café wall provides service to both the retail and institutional sectors of the building. Constructed solely out of wood, this wall provides an example of the crafting finesse and detailing of craftsmen, which is also displayed amongst other spaces in the building (joinery + finishes). The depth of the wall allows for storage of required objects that help facilitate the function of the café and workshop on both sides. The semi-transparent portion (slats) of this wall is meant to provide a celebrated visual connection between what is being retailed in that space and where they were crafted. The café is intended to serve as a complimentary function, which embraces the quality of material/elemental substance and also allows one to stay for a longer period of time to appreciate the items being re-tailed and crafted.

RETAIL WALL

Assembly **M** – Machine Crafted **H** – Hand Crafted **O** – Other

- H** Horizontal Cedar Slats (Charred Fin.)
- H** Battens / Drain Cavity
- O** Curtain Wall (Wood / Glazed Panels)
- M** Plywood Sheathing (Black Paint Fin.)
- O** Rigid Insulation
- M** Cross Laminated Timber
- H** Battens / Service Void
- H** Horizontal Pine Boards (Charred/Stained)

The retail wall is located within a CNC milled opening in the insulated CLT exterior wall. The retail wall is a storage assembly comprised of a charred cedar rain screen, glazed curtain wall system and integrated shelving structure. The shelving compartments project through the entire depth of the wall and protrude into the retail space. Although the functional purpose of this wall is to hold and display the retailed items in the depth of the wall and allow natural light to penetrate the space, the construction and finishing of this wall exemplifies the symbiotic relationship between the precision in technology and the capabilities of hand craft trades. Through the seamless joints between the constructed shelving units and manufactured wall opening, this wall embraces what technology has to offer, setting up a framework for human creativity to work within. The CLT wall allows the shelving compartments to be celebrated, while the shelving celebrates the craft work in the building.

CONCLUSION

In conclusion, it is evident that buildings, urban constructs, construction technologies and building materials do not last forever. Whether they remain for a short duration or a long period of time, they all contribute to an ongoing process of evolution in their own right. The transformation of structures urban constructs are the course which keeps buildings alive, instead of becoming a decaying reminder of the past. Rossi's argument was that a city and its components must be studied and valued as an object constructed over time. In this thesis, the interest was in studying the transformation in heritage, city fabric, construction technologies/techniques, and social progress in economics and culture. As time moves forward and buildings lose their functionality or purpose, the most common method for saving a building from demolition consists of the rehabilitation of the building by introducing a new use. The idea of this proposal was to illustrate how architectural intervention may be a viable solution for the problems [politics and land ownership] that urban stagnation has brought to Amelia Island. As architecture seeks to link the intangible aspects of nature with the built environment, it is the medium through which we find the framing and understanding of the world we live in. Recalling the history of the site, and the cultural influences that impacted the urban growth of Ottawa, this project explored the concept of architecture as a mirror for the times; a space of observation and reflection for the times themselves and for the public. This building expresses the intertwining of traditional and contemporary construction methods, materials and applications. The building also acts as a physical/metaphorical bridge through the site, connecting the historical site with a vantage point that overlooks the newer developing regions of Ottawa. This thesis acts as a counterproposal to the approach that developers are taking to develop these historical sites. In contrast to the Windmill Development Group proposal, this project does not exploit the island's valuable real estate, the building embraces it. It is difficult to determine what will be done with the urbanity of Ottawa and the relevance of the Chaudière Falls in the city's future. Rather than constructing developments based on economics, it is essential that architects and city developers, develop the city with mindful consideration of what the site(s) once stood for. To move forward, one must look into the past.

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