



constructing confluence
a regional timber museum + workshop at lebreton flats

"There is a sense of connection to a broader architectural culture, an acknowledgment not only of ancient history but of the impact of a century of modernism and its radical upending of everything that happened until then and the creative conflict that will be possible when liberation collides with tradition."
(Kundoo, 2020, p.21)

Table of Contents

005	Definitions
006	Background
016	Context
016	Site
022	Timeline
024	Aerial Photographs
026	Site Plan
028	Motivation
032	Contemporary Critism of Critical Regionalism
037	Thesis Statement
037	Question
038	Vision
040	Project Framing
042	Overall Objective + Relevance
044	Methods
047	Deliverables
048	Presentation Plan
050	Schedule
052	Sources

Definitions:

Critical Regionalism: an approach to architecture that strives to counter the placelessness and lack of identity of the International Style, but also rejects the whimsical individualism and ornamentation of postmodern architecture.¹

Tectonics: referred not just to the activity of making the materially requisite construction...but rather to the activity that raises this construction to an art form...The functionally adequate form must be adapted so as to give expression to its function. The sense of bearing provided by the entasis of Greek columns became the touchstone of this concept of *Tektonik*²

Tabula Rasa: something existing in its original pristine state.³

Vernacular: of, relating to, or characteristic of a period, place, or group especially: of, relating to, or being the common building style of a period or place.⁴

Genius Loci: the prevailing character or atmosphere of a place.

Arrière-garde: a group of people who favour older, traditional approaches over the modern or avant-garde.

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- 1 Szacka, L. (2020, December 17). Critical regionalism for our time. Retrieved February 05, 2021, from <https://www.architectural-review.com/essays/critical-regionalism-for-our-time>
 - 2 Stranford Anderson, "Modern Architecture and Industry: Peter Behrens, the AEG, and Industrial Design," *Oppositions* 21 (Summer 1980), p.83.
 - 3 The New Merriam-Webster dictionary. (1989). Springfield, MA: Merriam-Webster.
 - 4 The New Merriam-Webster dictionary. (1989). Springfield, MA: Merriam-Webster.



figure 1 | Wall House | Anupama Kundoo
Auroville, India

"...[T]here is contact with the material culture, the making of architecture and the way in which those are clearly connected with the place you are in... And there is the luxury, the luxury of time and care embedded in the fabric, of the perception of the changing seasons, the texture of material to the touch and the pleasure in the apparent simplicity and intelligence embodied in the building" (Kundoo, 2020, 21).

BACKGROUND

Canada is a nation covered in forests. Its economy and national identity are both built upon a vast wealth of natural resources. As economist Harold Innis outlined in his staples theory (1930), Canadians are "hewers of wood and drawers of water". This is in reference to Canada's political, cultural and economic dependence on the exploitation and export of natural resources.⁵ Canada is home to 10% of the planet's woodlands, 54% of the country is covered in forests⁶ (347 million hectares)⁷. The Canadian timber trade was originally driven by European demand. At the beginning of the 19th Century, during the Napoleonic Wars, France cut Britain off from all European ports. This meant they were no longer able to get timber from the Baltic region, forcing them to use British North America as the sole source of Naval lumber. This rapid demand accelerated the growth of the Canadian lumber industry. It enabled cities to be built, roads to be made and land to be discovered.⁸ All of this to say, Canada's timber industry has and continues to play a pivotal part in its economic and cultural identity.

For the indigenous people of Canada, wood was one of their primary materials for building and survival. On the west coast, for example, the Haida and Tsimshian are among some of the tribes that used to build boats, small objects and post-and-beam long-houses out of the softwood, cedar. *"For these cultures, reverence for wood has always been part of a broader relationship with the environment"* (Taggart, 2011, p.22).

- 5 Poloz, S. S. (2016, November 28). From Hewers of Wood to Hewers of Code: Canada's Expanding Service Economy. Retrieved from <https://www.bankof-canada.ca/2016/11/hewers-wood-hewers-code-canada-expanding-service/>
- 6 Friis, Nikolaj Callisen., et al. Træ! i En Bæredygtig Byggekultur? = Wood! in a Sustainable Building Culture? Det Kongelige Danske Kunstakademis Skoler for Arkitektur, Design Og Konservering, 2013.
- 7 Canada, Natural Resources (2020, July 23). Government of Canada. Retrieved from <https://www.nrcan.gc.ca/our-natural-resources/forests-forestry/state-canadas-forests-report/how-much-forest-does-canada-have/17601>
- 8 Poloz, S. S. (2016, November 28). From Hewers of Wood to Hewers of Code: Canada's Expanding Service Economy. Retrieved from <https://www.bankof-canada.ca/2016/11/hewers-wood-hewers-code-canada-expanding-service/>

During the early days of Canada, from the 17th to 19th centuries, the humble barn was one of the earliest vernacular building typologies of the European settlers in Canada. They are among the oldest surviving buildings in the country. These structures were constructed of timber hewed from nearby forests. They are derived from both English and French construction systems. The wood used varied regionally across the country, whether it be pine in the Ottawa Valley, hemlock in Peterborough County or spruce in New Brunswick. Each barn was a direct reflection of the nearest forest, not only in relation to species but also to the size and strength of the trees. Mature forests with tall trees were an extremely valuable export from British North America as they were used by the Royal Navy to build masts. These tall trees also allowed Canadian farmers to build larger barns.

In these barns found in the present-day Ottawa Valley, formerly the province of Upper Canada, each wooden member bears the marks of the broad axe from it being hewn square by hand. Knots found in the bottom of timber beams were often cut out because of their weakening, compressive nature, if they were found on the sides or top of the beam, the knots were left to be, as they didn't compromise the structural integrity. The unique texture of the hand-hewn timber and small irregularities of the notches are among some of the characteristics that tell the narrative of the old barn.⁹ The plan of the Canadian timber barn is composed

⁹ Sloane, E. (2004). *A reverence for wood*. Dover Publications.



figure 2 | Felling tree using crosscut saw Ontario 1870-1930

Ontario, Canada

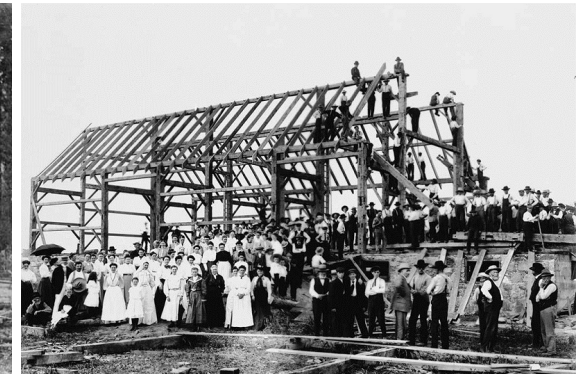


figure 3 | Community Barn Raising

Ontario, Canada



figure 4 | Old empty barn
Southern Ontario

of several bays, which are open areas separated by vertical posts and horizontal beams. These units comprised of posts and beams are each called “bents”; each bent is put together on the ground before the barn is raised; barns are sized by the number of bents in a frame. The size of the bay is dictated by the size of timber beams used. The addition of a swing beam enables a large, open space at the centre of the structure, in the building’s nave. These bays create articulation within the building. The size and scale of each distinct zone is a direct reflection of the site-specific material of timber. Haylofts also typically exist in these barn structures, this can easily happen due to the tie beams that already separate the lower half of the barn from the roof structure. In this space, the atmosphere is very different. By being closer to the rafters and roof structure, a feeling of compression exists. From this area, one also has a good vantage point of the remainder of the barn.¹⁰

Tectonics refers to the art of joining.¹¹ The language of tectonics with the architecture of the barn is extremely clear and simple. All of the joints of the barn kit were mortise and tenon joints. These consisted of a male part (tenon) that would fit inside a female part (mortise), the two would then be put together by a wooden peg, called a trunnel (“tree nail”), with a mallet. The trunnel would be made of a wood that was harder than the timber posts and beams. This technique requires no additional adhesives, nails, screws, etc... the entire structure is made of wood. The modular tectonic nature of the timber frame is what allows it to be disassembled and reassembled with relative ease and speed.¹²

10 Reclaimed Timber Construction [Interview with Tim Priddle]. (2016, May).

11 Frampton, K., & Cava, J. (2001). *Studies in tectonic culture the poetics of construction in nineteenth and twentieth century architecture*. MIT Press.

12 Sloane, E. (2004). *A reverence for wood*. Dover Publications.

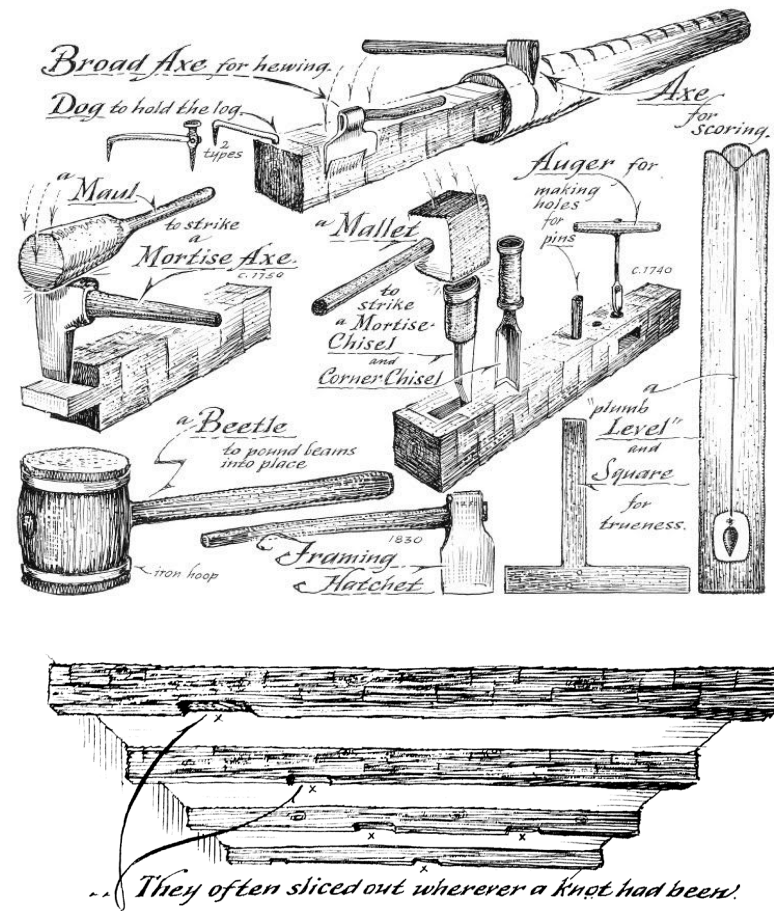


figure 5 | Eric Sloane Illustrations, A Reverence for Wood 1965

In the present day, as Canadian farms have become more industrial, they have moved their storage and animals into larger steel frame warehouse barns, and the old vernacular heavy timber structures have been left empty. With the passing of time, the family farm has become less and less vital to society, and with this has come an increase in the abandonment of these barns, the structures that were once a crucial part of everyday life. In more recent years there has been a boom in the reclaiming of these neglected timber frames. Due to the modular nature of the building's tectonics, as outlined earlier, it is possible to take down the building's cladding, and then disassemble the structure. After being relocated to a new site, these structures can be re-erected on a new foundation within a day by a crew of a few people. After it is reoccupied, it can have a new programme and be re-inhabited. This process of giving the building a second life is part of the circularity of wood as a material. The only reason it is possible to repurpose the structure with such ease is the tectonic construction of the building.

This case study of the timber frame barn encapsulates the objective of this project. By creating a method of tectonics that is deeply rooted in local materials, a thoughtful, sensitive project will develop. The project began with observing qualities and characteristics of construction and tectonics exhibited in the old barns, not to copy them, but to capture the spirit that they embody.



figure 6 | weekend backyard barn raising
Ottawa, Ontario

CONTEXT

SITE

Ottawa, Canada's capital city is one that was founded on the lumber industry. The city is connected up north to the Ottawa Valley and to Montreal westward via the Ottawa River, which converges with the Rideau and Gatineau Rivers at the city centre. West of this convergence the river narrows between rocky escarpments forming the historic Chaudière Falls. Prior to the Europeans arriving in North America, Chaudière Falls was an important meeting point in the region for aboriginal people. As different tribes would be required to portage around the falls, it was a natural place to take shelter and hunt. As Christian Norberg-Schulz describes in his writing *Genius Loci: Towards a Phenomenology of Architecture*, “[p]laces where natural and man-made elements form a synthesis are the subject-matter of a phenomenology of architecture... where does nature invite man to settle? The question has to be answered in terms of space and character” (Norberg-Schulz, 1996, p.168). At Chaudière, the falls invited man to settle and build. This is at the root of the site's *genius loci*, the spirit and relationships that animate LeBreton Flats.



figure 7 [top] | Chaudière Falls before development
Ottawa, Ontario

figure 8 [bottom] | Indigenous paying homage to the spirit of Chaudière
Ottawa, Ontario

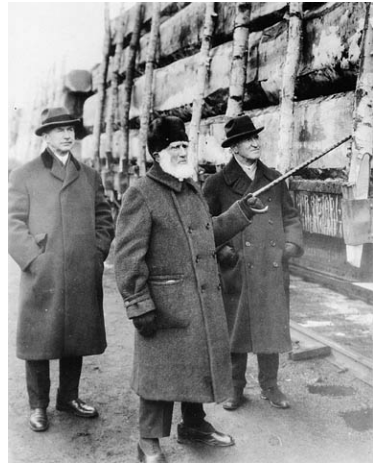


figure 9 [top left] | JR Booth Lumber Yard LeBreton Flats 1880

figure 10 [top left] | JR Booth and Sons in front of white pine 1900-1904

figure 11 [bottom left] | Royal Family visits Ottawa + goes down the Timber Slide 1901

figure 12 [bottom right] | Timber Boom on the Ottawa River, in front of Parliament 1882
Ottawa, Ontario

At the beginning of the 19th Century, Philemon Wright, an entrepreneur and lumberman came to the area and was responsible for founding the first permanent settlement in the region. He built the first bridge that connected the present day province of Quebec with Ontario, close to Chaudière Falls. Along with his development came a series of mills, foundries and shops. His goal was to build a raft of timber that could float down the Ottawa River to Montreal and then up the St. Lawrence River to Quebec City, there it could be sold to the British and brought across the Atlantic Ocean. The first timber raft journey to Quebec City took two months, despite the difficulty it encountered; this was the beginning of the Ottawa River timber trade. By the late 1820s, lumber slides had been built around Chaudière Falls, which enabled ease of transportation for the lumber, which was felled up the valley on it's way to Montreal. Previously, one had to wait weeks for calm waters so the lumber could travel over the falls. These slides later became a tourist attraction for British Royalty, as they loved experiencing the thrill of the "shooting of the slides". It was at this time that Canada's largest sawmills were located around these falls. Lumber Barons such as JR Booth and HF Bronson among others were working in the area. At one point JR Booth, the most dominant lumber baron, employed more than 1000 people and was able to turnout a million board feet (2,360m²) of lumber in just 10 hours. The lumber industry was booming, but was always under threat of fire. In 1900, a great fire came to destroy the area, Booth alone lost 100 million feet of lumber. In 1909, he decided to construct a new hydroelectric generating station at the falls to power his mills. This unfortunately caused the water level around Chaudière to rise by 3m, which caused the end of log rafting at the falls. Booth continued to run his lumber mill in Ottawa, in addition to a paper and pulp mill, until his death in 1925. In the 1940s, portions of his company were sold to the E.B. Eddy Company, which continued to run paper and pulp mills at a much smaller scale until the beginning of the 21 Century.¹³

¹³ Deachman, B. (2019, April 04). The capital BUILDERS: J.R. BOOTH, 'monarch of the Upper Ottawa'. Retrieved February 11, 2021, from <https://ottawacitizen.com/news/local-news/the-capital-builders-j-r-booth-monarch-of-the-upper-ottawa>

By the 1960s, most of the area around the falls, known as LeBreton Flats, was left alone and used as a place to pile snow that had been removed from the streets of Ottawa in winter. The soil on the site was contaminated as a result of the many years of industry that had taken place. The as the snow from the streets melted in the spring, it made the ground increasingly contaminated. A Federal organization called the National Capital Commission acquired the site to begin the process of remediation. In 2005, the new Canadian War Museum was built on a portion of the site. In 2017, a new Holocaust Memorial was constructed by the War Museum. In 2019, with the development of Ottawa's light rail system, a new stop "Pimisi Station" was placed at the centre of LeBreton Flats.¹⁴

LeBreton Flats has been a highly contentious site for many years, being the subject of various proposals. In 2015, the NCC held a competition to select a new proposal for the site that would encompass housing, commercial space, offices, a new city library and parkland. The proposal "RendezVous LeBreton" was the winning project. In 2018, an internal conflict between the two parties involved in the RendezVous team destroyed the master plan concept. The NCC has now divided the site in four parcels with the intention of having various developers working on each sector. The first element of the development that has come to fruition is the \$193 million library proposal, which is set to be complete in 2024.¹⁵

14 CBC, C. (2018, December 21). Take a look At LEBRETON flats - then and now | CBC News. Retrieved February 11, 2021, from <https://www.cbc.ca/news/canada/ottawa/lebreton-flats-archival-photos-1960s-1.4954961#:~:text=The%20origins%20of%20LeBreton%20Flats,rebuild%20their%20homes%20and%20businesses.>

15 CCN, N. (2020). Building LeBreton. Retrieved February 11, 2021, from <https://ncc-ccn.gc.ca/projects/building-lebreton>



figure 13 | LeBreton Flats: Children on the Street 1963
Ottawa, Ontario

TIMELINE



figure 8 | Meeting at the falls



figure 14 | Ottawa Lumber District 1885



figure 15 | Great Fire 1900



figure 16 | LeBreton Flats Duke St. 1938

pre-1613	1613	early 1800s	1820	1827	1850	1860	1874	1890	1900	1909
indigenous people use the falls as a meeting place	Samuel de Champlain is the first european to label the falls chaudière	few people established businesses on the flats	John LeBreton, a retired army captain, purchases the flats for £499	bridges are built connecting Ontario + Quebec	community around chaudière falls is significantly developed for workers at industrial facilities	timber slides built	aqueduct built	JR Booth employed more than 1000 people, capable of producing 1 million board ft of lumber in 10 hours	great fire	Booth builds hydroelectric power plant
mid 1940s	1950	1962	2001	2005	summer 2007	2016	2017	march 2019	early 2021	late 2024
JR Booth LTD sold to EB Eddy Pulp and Paper	plan for national capital Greber plan to expand green belt and decentralize government	industry at LeBreton Flats declining	contaminated soil begins remediation	Canadian War Museum built	lawn in front of War Museum used for festivals	RendezVous LeBreton proposal for future development	Holocaust Memorial	RendezVous LeBreton group falls through, city develops new strategy	city to amend official plan for LeBreton Flats	new city library to be complete



figure 17 | LeBreton Flats aerial 1963

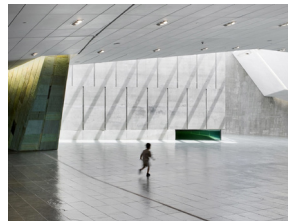


figure 18 | Canadian War Museum



figure 19 | Holocaust Memorial



figure 20 | Masterplan

AERIAL PHOTOGRAPHS



1928

industry still exists at LeBreton
lumber , pulp + paper production



1965

site in transition, industry declining
train line still runs to LeBreton



2002

post-industrial LeBreton Flats
pre-war museum
parkway runs along shoreline



2011

war museum built
parkway rerouted



2019

LRT station open
holocaust memorial built

“Only when understanding our place, we may be able to participate creatively and contribute to its history...when we see architecture from this point of view, we gain understanding and a direction for our work” (Norberg-Schulz, 1996, p.200)

SITE PLAN



- PROPOSED SITE
- extent of new lebreton flats masterplan
- extent of masterplan "parks and culture district"
- extent of lebreton flats neighbourhood
- - - new lrt line
- 1. canadian war museum
- 2. national holocaust memorial
- 3. new pimisi station
- 4. future hockey arena





figure 21 [top] | LeBreton Flats Aerial
figure 22 [right] | 2012 new development at LeBreton Flats East

MOTIVATION

The current architectural climate of Ottawa is one that lacks site specificity and regionalism. It is covered in uninspiring abstract curtain-walled buildings, which contribute to a loss of place. Construction and development in Ottawa should not be the same as other cities around the world; it should even vary from nearby Montreal and Toronto. As Norberg-Schulz iterates, “we learn that cities have to be treated as individual places, rather than abstract spaces where the “blind” forces of economy and politics may have free play” (Norberg-Schulz, 1996, p.189). To respect and uphold the *genius loci* of a place means to comprehend the identity of a space and interpret it in interesting, new ways, rather than approaching it from a copy and paste perspective.¹⁶ A city that was founded on the lumber industry and built by wood has now seemingly forgotten its past and become lost in the era of universalization. As Paul Ricoeur describes in his book *History and Truth*:

“[t]he phenomenon of universalization, while being an advancement of mankind, at the same time constitutes a sort of subtle destruction, not only of traditional cultures, which might not be an irreparable wrong, but also of what I shall call for the time being the creative nucleus of great cultures, that nucleus on the basis of which we interpret life, what I shall call in advance the ethical and mythical nucleus of mankind” (Ricoeur, 1961, p.276-7).

¹⁶ Norberg-Schulz, C. (1996). *Genius loci: Towards a phenomenology of architecture*. New York: Rizzoli.

My motivation is derived from my own personal experience growing up in a family heavily involved in the wood industry. Some of my earliest memories from childhood involve playing in the forests of the Ottawa Valley, being awestruck by the ancient Douglas Fir giants in British Columbia and building wooden furniture with my father. Over the years I have grown to have a great appreciation for the history and identity of my hometown rooted in the lumber industry. Over the course of this project, I seek to create a project that brings a sense of place with it. As Norberg-Schulz describes, one methodology for recovering a sense of place is, “to take the circumstantial conditions of locality and building task into consideration, rather than basing the design upon general types and principles” (Norberg-Schulz, 1996, p.200). He also suggests that a strong place suggests a correlation between the elements of site, settlement and architectural detail. All of these factors can easily be improved if the *genius loci* is respected and understood.¹⁷ Although often times in modern universal architecture, it seems as though a given project begins with a tabula rasa and a bulldozer is given permission to simply flatten topography literally and metaphorically, each site comes with a specific context, climate, light, history and culture. This is the case with the site of this project, LeBreton Flats at Chaudière Falls. Throughout this project, I hope to maintain a certain level of self-consciousness, as Kenneth Frampton outlines in his essay *Towards a Critical Regionalism: Six Points for an Architecture of Resistance*:

¹⁷ Norberg-Schulz, C. (1996). *Genius loci: Towards a phenomenology of architecture*. New York: Rizzoli.

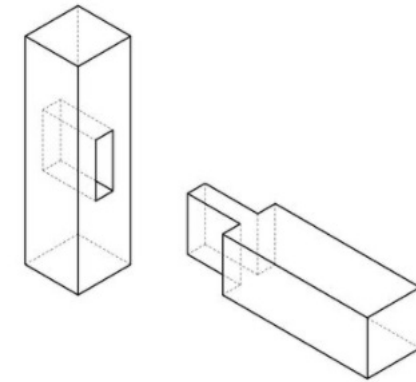


figure 23 | Illustration of mortise + tenon joint
198 Wood Joints

“Architecture can only be sustained today as a critical practice if it assumes an *arrière-garde* position...A critical *arrière-garde* has to remove itself from both the optimization of advanced technology and the ever-present tendency to regress into nostalgic historicism or the glibly decorative. It is my contention that only an *arrière-garde* has the capacity to cultivate a resistance, identity-giving culture while at the same time having discreet recourse to universal technique.” (Frampton, 1983, p.20).

CONTEMPORARY CRITICISM OF CRITICAL REGIONALISM

In his essay *Placing Resistance: A Critique of Critical Regionalism* (2002), Keith Eggener presents several critiques of Critical Regionalism, with an emphasis on Frampton's writings. Eggener argues that at its heart, Critical Regionalism is a postcolonial concept. As a result, it engages with certain terms in polar opposition to one another (eg. tradition/modern, natural/cultural, east/west). As Historian Jane M. Jacobs puts it, "the assumptions and implication it bears have undermined its own constructive message and cofounded the architecture it upholds" (Eggener, 2002, p.228).

In the critique of Critical Regionalism, another point brought up is the era in which the term rose to prominence. The 1980s were "an era of aggressive foreign intervention by the superpowers, the United States and the Soviet Union, and of resurgent nationalism worldwide" (Eggener, 2002, p.229-30). Perhaps this movement is just an opposition to the global condition and capitalist culture of that time.

Eggener also takes issue with Critical regionalism's identity as a movement with a desire to eliminate the placelessness of modernism and the superficial historicism of postmodernism. He illustrates the contradictory nature of the statement saying:

"On the one hand, critical regionalism was reactive, directly rejecting postmodernism's widely perceived banality, superficiality, and cynicism in favour of a formal rigor and serious, social purpose akin to modern architecture at its best. On the other, it endorsed postmodern pluralism, its recognition of diverse subjectivities, and its assault on modernism's leveling, global sweep" (Eggener, 2002, p.229).



figure 24 | Säynätsalo Town Hall Alvar Aalto
Jyväskylä, Finland

Aalto is widely acknowledged as an example of Critical Regionalism due to the dialogue he achieved between nature, man, material, site and Finnish culture

Lastly, Mexican architect Luis Barragán is often used as an example of an architect who exemplifies the methodology and process of Critical Regionalism through his embodiment of his personal past and his sensitivity towards his culture. Barragán “sought an authentic expression of his culture devoid of both artifice of intentional fashion and of ‘folkloric’ quaintness...he sought a contemporary expression” (Eggener, 2002, p.231). Eggener uses Barragán as an example of why the classification of Critical Regional can be problematic. Internationally, Barragán was regarded as the most celebrated Mexican architect; this was cemented when he was awarded the Pritzker Prize in 1980. As a result of his success, he was regarded as the epitome of contemporary Mexican architecture. Eggener states that with his work being under the umbrella of Critical Regionalism, Barragán’s personal past and expression gets projected onto a nation. Barragán’s architecture was actually more highly influenced by the works of European and North American modernists that it was by Mexican vernaculars.¹⁸

18 Eggener, K. L. (2002). Placing resistance: A critique of critical regionalism. *Journal of Architectural Education*, 55(4), 228-237. doi:10.1162/104648802753657932



figure 25 | Casa Luis Barragán
Mexico City, Mexico



figure 26 | Bagsværd Church Jørn Utzon
Bagsværd, Denmark

Utzon displays a regional response in his Nordic sensibility to nature and integrity of design that strives for honesty, simplicity and quality

THESIS STATEMENT

Critical Regionalism refers to an architecture inspired by the conditions in which the practice is rooted, it rejects global trends and strives for independence: economically, culturally and politically.

QUESTIONS

Is it possible to use timber construction to develop a form of Critical Regionalism specific to Ottawa through the design of a lumber museum and workshop in the proposed development at historic LeBreton Flats?

Will the programme of this building help to instill a greater sense of individualism in the architectural climate of Ottawa?

Can the building capture the spirit embodied in the tectonic typology of the timber frame barn?

Does the project address the issues outlined in Keith Eggener's critique of Critical Regionalism?

Can this programme help to drive education and awareness about the sustainable implication of timber architecture?

VISION

In collaboration with the Canadian Wood Council, a new centre for Timber exploration is created near Chaudière Falls at LeBreton Flats. With the new LeBreton Flats master plan, two of the key goals are “building excellence through innovation” and “honouring the past”.¹⁹ The new development seeks to make this neighbourhood one of the cultural centers of Ottawa. By bringing this element of the site’s history to the forefront and by generating a new excitement towards the subject, contemporary culture and history will engage in conversation. The centre will have a museum/exhibition space as well as a series of workshops that will serve as educational facilities. The aim of the project is to embrace decentralization, showcasing a new Critical Regionalism specific to Ottawa, and to educate its visitors on the value and importance of using local wood in construction.

I will be exploring different methods of wood joinery, inspired by the traditional Canadian timber frame barn. In tandem with this tectonic study in timber joinery, I will also be studying the site in terms of topography, light, climate, materiality and tactility. These concepts will enable me to develop a building typology that is truly site specific. Throughout this investigation I will be critically self-conscious so that the work produced is not a “simple minded attempt to revive the hypothetical forms of a lost vernacular”²⁰, but is rather a sensitive example of Critical Regionalism. Through my intervention, I seek to address some of the critiques of Critical Regionalism addressed earlier.

¹⁹ CCN, N. (2020). LeBreton flats Master concept plan. Retrieved February 11, 2021, from <https://ncc-ccn.gc.ca/projects/lebreton-flats-master-concept-plan>

²⁰ Kenneth Frampton, “Towards a Critical Regionalism: Six Points for an Architecture of Resistance”, in *The Anti-Aesthetic. Essays on Postmodern Culture* (1983) edited by Hal Foster, Bay Press, Seattle.



figure 27 | BC Architects Preschool of Ouled Merzoug
Morocco

BC Architects display a connection to the land of which they seem to grow in their work in Morocco

PROJECT FRAMING

Programme: Timber Museum and Workshop

Users: Visitors to Ottawa, Local Ottawans, School Children, Architecture and Engineering Students from Carleton University & University of Ottawa, Trades Students from Algonquin College (currently located at Perth Campus)

The goal of the museum is to educate visitors on the history of Ottawa and the Ottawa Valley's lumber industry. Whilst doing that, centre exists to inform the next generation of wood materials, designs and applications in construction. The centre is created in collaboration with the Canadian Wood Council. Their goal is "to expand market access and increase demand for Canadian wood products through excellence in codes, standards, regulations and education. The CWC's vision is to be passionate, credible agents of change leading to an advanced and sustainable wood culture".²¹ This vision is carried out through both the museum and the workshop facilities, which are targeted at various age groups and demographics and run by skilled wood workers. The aim is to instill knowledge about the craft and techniques of constructing with wood so that the next generation seeks to build with local, sustainable materials in the spirit of Critical Regionalism.

Specifics:

Museum with exhibition space (open to the public): ~400m²

Workshop spaces for children, young adults, apprentices: ~500m²

Lecture Auditorium: ~150m²

Storage & back of house facilities

Circulation

21 Canadian Wood Council, C. (2019, August 09). About US - The CANADIAN Wood council. Retrieved February 11, 2021, from <https://cwc.ca/about-us/#:~:text=The%20Mission%20of%20the%20Council,advanced%20and%20sustainable%20wood%20culture.>



figure 28 | Alison and Peter Smithson 6 East
Schools of Architecture and Engineering, 1980-88
Bath, UK

The Smithson's designed this school as a didactic tool, so that the building itself should be as much a lesson as the teaching that would take place inside it

OVERALL OBJECTIVE & RELEVANCE

The two key objectives of the project are as follows:

1. *To promote the renewable material of timber in a site that is rich in the resource, in keeping with the UN goal of responsible consumption and production.*

The use of timber will result in a close dialogue between site-specific materials, tectonics and construction. All of these factors are what give the building a distinct material narrative and compelling spatial interior. It is also what leads the material to be part of a circular material economy. After looking at the case study of the Canadian timber frame barn, the capability of these structures to be disassembled and re-erected will serve as inspiration for the use of wood joinery as a tectonic method. This ability to give a structure a second life plays into the notion of sustainability. Building for longevity is a massive component of responsible consumption and production. Through the programme of this building, educating visitors on the importance of this material and construction method, also serves the purpose of bringing the sustainability goal into the next generation. This correlation between site, material and building is something that is often lost in contemporary architecture. With globalization and image-heavy architecture that borrows ideas from across the globe, this idea of regional, material based design is not common. As Frampton outlines, *"This has further confused the role of figuration in architecture because it now has less to do with anchoring spatial experience through a fundamental response to material and more to do with the associative qualities of the shape selected"* (Frampton, 2001, p.382). The timber building is an example of a building's structure responding to the materials fundamental nature, the space created it a direct result of the timber. The intention of the building is to create a functional, practical building to fulfill the programmatic requirements in a method that is thoughtful and dynamic.

2. *To create a language of tectonics that is rooted in Critical Regionalism, and to share that knowledge with the community, in keeping with the UN goal of quality education and building sustainable cities and communities.*

The programme of the building being a museum and workshop is centered on the goal of education. The building itself will serve as an example of the new tectonic language developed. It will be used as a didactic tool; the structure itself will exhibit certain construction, joinery and material approaches (at a 1:1 scale) teaching visitors about the methodology used to build the centre. Through the museum exhibitions, visitors will learn about the site's past and the key role that the lumber industry played in the founding of Ottawa and of Canada as a nation. Through the workshop experiences targeted at certain age groups and demographics, visitors will be able to engage in a tactile manner with wood as a material. With the center's efforts to education young school children and students, the aim of the project will be to alter the method that these young Canadians think and approach buildings in the future.



figure 29 | Detail wooden model
Previous project Isabella Priddle

METHODS

The method of expressing the theoretical principles discussed comes in the form of the design in relation to topography, context, climate, light and the tectonic form. These principles are clearly laid out by Frampton in his essay on Critical Regionalism. The main design elements influenced by the theory of Critical Regionalism are as follows:

- Lighting design & fenestrations
- Climate & building envelope
- Topography
- Tactility and materiality
- Tectonics

Lighting design plays an enormous role in the user's experience. In regards to the exhibition space, the location of fenestrations is especially important. In exhibition design, when the only source of light is artificial, the artwork being exhibited is reduced to a commodity and the sense of place is taken away. The elements of daylight, seasonality, humidity and weather are crucial in instilling a sense of site specificity. Windows allow for a filter to overwhelm a spatial interior at daylight and shadows move around a space over the course of a day.

In regards to tactility and materiality, these notions are central to the building's emphasis on using wood as a material. Once again, the climate and weather very much alter the state and feeling of wood, as the humidity changes and the wood swells and shrinks, one can easily sense a change to climate. Tactility and materiality go far beyond the sense of vision. The body is capable of sensing aroma, texture, sound, confinement, and intensity of lightness and darkness, all of which become part of the material experience.

As mentioned earlier, topography is one method of listening to a site's condition. All too often terrain is altered to fit a building's form. Inlaying a building to a site is one method of engaging with the act of cultivating a site. As Frampton iterates, "inlaying the building into the site, has many levels of significance, for it has a capacity to embody, in built form, the prehistory of the place, its archeological past and its subsequent cultivation and transformation across time. Through this layering into the site the idiosyncrasies of place fins their expression without falling into sentimentality."²² Here it is extremely clear that this is an important element of truly developing a project under the framework of Critical Regionalism, so that it does not fall into the nostalgic, kitschy genre of the vernacular.

Tectonics is arguably the most important of the principles, as Frampton states, "autonomy is embodied in the revealed ligaments of the construction and in the way in which the syntactical form of the structure explicitly resists the action of gravity...the tectonic is not to be confused with the purely technical, for it is more than the simple revelation of stereotomy or expression of skeletal framework" (Frampton, 1983, p.27).

WORKING METHODS

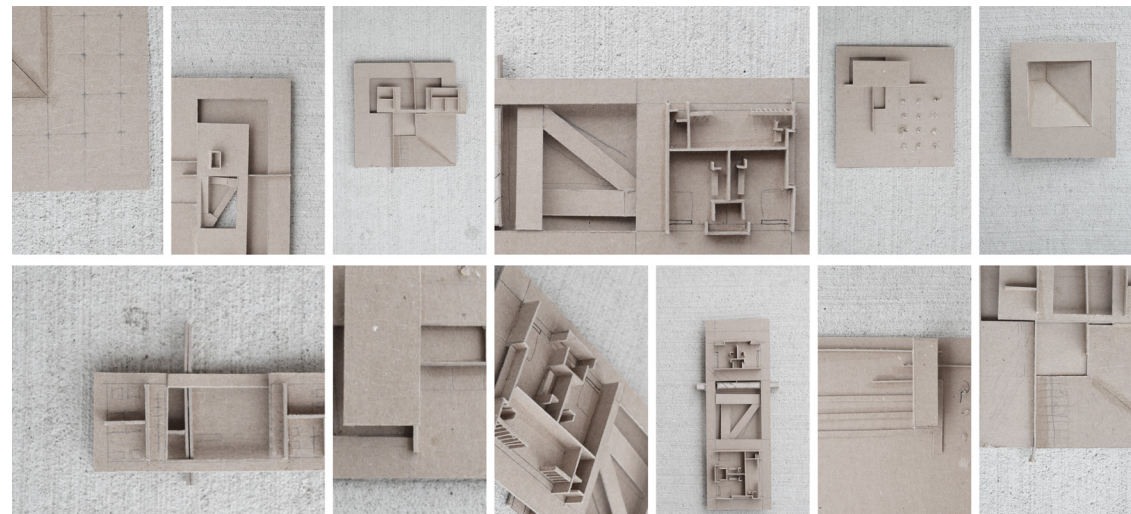
A large portion of the project consists of developing a tectonic language. This will start with the study of wooden joinery techniques, beginning with the mortise, tenon and trunnel joints from the Canadian timber frame barn. By creating a series of study models at various scales, this investigation will lead to the tectonic language. As the process unfolds, large scaled models (1:2 or 1:1) will be created. Simultaneously, card study models and drawings will be made to create the first iterations of the building's form. In tandem with 3D modeling, a light and topography study will be conducted to better understand the site. Throughout the process, 1:1 material samples will be used to help with tectonic, spatial and interior conditions.

²² Kenneth Frampton, "Towards a Critical Regionalism: Six Points for an Architecture of Resistance", in *The Anti-Aesthetic. Essays on Postmodern Culture* (1983) edited by Hal Foster, Bay Press, Seattle.

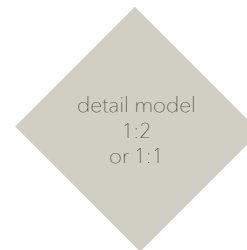
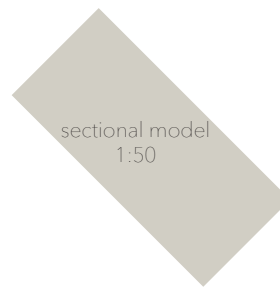
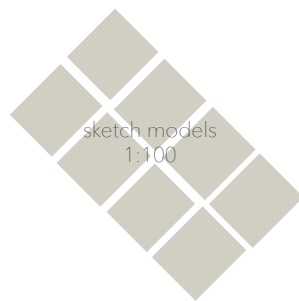
DELIVERABLES

Sketch Models 1:500-1:10
 Site Plan 1:500
 Building Plan 1:100
 Building Section 1:100
 Partial Building Section 1:20
 Section Detail: 1:10
 Rendered Views showing interior atmosphere
 Material Samples
 Detail Tectonic Model 1:1 or 1:2

figure 30 | Sketch card models
 Previous project Isabella Priddle



PRESENTATION PLAN



- models/materials
- photos
- 3D visualizations
- line drawings

SCHEDULE

CRIT 1 | February 12

programme complete
site chosen
theoretical research

THESIS CATALYST WORKSHOP

CRIT 2 | March 25 & 26

sketch models of wood joinery & tectonic case studies
sketch models of building strategy
first iteration of site plan 1:500
first iteration of building plans 1:100
first iteration of building section 1:100
material palette chosen

WORKSHOP

CRIT 3 | May 6 & 7

more sketch models of building strategy
more developed site plan, building plan, building section (1:500 & 1:100)
construction detail section 1:10
partial building section 1:20
first iteration of 3D visualisations

PRESENTATION WORKSHOP WITH ACTOR

EXAM | June 7-11

detail tectonic model 1:1 or 1:2
material samples
interior and exterior visualisations
complete drawing package
theoretical document complete

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