

RAIC | CCUSA 2022

VIRTUAL ACADEMIC
SUMMIT
ON ARCHITECTURE

SOMMET

ACADÉMIQUE VIRTUEL
SUR L'ARCHITECTURE

IRAC | CCEUA 2022

PROCEEDINGS
ACTES



RAIC | IRAC

Royal Architectural Institute of Canada
Institut royal d'architecture du Canada

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ABOUT THE RAIC

The Royal Architectural Institute of Canada (RAIC) is a not-for-profit, national organization dedicated to representing architects and architecture since 1907. The RAIC is the only national voice for excellence in the built environment in Canada focused on providing Canada's architectural community with the tools, resources, and education to elevate their practice. The RAIC is committed to showcasing how design enhances quality of life, while advocating for important issues of society through responsible architecture. The RAIC's purpose is to create a better world for all by empowering Canada's architectural community. Through our work, the organization envisions a strong architectural community that is valued and empowered to create change. The RAIC's national office is based in Ottawa with a growing federated chapter model. Current chapters and networks are based in British Columbia, Alberta, and Nova Scotia.

ABOUT THE CCUSA

The Canadian Council of University Schools of Architecture (CCUSA) is a council of the academic heads of the Canadian Architectural Certification Board (CACB) accredited programs of architecture in Canada. CCUSA advocates for architectural education to the universities, the profession and society as a whole, shares knowledge and expertise, develops positions on issues of concern in architectural education, represents the schools of architecture on the boards of our collateral associations, and advances topics pertinent to architectural education. The Council is critical in promoting nationally and collaborating internationally to further the goals of architectural education in Canada.

Preface

2022 marked the third Academic Summit on Architecture, a collaborative event between the Royal Architectural Institute of Canada (RAIC) and the Canadian Council of University Schools of Architecture (CCUSA). This event was originally envisioned by leadership at the CCUSA and RAIC, and on behalf of the board of directors at both organizations we extend our gratitude for this continued partnership and meaningful collaboration.

This collaboration is an example of our organizations' commitment to pursue opportunities for research to inform practice and vice versa, a dialog that is required for the relevancy of architecture. While academia provides the environment to test out ideas on how architecture must respond to current issues, real-life practice ensures that those ideas are grounded in professional challenges.

Universities are increasingly working with communities across the country while practitioners are pursuing research ideas, thus the lines between the two realms of discourse continue to blur in productive ways. The CCUSA and RAIC recognize that the societies we serve are going through rapid and massive changes and it is our responsibility to adapt how we approach our discipline to ensure we are serving our communities the best way we possibly can.

The 2022 Academic Summit focused on the themes from the RAIC Strategic Plan as a springboard for discussions. This exercise was not only to ensure we are aware of our responsibilities towards reconciliation, inclusive design and sustainability, but also to inspire and lead to tangible actions.

We believe that collectively, we can design the kind of future we all aspire to - where equity thrives, and all life is valued and prioritized.

This summary of proceedings is a collection of eight of the presentations from schools of architecture featuring the latest in research from Canadian academics and practitioners in the fields of architecture and design.

We would like to thank the authors for sharing their research and work.

- **Tara Bissett**, Assistant Professor, Waterloo School of Architecture, University of Waterloo
- **Alice Corvatta**, Assistant Professor, School of Architecture, University of Montreal

Préface

L'année 2022 a marqué la tenue du troisième Sommet universitaire sur l'architecture, un événement conjoint de l'Institut royal d'architecture du Canada (IRAC) et du Conseil canadien des écoles universitaires d'architecture (CCÉUA). Ce sommet est une initiative des dirigeants des deux organisations et au nom de leur conseil d'administration respectif, nous exprimons notre gratitude pour ce partenariat continu et cette collaboration fructueuse.

Cette collaboration illustre l'engagement de nos organisations à saisir les occasions de recherche pour orienter la pratique, et inversement, et à poursuivre un dialogue nécessaire pour la pertinence de l'architecture. Si le milieu universitaire offre l'environnement pour tester les idées sur la réponse de l'architecture aux enjeux actuels, la pratique de la profession ancre ces idées dans les défis professionnels.

Les universités travaillent de plus en plus avec les collectivités à la grandeur du pays, et les praticiens, pour leur part, appliquent les idées de recherche. Ainsi, la distinction entre les deux domaines de discours continue de s'estomper de manière productive. Le CCÉUA et l'IRAC reconnaissent que les sociétés que nous servons connaissent des changements rapides et considérables et qu'il est de notre responsabilité d'adopter notre approche à la discipline pour servir nos collectivités de la meilleure façon possible.

Les discussions du Sommet universitaire de 2022 ont pris comme point de départ les thèmes du Plan stratégique de l'IRAC. Cet exercice visait à assurer une prise de conscience à l'égard de nos responsabilités en matière de réconciliation, de conception inclusive et de durabilité, mais il voulait aussi inspirer et mener à des actions tangibles.

Nous croyons qu'en unissant nos efforts, nous pouvons concevoir le type d'avenir auquel nous aspirons tous – un avenir égalitaire dans lequel toute vie est valorisée et priorisée.

Le présent sommaire des actes du Sommet rassemble huit des présentations des écoles d'architecture portant sur la recherche la plus récente d'universitaires et de praticiens canadiens des domaines de l'architecture et du design.

Nous tenons à remercier les auteurs et autrices qui suivent d'avoir partagé leurs recherches et leurs travaux.

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- **Douglas Macleod**, RAIC Centre of Architecture, Athabasca University
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- **Russell Myers Ross**, ancien chef (Nits'il'in), gouvernement des Yunesit'in
- **Shannon Bassett**, professeure adjointe, École d'architecture McEwen, Université Laurentienne

Their willingness to share their time and expertise was critical to the success of the Summit and these proceedings. Finally, we would also like to thank the RAIC staff for their hard work and commitment to making the Academic Summit on Architecture a reality. This event would not have been possible without the synergy between the RAIC and the CCUSA.

We look forward to continued collaboration between our organizations.

Jason Robbins

RAIC President
Président de l'IRAC

David Fortin

Director Representing the Canadian
Council of University Schools of Architecture
Administrateur représentant le Conseil canadien des
écoles universitaires d'architecture

Leur enthousiasme pour offrir leur temps et leur expertise a été déterminant pour la réussite du Sommet et la préparation de ces actes. Nous souhaitons également remercier le personnel de l'IRAC pour son travail assidu et sa volonté de faire du Sommet universitaire sur l'architecture une réalité. Ce Sommet n'aurait pu avoir lieu sans la synergie entre l'IRAC et le CCÉUA.

Nous nous réjouissons à l'idée de poursuivre la collaboration entre nos organisations.

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More Than a Checklist

Teaching Accessibility as Creative Practice

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University of Waterloo

How would design change if we make efforts to learn from neurologically and biologically diverse ways of being in the world? How might we build “beyond” access and do design differently?¹ What does it mean to teach creatively from a disability lens? These are the questions undertaken in a collaborative project at the Waterloo School of Architecture, supported by a provincial government EnAbling Change grant.² In this project we are exploring how we might push beyond the accessibility standard in design and attempt to define what this looks like within educational systems. Considering the context of curricula, physical environments, and school cultures, the project is intended for Canada’s twelve Schools of Architecture, positioning inclusive design as creative practice and providing support for disability within school environments.

Taking stock of how inclusion and intersectional accessibility is taught in Canadian schools, our plan of action is to incorporate inclusive design widely and meaningfully into our curricula, while also challenging the false notion that good design and accessibility are mutually exclusive. We contend that architectural design pedagogy has much to learn from the field of Disability Studies, which has established complex and interesting philosophical terrain for thinking creatively about access and inclusion.³ Ultimately, we hope to see a larger cultural shift in design practice, where inclusive design is conceived as a process or methodology for how to approach design, rather than amendments that are added at the end of design. But difficult conversations and questions will transpire.

Some of these questions may ask: What types of studios foster inclusion? Which don’t? Who are the lecturers and critics that we invite into our schools? Does their work support inclusion? And what kinds of work do we hold up as precedents for good design? We need to explore the expanded field of design and take a hard look at the role played by architectural criticism, and even photography. But we also must find out if and how our schools are designed

for exclusion. How can we make tools, washrooms, and classrooms responsive to the calls for equity? And how can our schools be better equipped to include more students with disabilities and who are d/Deaf?



Figure 1. Waterloo School of Architecture’s E-Classroom. Photo Credit: Fred Hunsberger.

This paper shares preliminary notes on this ongoing project at the University of Waterloo. We will first describe our ethos, which we developed collaboratively, and introduce some of our interdisciplinary team. We will then point to some of the existing breaches in accessible design within education, but also to some of the exciting work in this area. The intention of this paper is to offer a very brief overview of the project in its early stage, so as to welcome feedback, questions, suggestions, and forms of interest. Ultimately, we hope that this work can be relevant not only to Schools, to educators and students, but also to architects, planners, community builders and the discipline more broadly.

As we embark on our process, it is important to first share our collective vision for the ethos of the project:

1. **Conceiving Disability as Creative Practice** Our project foregrounds disability as a positive force of innovation and design, which open up new ways of thinking about our spatial experience. Activist and designer

Liz Jackson refers to this approach as “beyond access” one grounded in “disability as creative practice.”⁴ Such a process entails bringing people with disabilities into the design process early, learning from how people are using spaces in complex and often innovative ways, and welcoming the ways in which designers with disabilities may transform architectural practice. It also demands that we confront assumptions about disability. By avoiding the conception that disability is a “problem” that needs a “solution”, these approaches envision disability as a force rather than a lack, thus reframing and impacting both how and what we design.⁵

2. Believing that the Range of Human Ability is Ordinary. Our goal is to intervene in conventional design pedagogies so that Universal Design and Disability Inclusion is not accessory to the process of design. In line with the statement published by the University of Buffalo’s Center for Inclusive and Design and Environmental Access (IDEA Center), Universal Design “is not a fad or trend but an enduring design approach grounded in the belief that the broad range of human ability is ordinary, not special.”⁶ However, we embrace expanded frameworks of Universal Design that have been laid out by the IDEA center and which establish focus on best practice, evidence-based approaches, and intersectional or cultural contexts. The criteria are listed here: <https://idea.ap.buffalo.edu/about/universal-design/>

3. Anchoring Disability Design within Disability Justice Discourses. We believe in the need for architects to become attuned to disability justice. We ask how architects might use a disability justice perspective to inform design practice. As writer and activist Audre Lorde remarked, “We do not live single-issue lives.”⁷ Disability is not one singular experience. Nor is it an isolated experience. The history, theory and language of disability makes intersectionality and cross-disability visible and enables us to create spaces that welcome people in all their complexity and fullness.

4. Using Narrative and Storytelling to Inform Design. Our approach is anchored in the awareness that there is no singular framework for conceptualizing disability, but rather myriad experiences, some of which are told in this project. Storytelling is a stepping stone into lived experience and the multiplicity of phenomenological engagement and potential responses to spatial conditions.

5. Rethinking Disability Beyond the Checklist.⁸ The project’s key tenet is that generating and designing inclusive spaces should be part of the initial phases and continuing practices in the process of design, and not an

afterthought or a compromise added at the very end of a project design and measured by standards. Accessible building code is often misinterpreted as optimal instead of the bare minimum, and it should not stand in for the design process toward disability inclusion in architecture. Access is complex, intersectional, and an ongoing process that must eventually become the DNA of design practice⁹.



Figure 2. Waterloo School of Architecture Studio Space. Photo Credit: Fred Hunsberger.

6. Recognizing that Architects and Designers Play a Key Role in the Experience of Disability and d/Deafness We want to make it clear that while architects and designers have the agency to empower inclusion and independence, they also have the agency to bar spatial access and exclude individuals from buildings, by design. The social model of disability shows that the environment has a significant role to play in producing difference and/or disability.¹⁰ As a result, architects, builders, planners, and designers have the power to determine who can and cannot be included in various spaces. With this in mind, we want to encourage designers to feel responsible for how inclusion and access are realized in the spaces that they create.

The Collaborative Process

The Enabling Change project is a collaborative effort that intends to work across all twelve accredited programs of architecture in Canada to prompt a shift in our approach to inclusive design practice.¹¹ In our first meeting with representatives from those schools, we asked our colleagues to respond to several questions that touched on spatial design, classroom experience, curricular content, access to tools, and more. All the representatives in attendance expressed a desire to be involved in enriching accessibility and inclusion across architectural programs. Some are already active in teaching courses in Universal Design,

occupational therapy, and embodiment studies. Nonetheless, we found, generally, that disability in design was represented and incorporated unevenly across school curricula. We also found that many campus buildings, tools, and pedagogical materials remain inaccessible to students and faculty with disabilities. Yet, representatives also expressed concern that more mandates around accessibility would lead to overly bureaucratic implementation, with a “patching up holes” effect instead of a paradigm shift in how we teach design. Many called for a rethinking of approaches to access and disability inclusion in architectural practice and education by establishing stronger links between disability and recent equity, diversity, and inclusion (EDI) initiatives. There was general agreement that “acceptance” across faculty, staff, and architectural practice was necessary to critically and consistently build accessibility and inclusivity into architectural curricula.

The collaborative process is also guided by an advisory board, with members who have lived experience with disability as well as expertise in architecture, design, or disability theory, and who will lead us toward change, providing guidance around objectives and deliverables as well as methodology.¹² Disability, we have learned, is an umbrella term for diversity, which includes a vast spectrum of embodied, cognitive, and psychological experiences in the world. Nonetheless, our advisory board has helped us to establish the fact that disability—literally whether a person is going to experience physical dependence, difference, or exclusion throughout life—is rooted in conditions that are sometimes facilitated by the design of the built environment. These conditions have wide-ranging reach that control what can be accessed and by whom. Access is impervious to scale, affecting tools, handles, and bathrooms at one end, and universities, airplanes, and the Provincial Park system on the other end. And access is manifested, or barriered, through ephemera produced by educational space: curricula, outreach, scheduling, and assignments. Our advisory board has reinforced that as designers of space, architects have a substantial role to play in whether or not a building, a park, or schools, for example, are accessible.

In the first meeting with our Advisory Board members, we were informed about how to use language around disability more sensitively and knowledgeably.¹³ Our original acronym for the project was ABLE (Accessibility in the Built Learning Environment), but was considered problematic because it underscores binaries—abled/disabled—that are rooted in the medical model of disability, whereby embodied impairment is conceived as a “problem” within the body that requires correction.¹⁴ As our project ethos is not in line with the medical model, but rather with an expanded social model

of disability, we decided removed our working title with the ABLE acronym.¹⁵ The term “accessibility” was also widely conceived to be problematic due to the word’s association with minimum-level compliance to guidelines developed from the Americans with Disability Act (ADA) passed in 1990, and the Canadian counterpart, the Accessible Canada Act (ACA) initiated in 2018. “Accessibility” is thus widely associated with design that conforms to codes and checklists to be “ACA compliant” instead of centering people with disabilities in the process of design.



Figure 3. Tools at the Waterloo School of Architecture How can these be more accessible? . Photo Credit: Tara Bissett.

How We Teach Accessible Design: Canadian Architectural Certification Board

In fact, the Enabling Change project itself was prompted by several realizations about the relationship between the concept of accessibility in architectural education and the Canadian Architectural Certification Board (CACB). “Accessibility” is consistently one of the most failed criteria in the accreditation process across all Schools of Architecture in Canada. Almost as problematic, however, is that the CACB now lists “accessibility” under “Technical Knowledge,” and no longer under as a separate Student Performance Criterion. This is important because “accessibility” has only recently been erased as its own category and recategorized to be lumped together with the “applicable building codes, regulations, and standards for a given building and site.” As a result, the idea of accessible design is tied to merely fulfilling what is required, meeting the “norm” so to speak.¹⁶

While we recognize the importance of standards as minimal compliance guidelines, we agree with many experts in the area of Disability Studies that meeting the “building codes, regulations, and standards” should not be the only paradigm for accessible or inclusive design. Accessibility and

inclusion should not be exclusively conceived as an afterthought or retrofit in the process of design. In this light, the current project explores how disability generates creative excitement, going beyond the accessibility checklist and reshaping the way we teach and design.

Code Compliancy: Not Always Inclusive

Moreover, a compliant project may not be an inclusive one.¹⁷ For example, a well-known building that meets the accessibility requirements of the American Disabilities Act (ADA) but is hardly inclusive is Steven Holl's Hunters Point Library.¹⁸ As soon as the library opened, plans were underway to retrofit various sections of the building for accessibility due to its design that privileged stairs, bleachers, and reading nooks, making it widely inaccessible to people with mobility devices and parents with strollers. Although the building conforms to the ADA guidelines, it is nonetheless designed for exclusion. The adult fiction book section is nestled amongst three terraces accessed solely by stairs between the first and second floors. Because the library offers a book retrieval service, the ADA overlooked the fact that people using wheelchairs cannot access the space. Many have criticized this design decision, arguing that it upholds the assumption that people with disabilities are ontologically dependent—in this case, by design, they are forced to require an aid to access the book retrieval—a condition that disability justice advocates say is determined by the built world.

There are other issues with the library, not least that only one elevator serves the entire five-storey central structure and the children's section was designed without considering an adequate space for stroller parking. Clearly, the standards are not sufficient, but what could it mean to design for inclusion beyond the checklist? Fundamentally, it means approaching access as a process rather than an end in and of itself. As Margaret Price, member of the Transformative Access Project at Ohio State University puts it: "Access is unfolding, it's relational, it's not something you finish—it's very much a practice."¹⁹ In other words, rather than conceiving accessibility as a problem that requires a single-fix through code compliant features, such as elevators, ramps, or bathrooms with large turning radiuses into buildings (the product), we need to re-think our approach.

Disability, Architectural Pedagogy, and School Culture

We are also aware that in architectural history and theory courses, the subject of disability has been underrepresented. Arguably, compared to other subjects such as Gender, Sexuality, and Race Studies, disability



Figure 4. The Hunters Point Library in Queens, United States, is built around a set of stairs that unite several floors. The building, which was completed in 2019 by Steven Holl, was considered ADA compliant but not inclusive: several storeys holding the fiction collection were not accessible to people with mobility devices, such as wheelchairs and strollers. Credit: Wikicommons. Accessed June 1, 2022.

remains undertheorized within the discipline of Architecture. Moreover, as a subject in architectural history, disability has been comparatively marginalized. Particularly because the social model of disability is rooted in the belief that environmental design creates difference or disability, it is essential for disability as a concept to be centralized in architectural pedagogy. Disability has also not been strongly anchored to the Equity, Diversity, and Inclusion (EDI) conversations as well as the Social Justice movements that have been taking place within academia.²⁰

Changing the systems by which we augment access in architectural education involves more than broadened curricular representation. After discussions with our advisory board members, we have also been made aware of deficiencies with regards to how our architectural programs accommodate students with disabilities. One of our advisory members relayed their experience of being an architectural student who identifies as deaf, wherein the architectural crits and reviews were often structured so that reviewers were faced with their backs to the audience, obstructing the view of the speaker or presenter. The result of this common practice was that the reviews were inaccessible to the student, who quit attending them. Another member asked how our schools are adapted to respond to students who cannot independently make models or use keyboards due to immobility of the upper body. And yet other advisory board members suggested that we critically examine what we are missing in our school culture and instruction by not inviting more students with disabilities, neurodiversity, and d/Deafness into our programs. We must be more active in developing outreach to bring these students into our schools and, in turn, have our schools accommodate the array of human embodied experiential Pedagogical Precedents from Which to Learn

Designing for Inclusion is Good for Everyone: There are several pedagogical precedents that have centred disability as creative practice, and which have shaped our project. One of the earliest precedents is a studio developed by Raymond Lifchez in the 1980s at the UC Berkeley College of Environmental Design. The studio was groundbreaking in its time, not only for its approach to studio design, but notably because it invited consultants with disabilities to participate in the design process. Associated with the Berkeley Center for Independent Living—this was created by Berkeley students with disabilities—the college eventually attracted a student cohort with disabilities, which had wider effect as pedagogical reform.²¹ We know that the studio provided insight about studio culture, in general, as each student and consultant was asked to write a literary rapportage about their experience from their unique point of view. These were later published in the book, *Design for Independent Living: The Environment and Physically Disabled People*.²² The documented experiences suggested that the studio fostered a culture of community, instead of competition, partly due to the structure whereby students worked collectively on a single project with the consultants, rebuilding and refining the models as they developed knowledge throughout the term. UC Berkeley continues to lead in innovative teaching for inclusive design. In fact, Chris Downey, founder of Architecture for the Blind - and one of our advisory board members - is the Lifchez Professor of Practice in Social Justice.

Human-centred Design: Another leading exemplar is the University of Buffalo School of Architecture and Planning's Centre for Inclusive Design and Environmental Access (IDeA). Inaugurated in the 1980s, IDeA has been a significant educational platform for inclusive design and research. Since that time, the design team has established long-term and ongoing collaborations, including one with Michael Graves Architecture & Design, which established an evolving design-research initiative around inclusivity in military housing. The housing project sensitively incorporates "human-focused" features such as low windowsills, an accessible garage and yard, flexible open plans, and acoustical sensitive rooms—sensory and spatial details that go beyond merely fulfilling the accessibility checklist. For the IDeA team, the success of these projects is rooted in part to the process of design, which include follow-up practices like the integration of post-occupancy interviews. These interviews have manifested further realizations about how the built environment can respond to both visible and invisible disabilities by revealing that more could have been done to enrich the perception of safety, particularly because many veterans live with post-traumatic stress disorder syndrome. The post-occupancy analysis, which draws upon lived experience in the homes, provided evidence-based information that were later



Figure 5 Photograph of the diverse bodies represented in cardboard cut-outs used in the models for the ARCH 101 studio (Designing for People with Disabilities) taught by Raymond Lifchez, circa 1984. Photo Credit Raymond Lifchez slide collection, UC Berkeley, Environmental Design Archives..

integrated into standard prototypes for veteran housing.²³ Ultimately, the process whereby design and research mutually formed the other's outputs led to an evolving system in which inclusive design was not conceived as a unilateral fix, but rather as an ongoing process.

Disability as Creative Practice: A third program influencing our approach has been the DisOrdinary Architecture project associated with the Bartlett University College Faculty of the Built Environment in the UK, led by Zoe Partington and Jos Boys.²⁴ The ongoing program is pedagogy oriented and focuses on the nexus of avant garde design and disability, bringing artists and architects with disabilities into the studio to lead innovative events and projects. By underscoring approaches of "difference first" in design, accessibility is never a compromise, but rather an impetus for creative expression and design.²⁵ Disability is central to the design process, thus many of the DisOrdinary Architecture projects bring to light the limits of standardized approaches in spatial expression. For example, instead of spatializing expectations and assumptions about bodily behaviour and movements in space, instead a question is posed: "what can a body do?". This opens up incredibly rich areas of investigations to center broader considerations of perceptions, experience, mobility and sensitivity.

Next Steps: University of Waterloo School of Architecture Enabling Change Project

These three examples of architecture studios that broadly promote different approaches to inclusive design are still, at this point, the exception. While Canada has several wonderful initiatives geared to inclusivity, few of these have comprehensively challenged the processes of design in architectural education. What is lacking is a serious and

sustained initiative that synthesizes the various efforts amongst practitioners with reforms in education, and that more broadly connects inclusive architectural design with recent equity mandates. Normalizing and habituating the process of designing for inclusion at the outset is the goal. Waterloo's Enabling Change project will support some of these first steps that we hope will provoke meaningful change in the education and spaces of architectural design.

We hope that our collaborative, and somewhat ambitious, project will bolster the conversation around inclusivity and accessibility in design education. The project has three outputs, each geared to particular avenues of exploration: building professional advocacy, assessment of educational spaces and school culture, and development of open-access



Figure 5. Photograph of student work in Raymond Lifchez's ARCH 101 studio (Designing for People with Disabilities) at Berkeley, circa 1984. Photo Credit: Raymond Lifchez slide collection, UC Berkeley, Environmental Design Archives.

learning modules. In our early-to-mid phase our work is centred on three thematic components. They are described as follows.

1. **Professional Advocacy:** These involve fostering connections, conversations, and collaborations to develop materials and guidelines that expand the understanding and integration of inclusive protocols across a variety of domestic, civic, and institutional spaces, promoting the creation of inclusive environments and the elimination of barriers through innovative design solutions, while also broadening our awareness of the different ways in which the environment can be made more inclusive.
2. **Curricular Changes:** We are developing a series (five in total) of open-access learning and teaching tools that can be shared across all Schools of Architecture in Canada so that inclusive design can be meaningfully integrated into architectural curricula, improving the current school's approach to accessibility and disability justice. These changes will be designed to support the

schools with tri-cultural mandates (French, Indigenous and English).

The modules address themes that have been developed in tandem with our advisory board and touch on issues, such as how to identify barriers in design, disability justice, aging and the future of inclusive design, inclusive pedagogy, and, ultimately, how to design with and for disability as a creative practice.

Each module contains the following: a teaching component that addresses both accessible design through practical examples and projects as well as historical/theoretical issues, a package of resources and links, and short films and/or recorded conversations by designers and thinkers who have thought extensively about access and space. The modules will be designed for inclusion.

3. **Educational Spaces:** The project includes the development of an assessment tool that can be used across all twelve accredited Schools of Architecture for the analysis of various architectural education spaces, including the design studio and lecture hall classrooms, fabrication labs, and the range of digital fabrication and computational tools.

The form that this tool will take is still being determined, but it will involve an analytic component as well a series of proposals for potential strategic interventions. The ambition is for these to be used to analyze and help adapt current educational spaces across various schools of architecture. This part of the project asks how we can create architectural education spaces for students with disabilities.

Even as the discipline of architecture as well as our educational institutions more generally turn to more meaningfully address questions of equity, diversity and inclusivity, it is clear that the notion of disability justice has yet to receive the attention it deserves. And yet, the barriers we unknowingly build and the repercussions this has on people that may already be marginalized in other ways is such an incredibly potent reality of our discipline as architects. In this light, we truly hope that our work across Canadian architectural programs can lead to new strategies that foment interdisciplinarity and diversity. There is much important work ahead, and we are excited to cultivate both awareness and enthusiasm for the ways that architectural design can better embrace plurality.

Endnotes

1. On some of the limitations of Universal Design as a concept, see Jay Dolmage, "From Steep Steps to Retrofit to Universal Design, From Collapse to Austerity. Neo-Liberal Spaces of Disability," in *Disability, Space, Architecture: a Reader*, ed. Jos Boys (London; Routledge, Taylor & Francis Group, 2017), 102- 113.
2. In the words of the The EnAbling Change Program, it "provides eligible non-profit, industry, or professional organizations with grants covering up to 75 per cent of total costs for projects that bring awareness to tool and educational resources which can make Ontario accessible to all.
3. On the definition of Disability Studies, see Tanya Titchkosky, *The Question of Access. Disability, Space, Meaning*, (Toronto, Buffalo, London: University of Toronto Press, 2011), 10.
4. An important text that promises to be a rethinking of architectural practice is the forthcoming work: David Gissen, *The Architecture of Disability. Buildings, Cities, and Landscapes beyond Access*, (Minnesota, University of Minnesota Press, 2022). Teaching beyond access demands a broadening of the discourse to consider intersectional and continuing discourses of equity; Liz Jackson has coined the phrase, *Disability as Creative Practice*.
5. Jos Boys "Introduction. Why do Disability Differently?" in *Doing Disability Differently*, (Rout ledge, New York, 2014).
6. The University of Buffalo's Center for Inclusive and Design and Environmental Access projects and other information can be found here: <https://idea.ap.buffalo.edu/about/universal-design/> Accessed July 10, 2022.
7. Within the Disability Justice Principles, the principle of "Intersectionality" includes the Audre Lorde quote. The original quote by Lorde is as follows: "There is no thing as a single-issue struggle because we do not live single-issue lives." The quote is found in Audre Lorde, *Sister Outsider: Essays & Speeches* by Audre Lorde (Berkeley: Crossing Press, 2007), 134-144.
8. Accessibility Specialist and President at DesignAble Thea Kurdi used the phrase "beyond check lists" to similar effect in her lecture at the University of Waterloo in November 2020 entitled, "Applying Accessible Design Beyond Checklists: Connecting the dots to ensure useability." Thea is one our consultants on the Enabling Change Project. A link to the recorded lecture can be found here. https://www.youtube.com/watch?v=UnIjEIlKcg&ab_channel=WaterlooArchitecture
9. On "access" as a relational act of perception, see Tanya Titchkosky, 3-29.
10. Jos Boys 17-20.
11. Almost all the accredited Schools of Architecture in Canada were represented at the initial meeting, but we will follow up with subsequent meetings as we move through the process.
12. The present composition of the advisory committee includes the following members: Luke Anderson, Joyce Barlow, Tara Bissett, Annie Boivin, Anne Bordeleau, Richard Derksen, Chris Downey, Vic Mantha-Blythe, Amanda Motyer, Fady Shanouda, and Fiona Cheuk. We have received guidance from others, such as the Rick Hansen Foundation and Thea Kurdi at DesignAble, and are guided by Alexandra Boissoneault, Kristin Bos, Darryl Condon, Fiona Lim Tung, Alifayah Merchant, Julia Nakanishi, Sepideh Rajabzadeh, Susan Ruptash, Eva Sabourin, Jutta Treviranus, University of Waterloo's Centre for Extended Learning, and Laura Woodall.
13. We employ here the term "disability" because it is the language enshrined in legal apparatuses, including the Accessible Canada Act (ACA). When referring to people who identify as having a disability, we use "person-first language", i.e., "persons with disabilities."
14. Some disability advocates also suggest the "person-first" approach in language: a person with disabilities, while others prefer the "identity-first" approach.
15. Boys, Jos, 17-20. This passage highlights the difference between the two models of disability.
16. Note that not all of our advisory board members were in agreement that "accessibility" as a term is problematic in architectural design.
17. While achieving compliancy may fulfill the standards of accessibility, the design still may not be inclusive. Three dimensions of inclusive design are the following. "1. Recognize, respect and design for human uniqueness and variability in an integrated system that supports self-determination and agency. 2. Co-create and employ inclusive, open, and transparent design processes with people who have a diversity of perspectives, including people that can't use or have difficulty using the current designs ("Nothing about us, because everything is about us" as coined by Minister Qualtrough in Canada). 3. Realize that you are intervening in a complex adaptive system; no decision is made in isolation; attempt to achieve benefit for all." The quote is taken from Jutta Treviranus, "The Value of Being Different," in *Proceedings of the 16th Web for All 2019 Personalization - Personalizing the Web*, (1-7. ACM, 2019). <https://doi.org/10.1145/3315002.3332429>.

18. Sharon Otterman, "New Library Is a \$41.5 Million Masterpiece. But About Those Stairs." *New York Times*, (November 5, 2019). Accessed June 1, 2022. <https://www.nytimes.com/2019/11/05/nyregion/long-is-land-city-library.html>
19. Mary Abowd, "Margaret Price: Transforming Access," Ohio State University. Department of English Website. <https://english.osu.edu/news/margaret-price-transforming-access>. Accessed June 1, 2022; Also see Margaret Price, *Mad at School. The Rhetorics of Mental Disability and Academic Life*, (Ann Arbor: University of Michigan Press, 2011).
20. There are some exceptions; a recent initiative entitled the Taskforce for Racial Equity and Environmental Justice (REEJ) undertaken at Waterloo's School of Architecture engaged students, alumni, and educators in a survey that solicited responses about school culture, mental health, and general well-being.
21. Ignacio G Galan & Kathleen James-Chakraborty, "Every Body Needs Equal Access," *Radical Pedagogies*, Ed. Beatriz Colomina, Ignacio G. Galan, Evangelos Kotsioris, Anna-Maria Meister, (Cambridge, Massachusetts: MIT Press, 2022), 262-264.
22. Raymond Lifchez and Barbara Strong Winslow, *Design for Independent Living: the Environment and Physically Disabled People*, (New York: Whitney Library of Design, 1979). Raymond Lifchez, *Rethinking Architecture: Design Students and Physically Disabled People*. (Berkeley: University of California Press, 1987).
23. For more detailed information about the project, see "Designing and Evaluating the Wounded Warrior Project," University of Buffalo Center for Inclusive Design and Environmental Access. School of Architecture and Planning. Accessed June 2, 2022. <https://idea.ap.buffalo.edu/the-wounded-warrior-project/>
24. For more information on the DisOrdinary Architecture Project, see "The DisOrdinary Architecture Project," DisOrdinary Architecture. Accessed June 2, 2022. <https://disordinaryarchitecture.co.uk/>
25. Boys, Jos, 17-24.



Figure 5. "Festival Unité Cosmo Unity tenu dans les ruelles de Parc-Extension" Source: 3 août 1973, 3 août 1973, BANQ Vieux-Montréal, Fonds La Presse, Michel Gravel

Artifice and uncertainty of Parc-Extension

Exploring new strategies of equality.

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Abstract

Cet article traite d'un atelier explorant la conception d'un projet d'architecture à vocation publique dans le quartier d'intégration montréalaise du Parc Extension (familièrement appelé Parc-Ex).

Le quartier est délimité par des infrastructures qui circonscrivent clairement sa forme urbaine (l'ancienne gare de triage du Canadien Pacifique, l'autoroute Métropolitaine, le boulevard de l'Acadie et par Mont-Royal, la voie ferrée du CP) au début était majoritairement habitée par une population d'origine grecque, mais avec le temps, il est devenu un lieu de transit de diverses identités culturelles et d'accueil de nouveaux immigrants sud-asiatiques principalement. On estime qu'aujourd'hui plus de 100 groupes différents originaires pour la plupart de Grèce, d'Inde et du Bangladesh y habitent actuellement et que 43 % de la population ne parle ni français ni anglais à la maison. Trois quarts des ménages qui y habitent sont locataires et à très faible revenu (38 000 \$ est le revenu médian des ménages en 2015) et Parc-Ex fait encore partie des quartiers abordables à Montréal mais l'augmentation des loyers a un impact néfaste sur les habitants qui n'ont pas les moyens.

Le quartier devient une étude de cas qui présente une disposition bilatérale fragile à être intégré dans un projet urbain/architecturale : physiquement lié au défi d'une enclave (proximité des infrastructures lourdes et de la pollution, déconnexion de la ville et des quartiers avoisinants, manque d'espaces publics et de mobilité douce), et en même temps, défini par son pluralisme culturel qui lui est propre.

Afin de tracer des nouvelles trajectoires architecturales qui répondent à ce défi, la recherche s'articule en trois parties.

Premièrement, nous explorerons l'évolution du Parc-Ex grâce à une analyse des théories autour les aspects

morphologique et historique du quartier, mais aussi sur sa forme immatérielle défini par les comportements des usagers, les agencements sociaux, les rituels culturels, les économies locales.

À travers cette étude exploratoire du quartier, nous pouvons apprendre les défis urbains pour qualifier les territoires de la diversité.

Ensuite, le texte propose une sélection de projets réalisés par les étudiant.es qui tiennent compte de ces réalités pour imaginer une meilleure qualité urbaine d'une part et envisager une cohésion communautaire et un pluralisme culturel d'autre part.

Les projets réfléchissent sur des solutions d'amélioration et accroissement de la qualité du système (agencement – organisation) d'espaces publics afin de développer le quartier à échelle humaine fondé sur le principe de la justice spatiale, d'une remise en cause de l'enclave (connexions-déconnexions urbaines) et remise en question des enjeux de densité.

Enfin, dans un monde de plus en plus homogène et prévisible, les résultats questionnent la conception du bâtiment dérivée par raisonnement inductif de divers paramètres, tels que la surface au sol, le nombre de pièces et le mode de vie de la résidence attendu. En revanche, l'approche pédagogique et les projets proposent une architecture et un aménagement des villes qui tient compte des désirs et imaginaires profonds des habitants. L'importance d'une telle attention a des répercussions sur la réalité, remodelant nos conceptions spatiales ou fournissant des solutions alternatives qui s'intéressent au caractère exceptionnel et spécifique du site et de ses habitantes pour repenser des aménagements conviviaux et innovants.

Comment trouver l'unité dans la diversité? Comment vivrons-nous ensemble ?

Aligné sur les grandes questions posées lors de la dernière

Biennale d'Architecture de Venise, l'article concevait des espaces où nous pourrions vivre ensemble malgré nos incompatibilités et nos individualismes croissant.

1. The genesis of Parc-Extension

At the territorial scale, the Montreal metropolitan area is a compelling case study for anyone interested in examining the spatial distribution of populations, cultural diversity and life trajectories.¹ More than a quarter of its population was born outside of Canada and more than 80% of new immigrants to Quebec province settle in Montreal.²

Parc Extension neighborhood – known locally as Parc-Ex – is a doorway of arrival, one of the main gates to enter Montreal, a migration bridge³, a territory which refers to a process of chain migration where “initial movements of migrants lead to further movements from the same area to the same area. In a chain migration system, individual members of a community migrate and then encourage or assist further movements of migration”.⁴ It has long been the settlement area for the Greek community starting in the post-war period, when there was a great displacement of the Greek population, with many ending up in Canada, and specifically in this neighborhood. Consequently, Parc-Ex was defined as a “*founding district*”⁵ for this community, a designated territory of first arrival, but also of passage, which one leaves as one progresses with one’s socio-economic integration, but which one would keep frequenting to recharge one’s battery⁶. In fact there were many Greeks who, after initially settling there, decided to leave the neighborhood due to a strong sense of unsafety for crimes and to its bad reputation. They instead settled in the suburbs of Montreal, especially the South Shore where they could buy bigger homes and achieve the North American Dream.

Thus on one hand, the residents are very mobile and do not tend to put down roots in the area, but on the other hand, Parc-Ex embodies the “double link” with the country of origin and the country of arrival.

A second sociological concept encapsulated by Parc-Ex is “*quartier d’intégration*” defined by Partick Simon⁷ during his investigation of the Parisian neighborhood of Belleville. In his terms, the process of social integration happened through a social organization built by the residents to regulate the problems of cohabitation. Integration neighborhoods generally emerge in areas characterized by a degraded real estate environment

favoring the arrival of disadvantaged populations, most often immigrants, where the residents appropriate the existing commercial infrastructure and urban facilities, integrating their own elements. The territory becomes more marked by the migratory groups in question where we observe the development of diverse businesses, associations, religious places or community associations.

The two concepts described above are complementary to each other and also provide theoretical lenses through which to translate the case study of Parc-Ex and Montreal to other global cities that currently share the same characteristics.

In recent years, demographic and socio-political changes have combined to initiate a profound transformation. Parc-Ex has become a place of transit for various migration groups, particularly new Asian immigrants. Nowadays, it is estimated that more than 100 different migration groups, mostly from Greece (37%), India (28%), Bangladesh (18%) and Pakistan (18%), currently live there and that 43% of the population speaks neither French nor English at home, while the main languages are Greek, Punjabi and Urdu⁸.

The emergence of communities originating from South Asia suggests that Parc-Ex is once again becoming a “founding district” and “quartier d’intégration”, as it once was for the Greeks, but this time for Indian, Bangladeshi and Pakistani populations. Small family businesses, restaurants, religious establishments and public activities are flourishing everywhere in the neighborhood, adding new layers of diversity and complexity.

2. From an enclave to urban renewal

Physically, Parc-Ex is a small neighborhood with an area of 1.6 km² defined by a clearly readable grid with residential streets running north-south and more commercial east-west streets.

Although located in the bustling center of Montreal, it is geographically closed off from the rest of the city by borders on all sides. It is landlocked to the south and east by the Canadian Pacific Railway with several industrial spaces located along the tracks as well as the new MIL campus of the University of Montreal, to the north by the Metropolitan Autoroute and Crémazie Boulevard, to the west by de l’Acadie Boulevard and by the upmarket neighborhood Mont-Royal, and to the east its physical boundary is a large park (Parc Jarry).

The result is an urban sector that is physically secluded, spatially isolated and also socially segregated.

The latest data⁹ provided by the city for the Borough of Villeray and Saint-Michel, where Parc-Ex is situated, shows that it is one of the densest districts of Montreal with a visible lack of public space and facilities. Housing is still often of poor quality and size, given the size of families. The average number of rooms per dwelling is lower than the Montreal average (4.3 compared to 5.2) but at the same time, the size of households is higher than the average.

Some other interesting data shows us that three-quarters of the households here are tenants and have very low incomes (\$38,000 was the median household income in 2015) and the result is that Parc-Ex is still one of the affordable neighborhoods in Montreal. However, the recent increase in rents has had a negative impact on low-income residents¹⁰.

The enclave retains its main characteristics within the city, but the urban development that has taken place in recent years has considerably improved the surrounding environment of the neighborhood. If in the past the residents expressed a strong sense of unseftly and its reputation was generally bad, today its location in the northern center of the city, not too far from downtown Montreal and Plateau, means it has become a strategic position for new urban developments.

Consequently, recently Parc-Ex has undergone profound demographic, urban planning and socio-political transformations. One of the main reasons for this profound renewal is its location next to the new MIL campus. The now-completed first stage of development consisted of a new complex for the university's science department, which hosts 2,200 students daily, and a new pedestrian bridge over the train tracks connecting the neighborhood to the affluent, predominantly French-speaking borough of Outremont.

The next stage of development will include condominiums, office buildings and new public spaces characterized by a "polished" design. As a foreseeable consequence, this development has provoked a rapid gentrification process that admittedly would probably have happened anyway due to the central location of the neighborhood and the average increase of rents, both in Montreal and nationally. However, this project certainly accelerated it.

3. A winter design studio: learning and teaching

Through this portrait, we can already understand how Parc-Ex has a very fragile bilateral nature to be integrated into an urban/architectural project: physically linked to the challenge of an enclave (proximity to heavy infrastructure and pollution, disconnection from the city

and surrounding neighborhoods, lack of public spaces and soft mobility), and at the same time, defined by its own cultural pluralism under threat.

To rethink the challenges of Parc-Ex in terms of social and spatial justice in the context of diversity and cultural pluralism, the pedagogical approach of the design studio¹ aims to explore new design strategies starting from these very local premises that trigger more global urban preoccupations.

The work of Nancy Fraser¹¹ became the framework for her analysis of intersecting diversities and injustices. Three planning goals emerge for students to using them as guidance in order to design for more just cities: *(1) redistribution of public space, services and facilities to address inequalities of wealth; (2) recognition of identities that are systematically devalued in unjust status hierarchies; and (3) the provision of opportunities for people to break free of fixed identities through encounters with diverse people and practices*¹². She believes these are goals that are necessary to echo the various kinds of injustice that people can experience in the public sphere.

Thus, the main premise of the design studio is that "social justice [...] to public spaces with the idea that a more robust definition of socially just public space could be practical and implementable even in a neoliberal world."¹³ The design studio's aims are to examine whether a particular architectural structure allows people to avoid others, or whether it can bring different people into sight of others, to use architecture and design to fortify public spaces and to propose an alternative aesthetic position that we hope can respond to the bourgeois conception of the public sphere.

How to find unity in diversity? How will we live together? Aligned with the major questions posed during the last Venice Architecture Biennale, the article designed spaces where we could live together despite our growing incompatibilities and individualisms. Below, two examples of students' projects are provided as an initial attempt to advance ideas and articulate a set of general propositions that, we hope, will be useful as transnational mechanisms in other neighborhoods which are facing

1 The design studio took place in the winter trimester of 2022 entitled "Parc Extension et ses imaginaires Urbains" (Tutor Alice Covatta, students: Charlotte Audifax Gauthier Christelle Salloum Elizabeth L'Espérance Fatou Aminata Diop Fiona Ly , Gabrielle Cadieux Julie-Anne Poulin Laetitia Bégin-Houde Laurie Dufault, Ludovic Amyot, Mathilde Cojocar, Sofia Bellemare, Vincent Morrier, Virginie Gratton).

similar global challenges.

4. Cricket as an urban imaginary to promote inclusion²

To address the implementation of public spaces in Parc-Ex and the recognition of South Asian identities, the project proposes a spatial infrastructure designed for collective use.

During the fieldwork, the students were deeply inspired by the documentary *Cricket & Parc-Ex: A Love Story*¹⁴, a documentary about Montreal's South Asian community and how it has adapted the game of cricket to a new environment. Bringing the viewer inside the world of cricket, the documentary depicts the daily life of the neighborhood. As a founding element of the community, cricket is not only a sport but also an agent for recognition, social empowerment and integration in Canada.

The starting point of the project is to offer something currently not available in Montreal: the possibility of practicing cricket all year round. To do so, a new structural system takes advantage of the existing Parc-Ex buildings' skeleton which has little variation in height and a flat roof construction. A reticular formation is installed, while reinforcing the load-bearing walls of the existing buildings; new practice cages are placed at the roof level and are incorporated into the dense urban fabric.

The cages for playing cricket are thus free from the enclave of the neighborhood by rising above the limits of the road network. They trigger a new atmosphere for the district, creating a high-rise urban park that integrates sports facilities, programmatic extensions, a second layer of mobility and public spaces, and new vegetation. The cages are airy, spacious and open in opposition to an over-densified ground floor. At the urban scale, the design is flexible and it adapts to the existing urban fabric and roofscape. But although versatile and free, it is regulated by the constraint on which it relies, the wide grid of pillars and slabs on which it stands.

To address the distribution of public space in terms of social justice across Parc-Ex, the project needs to include a heterogeneous urban population regardless of its physical, social or wealth conditions, and embed universal accessibility as a key element of the entire system through the study of ramps and promenades.

One point became extremely important in the design studio and in this specific project: that the architecture

2 The project "Le cricket comme imaginaire urbain porteur d'inclusion" has been realised by Laetitia Bégin Houde and Virginie Gratton.

deliberately avoids committing itself to any particular style or pattern of use. The typology of the cage, for instance, provides the flexibility to change its use. Today it is a space for cricket, but in 5 years' time it may be utilized in a different way. Its usage can react to the context and can be adapted to the community's needs. This is also to avoid the risk of having fixed ideas about particular cultural identities in a multicultural district.

5. Let's live in our alley³

The second project questions the spatial distribution of public spaces across the wider urban system of the neighborhood, and what kinds of processes generate such distributions.

In a very dense context like Parc-Ex, the residents experience what is called "locational disadvantage", i.e. the problematic consequences that an inhabitant may encounter because of living in a particular place¹⁵. In this specific case, the residents inhabit one of the city's densest neighborhoods which has less public space and cultural facilities than others.

To revise the "locational disadvantage" in a dense urban context means also to question the morphological meaning of the existing urban elements and the relationship between solid and void spaces, using creative thinking to consider the same urban elements in a different way.

The urban morphology of Parc-Ex, defined by a clearly readable grid, is made up of urban blocks that are almost entirely residential in nature, for the most part lacking a mixture of usages.

In such a context, the project repurposes an urban block, transforming it from a number of individual residences to collective housing, where the central ruelle in an H shape can be transformed into a new community open space.

The exploration and spatial analysis of the existing activities for each building shows where kitchens, living rooms, bedrooms or private spaces are located with respect to the central void of the ruelle. Subsequently, the analysis classifies the more private or public characters of each building side.

The project functions as an acupuncture, the back-alley provides new common spaces and micro-facilities to promote togetherness where there is already the potential for public behavior. One of the most important design tools is the section which shows the programmatic relationship of the project with the

3 The project "Habitions notre ruelle" here presented has been realised by Fiona Ly and Christelle Salloum.

existing urban typologies and usages. For instance, two private kitchens facing each other in the back alley get a shared dining room in the middle of the central void.

This new small pavilion adapts to the existing environment, enhancing new communal habits and providing an alternative to the existing context with minimum effort in terms of materials, costs and maintenance. Furthermore, when viewed from the outside, it takes up a posture that promotes an “anti-spectacle” architecture.

The students proposed a sort of catalog of tools for creating a pattern of new habits and behaviors of togetherness which could expand beyond this specific urban block and be adopted in other similar urban environments.

An interesting aspect of the process was how these new habits were selected starting from a personal reflection by one of the students, who is a second-generation immigrant to Montreal. She explained how her grandma, who recently moved from an Asian country to re-join the family, has had considerable difficulties assimilating into Montreal-Canadian society and prefers to live in an isolated environment. In the student’s opinion, grandchildren are the only effective vehicle of integration for her grandma – seeing and participating in their public life is the best way for her grandma, and other elderly people in the same situation, to break the wall of loneliness, since children or grandchildren are their main connection to Canadian society.

Starting from a personal experience combined with urban analysis, the project comes to life, implementing a set of programs related to youth in public spaces. These spaces are in turn related to urban elements already in place in Parc-Ex. Thus the project finds opportunities in the neighborhood itself, rather than arriving with an abstract and pre-existing program to impose on the environment in question.

6. Discussion and unexpected side effects

Despite the fact that “the formation and expression of collective identities is likely to be highly dependent on access to public spaces, where members of a given group can interact with one another”¹⁶, in our present condition, access to public space remains one of the main areas of conflict in contemporary cities and urban politics.

The case of Parc-Ex and its future development is an example of planners, administrators and developers who are actually anxious to offer new access to public space to the population - existing one and desired one -

through the requalification of decaying urban segments, the production of new public spaces and a future agenda for new uses.

But this provokes a second question: is conceptual simplicity and a “polished” conception of the public sphere the answer to the growing incompatibilities and individualisms in our global cities?

As we consider how to conceive a territory for cultural diversity, Parc-Ex shows us the richness and complexity of the living city, its multilayered history as “founding district” and “quartier d’intégration”, the instability of populations where there is not a permanent, single recognition of cultural identity in a multicultural district.

Projects need to navigate this framework of uncertainty, and should tend more toward Christopher Alexander’s definition of the city as “not a tree”, and his final words of the book “for the human mind, the tree is the easiest vehicle for complex thoughts. But the city is not, cannot and must not be a tree. The city is a receptacle for life. If the receptacle severs the overlap of the strands of life within it, because it is a tree, it will be like a bowl full of razor blades on edge, ready to cut up whatever is entrusted to it. In such a receptacle life will be cut to pieces. If we make cities which are trees, they will cut our life within to pieces.”¹⁷

The public sphere remains a crucial site in which to articulate and enact new forms of equality in our increasingly unequal societies, but in order to consider public space as a habit of co-presence and togetherness that can break down unjust hierarchies, the role of the architect needs to be more that of an explorer of urban and social complexity rather than an inventor of solutions. It would be more beneficial to test the limits or the boundaries of how far we can embody humanity into a project, without simplifying its historical, social and spatial complexity, and favoring a more profound imagination of urban life.

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17 Christopher Alexander and W Mehaffy Michael, *A City Is Not A Tree* (1965).



Figure 2 "Le cricket comme imaginaire urbain porteur d'inclusion" Laetitia Bégin Houde and Virginie Gratton

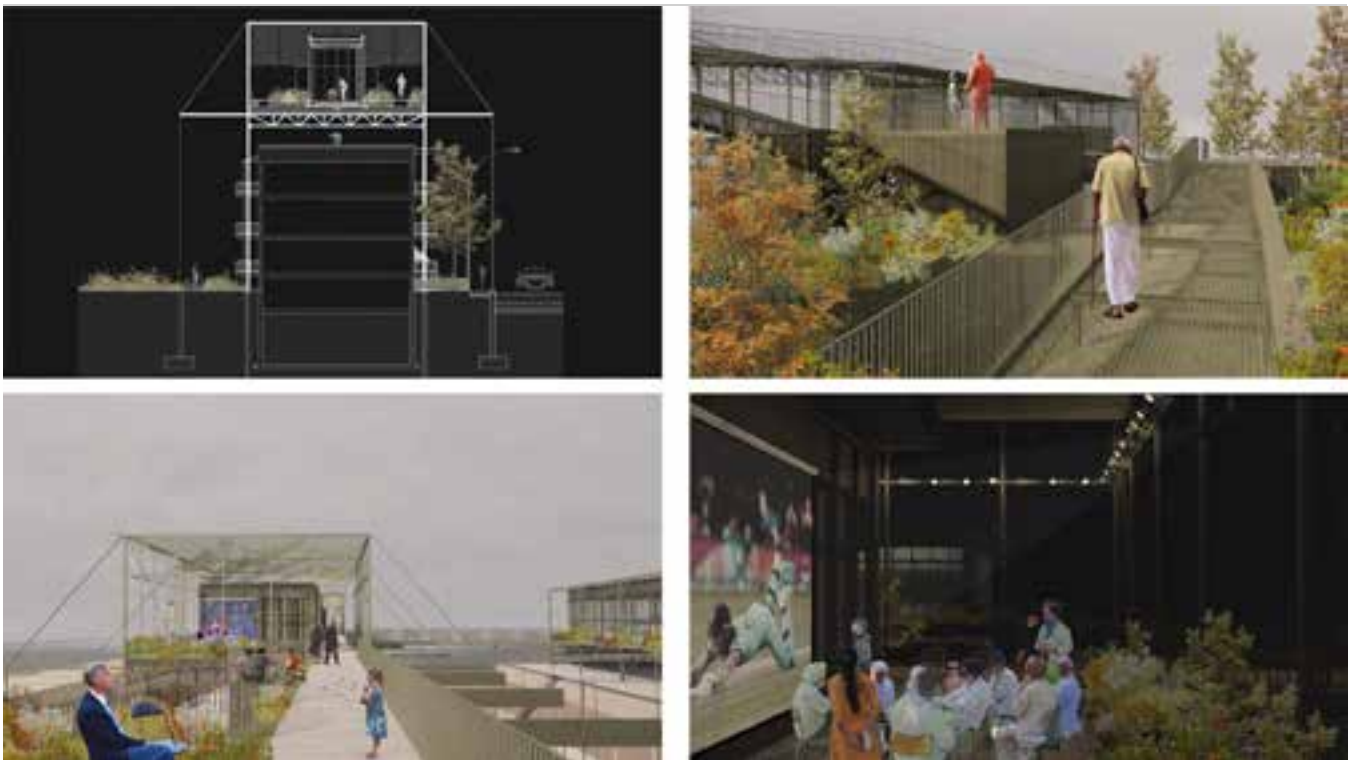


Figure 3: "Le cricket comme imaginaire urbain porteur d'inclusion" Laetitia Bégin Houde and Virginie Gratton



Figure 3. "Habitions notre ruelle" Fiona Ly and Christelle Salloum



Figure 4 "Habitions notre ruelle" Fiona Ly and Christelle Salloum



Figure 1. Faculty In Practice Exhibition 2020. Photo by Wayne Szeto

Faculty in Practice

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Abstract

Reflection on the work we do as architects is as important as the details we employ, or how we manage the production and construction of our designs. As university faculty we are asked to pass on knowledge, and to frame what we have learned in a way that is both accessible and actionable by students. In March of 2020 the authors were asked to curate a selection of projects and combine them in an exhibition that would communicate our paths as architects working at our individual offices, one based in Chicago and the other in Tokyo.

In the realm of contemporary architecture reflection is often used to mark the beginning of a new direction of practice. Or as a purposeful critique and pivot from earlier works. Consider for example Kengo Kuma's theory of the Anti-object, developed midway in his career as a blunt critique of decades of his own work as a post-modern architect. Building on his self-assessment his work was transformed, becoming clearer and filled with purpose.

In our case we engaged in a similar process. We each defined a decade of work, and considered its validity not only to the ideas that informed it, but also in relation to the ongoing medical and social crisis that the 2020 pandemic created. In this way we developed a way to reassess our progress and define future goals and intentions.

The Covid pandemic closed the physical show days after its opening, and it was only two years later that students were able to see it in person. In the meantime we converted the exhibition into a virtual tour and added to the content with videos and social media. We were confronted with the act of self-assessment as intended, but also with the need to communicate ideas in different ways, and eventually to consider different aspects of

practice. How we communicated with students and peers was transformed, leading us both to a different understanding of our work and how to use it.

If practice is communication then the pandemic turned an exhibition into an entirely new thing. The spatial intermixing of our projects in a single space - the idea that drove our original joint design - was mixed up by the new digital environment that we were thrown into for two years. Chief lesson of that unexpected pivot is that the practice and teaching of architecture can be enhanced by shifting to entirely new forms of communication and expression, and that there is an entire realm of thinking to engage with.

Introduction

This paper is specific. It is about the practice of two architects and the impact of an exhibition held during the covid lock-down in 2020. This paper is also universal in that it attempts to extract lessons for the profession in general about the value of introspection and exposing ideas to current events. However, we will begin by describing the practice of an unrelated third actor, the Japanese architect Kengo Kuma, who transformed his career through unflinching critical examination of both his and his contemporaries' work.

The critically examined practice

Kengo Kuma is well known for the mid-career development of his personal theory of architecture, an idea that he labeled 'Anti-Object'. While many architects produce manifestos, they are often - perhaps by their nature - written in a way that the author is left out of the critique. They stand outside of their own judgment. As a result, the work that reflects their ideals stands as a kind of proof of their position, requiring no further critical evaluation.

Kuma's own writing on architecture is so interesting because he writes quite comfortably, in an almost off-hand manner, about the failure of his profession, and includes himself in the critique. In his writings he states bluntly that "...I could not help criticizing architecture; equally, I could not help criticizing and disavowing my own work as an architect". His critique is straightforward, affirming simply that architecture should not be about the unthinking making of objects, which he defines as being "a form of material existence distinct from its immediate environment"¹. That his own buildings are objects is not a thing he would dispute, but there is an intent behind his work that requires constant testing and revision of his fundamental approach to design.

More recently Kuma sharpened his critique to include the very systems that produce and support architecture, from finance to social networks. He points out the fundamental weakness of engineering and of symbols in the face of nature and acts of terror². Both are insufficient to the needs of a trying time. Much of this is a reflection on the impact of natural disasters, and it mirrors comments by his contemporaries as they responded to the devastation of the 2011 triple disaster that saw the north-east coast of Japan utterly devastated by earthquake, tsunami and a nuclear power plant meltdown. In the face of such trauma what role can architecture play, and how can we NOT rethink our profession in the most fundamental ways?

To be fair, when Kuma laments the fragility of architecture the context he is referring to is one of real damage but also a danger narrowly missed. As the Prime Minister at the time, Naoto Kan has written, the tsunami in 2011 destroyed more than 120,000 homes and the nation only barely-avoided evacuation of 50 million people in the area around Fukushima, including all of Greater Tokyo³. Still, Kuma's conclusions about how to act as an architect are not nihilistic. To the contrary they are positive, and concrete. His architecture emerges from an awareness of current challenges, and shifts as circumstances change. His manifesto in this regard is flexible, even nimble.

Considering the global scale and impact of the covid pandemic, Kuma's approach to architecture is useful as an example. If there ever was a time to reconsider

the meaning of architecture, and how to engage with society through design it is certainly in the midst of such a world-changing event. As it happens the authors of this paper were forced by circumstances to do just that, as were many others around the world. The remainder of this paper outlines the experience and conclusions that came from that process. The outcome is worth further consideration, and even normalizing, as a way to create a framework for practices to respond to changing circumstances and expectations in practice going forward.

The Exhibition

Will Galloway and Carlo Parente are both architects and educators that have overlapping and shared experiences. Both were practicing and teaching outside of Canada for over a decade prior to returning to Canada to teach at Toronto Metropolitan University (TMU). Will Galloway started his design practice, frontoffice tokyo (FOT) in 2008, and taught at Keio University for over 10 years. Carlo Parente founded his eponymous practice in 2012 and taught at the Illinois Institute of Technology (IIT) for a decade. As their practices are ongoing their relocation was a chance to question their work in the past and going into the future. As new faculty in practice at TMU, they were given the opportunity to present projects through an exhibition. Pre-covid, that exhibition was framed as a conversation between the two practices. As the response to covid closed all public activities the exhibition became an experiment in communicating ideas without access to traditional means, and eventually became the catalyst for a new way of seeing practice itself.

In its earliest form the exhibition was a true conversation (see figure 1 and 2). The architects looked at each other's works and recognized a certain commonality; a shared interest in the messy casualness of a well-lived everyday life, and an affinity for the city as the landscape in which architecture takes place. This led to the creation of an installation that mixed the works of the two practices and formed a series of informal spaces that visitors could walk through and around as they examined their collective histories.

frontoffice's work was contained within four pink monoliths and a series of pedestals, all assembled from thick panels of painted insulation board. When the show ended, the intention was that the boards would be re-used at a construction site, or re-purposed for furniture. Containing nearly 10 years of work, the projects were set alongside a hundred photographs of Tokyo's everyday urbanism - the inspiration for much of their practice,

1 Kengo Kuma and Hiroshi Watanabe, *Architecture of Defeat* (New York: Routledge, 2019), 2.

2 Kengo Kuma, *Anti-Object: The Dissolution and Disintegration of Architecture* (Architectural Association, 2006), 2.

3 Naoto Kan, "The Fukushima Nuclear Power Plant Disaster and the Future of Renewable Energy," *The Fukushima Nuclear Power Plant Disaster and the Future of Renewable Energy*, 2018, pp. 1-22.

and not incidentally the chief evidence of what FOT are responding to when they design.

Carlo Parente's work was housed in a constructed "wall" and focused on the idea that the architectural projects can be thought of as an apparatus or container that holds positions and ideas. A plywood structure at the center of the exhibition represented this notion: more than a vehicle for displaying images and content, its very materiality, its role as a literal frame for displaying projects, and its ability to hold a diverse collection of artifacts, created a perfect focus for the exhibit as a whole. The plywood wall - banal and minimal in its construction - was given meaning, reinforced by the contrasting pink monoliths. Additional small wooden plinths were scattered throughout the space, further mixing the work of the offices without confusing authorship.

In terms of content, the celebration of the everyday, and engagement with the city were important concepts that each practice shared. The exhibition was organized loosely in the gallery to mimic that approach, taking on a kind of rough urban character, where authorship of objects was not always clear and where change appeared imminent. The daily life of projects and their setting were both documented through professional and candid images, scattered through the space along with models and short videos.

When covid hit Canada, the exhibition needed to change. It was no longer open to the public, and as it was reformatted for a digital format, it would no longer be physical in any sense at all. Ironically the exhibit stood for nearly two years in the university gallery space, but had visitors for only a single night. That shift ended up being a useful lesson in the limits and possibilities of positioning ideas through physical and digital forms. The interactivity of digital media is an obvious distinction, but there was an additional need to re-conceptualize the work as it was represented in a new medium. The first effort was a failure because it was too literal. The second attempt worked better because it forced a change in thinking about the work being undertaken in the respective practices. Significantly, the second iteration was not a direct copy of the physical exhibition but something entirely different.

Reflection 2.1 - Engaging Process

To be clear the exhibition itself was useful because it required an honest appraisal of practice. Presenting

ideas to others is usually a good opportunity to refine them. An exhibition can also be a chance to re-evaluate fundamentals. In the case of Carlo Parente the key choice was to dig deeper into recent work. Like Kuma, Parente had chosen to make a radical change in his practice, switching to an approach that was human-centered if not 'Anti-object'. That move came with the switch from a large international practice - where he focused on designing skyscrapers - to the development of his own firm where the human scale and human experience was brought to the front. Building on that transformation the work included in the exhibition represented a shift not only in the type of work, but with how it was engaged. As university faculty, both Parente and Galloway were asked to pass on knowledge and to frame what they had learned in a way that was both accessible and actionable by students. As such, the exhibition and installations were didactic tools both for the architects as well as for the students.

In terms of content, Carlo Parente presented two recent adaptive re-use projects. They both used former places of production - one a hog farm, the other an automotive shop. In the process of conversion to new functions they both became literal containers for a new way of living and working. The key concept behind that work is that an architectural project could in itself act as a framework for living - designed to be intentionally affected and altered by the inhabitants. Experiencing and engaging with this approach was an important goal of the exhibit, giving rise to a literal frame that would be used to house and exhibit the projects. Hence the large wall installed in the center of the space (figure 3) acted in a similar fashion as the projects themselves. As a large porous wall, formed as a collection of boxes on a grid, the final installation was never intended to be complete, always open to change. Artifacts, models, images could be added or moved throughout the exhibition. Because the wall had sufficient depth it also allowed for material to exist beyond the surface, offering a glimpse into aspects of work that are normally hidden. The exhibition then was never about the exterior appearance of the object and the object was never the whole.

At the same time, small cubes were placed throughout the exhibit space, mingling with the work of FOT, creating some ambiguity about the boundaries of practice and ownership. These are ideas that are clearly felt in person, but harder to grasp in the digital realm without a complete recreation of the exhibit and its parts. Once the physical exhibition was shut down and translated to a digital walk-through, the framework became a flat



Figure 2. Exhibition at its opening. The only time it was viewed in public for the next two years. Photo by Wayne Szeto



Figure 3. Wall as framework with movable content and hidden content within its depth. Photo by John Howarth

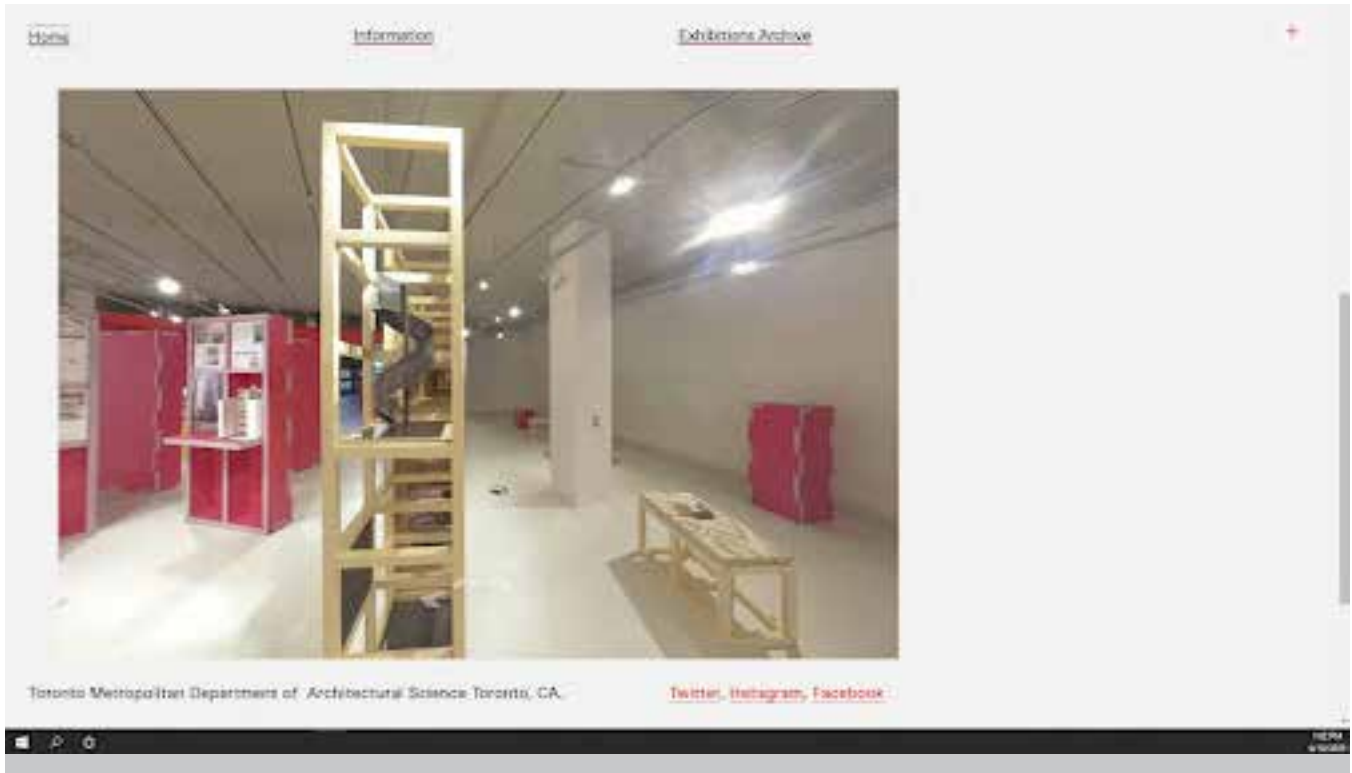


Figure 4. First trial at creating an on-line version of the exhibition. Image courtesy Toronto Metropolitan University, Department of Architectural Science.

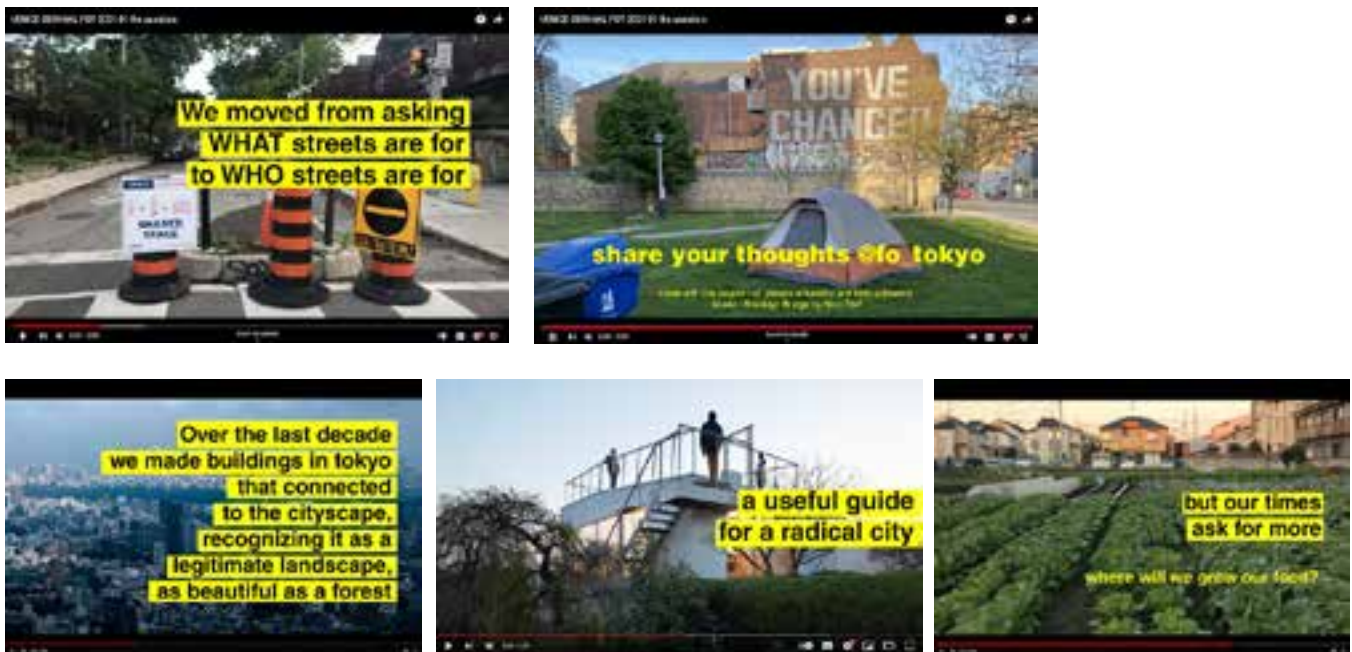


Figure 5. Stills from Venice Biennale Exhibition video series. Image courtesy frontoffice tokyo

interpretation of the installation, and of the work itself. The work could not be engaged with through a simple on-line analog, a conundrum that became all too clear once the exhibit was live in the digital realm. This is not to say that digital tools do not allow for the kind of engagement that was intended in the physical show – on the contrary, the engagement with the digital could have been an opportunity to challenge the boundaries of the work and to re-contextualize it. But we did not understand that potential immediately.

Reflection 2.2 - Going digital

Our first attempt at digitizing the exhibit was a straightforward translation of the analog space to a digital format. We created a digital walk-through that allowed visitors to see the exhibit as if they were there, virtually turning, zooming in, and walking through the space. The effect was flat - much was lost in translation, from materiality to spatial perception. As a first trial it was a useful lesson because it did exactly as it was supposed to do. Technically it was a success. We picked up and applied new tools, and easily integrated the walk-through into an on-line gallery website. What we failed to do was take advantage of the digital ecosystem. As content, the exhibition was not compelling and not suited to the medium holding it. It was, by far, too static.

Frontoffice had a second chance to create a virtual exhibit, this time for the 2020 Venice Biennale. Although the Biennale was nominally open to the public - a year later than planned - there was a lot of uncertainty about how open it would actually be and for how long, and so it too was converted to an on-line analog of the physical space. It was similarly handicapped by the simple conversion of the exhibit to a digital copy that could be accessed and walked through on-line. Having gone through the same process in Canada it was clear that the kind of engagement that was originally planned for would not be possible. In response Galloway and frontoffice tokyo changed their exhibit, creating a series of short videos that could be viewed on-line through common media sources (Instagram, facebook, etc) as well as in the physical space in the Italian Palazzo that would hold their work. As a hybrid exhibit the physical installation in Venice copied the pink monoliths from Toronto, but instead of the traditional models and renderings it became a literal sketchbook, amassing a collection of projects, drawings, and texts posted to a large board. The videos were similarly treated as sketches of the office's experience, documenting societal reactions and reflections on practice during the ongoing

covid pandemic. Because frontoffice was working in three continents at the time of the exhibit they could see differences in how cities, buildings and eventually architects were reacting to the pandemic in each nation, and that became a theme of the revised project.

The forced shift in content also forced a shift in perspective, one that proved very meaningful, as it became the impetus for change in their practice. Making video content required a step away from the individual buildings that would normally be the focus of the installation and towards a critical examination of events going on in Tokyo and Toronto, and to a lesser extent in Ireland and Belgium. It was not a representative cross-section of the world by any means, however the observed differences were acute. For instance, in Toronto streets were adapted and became spaces of private commercial activity as stores were shut down. In Tokyo that kind of shift was not possible, simply because there is not enough room in a Tokyo street. Ironically, Tokyo is a city that is defined by massive and constant change, however the reaction time is slowed to the pace of construction. Too slow for a pandemic. Suddenly the city of unflinching change felt less than nimble, at least at the scale of urban planning and architecture.

Taking those lessons to heart, the practice modified a master-plan that they were working on in Avelgem, Belgium. Originally designed around spatial practices learned in Tokyo, they modified the plan to create semi-public space that could be adapted over time, and similarly developed a building typology that included sufficient outdoor space that residents could adapt to changing circumstances around work and home. In general, the creation of the videos for the exhibit became the seed of a revised approach to design that set urban issues firmly within the architectural production, and this has become the fundamental ambition of the office from that time forward.

Lessons learned

Kuma tells us that he was inspired to create 'anti-object' architecture after visiting the Atami Villa by Bruno Taut located in the resort town south of Tokyo. The design by Taut, built in the 1930s is entirely underground and invisible from view, a paragon of the anti-object concept. We can only speculate as to why Kuma was in a mind-frame that allowed him to revise his work so completely; open enough that he could set aside decades of work to test an entirely different kind of architecture. Multiple economic disasters could explain part of it. The shifting

needs of a society under stress is another candidate. These readings may be wishful thinking. We are only now coming through a time of immense stress, if not disaster, and it may be we are seeing only what we wish to see in Kuma's change in disposition. Whether our conjecture is correct or not, we are certainly entering a period where the position and duty of architects is being reconsidered and reshaped in real time. Social media are the visible tip of a weather change in how we are all living, and as such they are useful tools for seeing and engaging with our peers, our students, our teachers. The work we produce in response necessarily must change as well. Being nimble enough to pivot away from established ways of working seems to be a necessity of contemporary practice at the very least. Critically challenging our own work should be part of our business as usual.

When Canada entered lock-down in early 2020 we were forced to change how we presented our projects, and in the process came to see our practices, our work, and the way that we taught design, in a different light. A key lesson of that unexpected pivot is that the practice and teaching of architecture can be enhanced by shifting to new forms of communication and expression, and that there is an entire realm of thinking to engage with. There were some errors along the way however the shift is best seen as an opportunity to rethink how we work and communicate about architecture. That is something we should all engage with.

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Figure 1. Night view of the roof top healing garden at the Athabasca Cultural Community Centre.

A New Integrated Approach of the Regenerative Design Process for Academia and Practice

A Case Study of the Regenerative Design Process Focused on Community, Culture and Climate

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Regenerative design and its practices seek to move beyond sustainability to form a positive partnership between buildings, communities, and nature. As Professor Dr. Raymond Cole states, “the emerging notion of ‘regenerative’ design and development emphasizes a co-evolutionary, partnered relationship between humans and the natural environment, rather than a managerial one that builds, rather than diminishes, social and natural capitals.”¹ As the Architects, Engineering and Construction (AEC) industry seeks strategies and skills to address the climate emergency, we must move beyond sustaining current systems and look towards a restorative framework that has a net-positive impact on future generations.

This paper explores the critical question around the building industry’s methodology in addressing the climate emergency and the necessary shifts toward regenerative design. The investigation identifies three steps that lead towards the regenerative design solution: firstly, creation of the programmatic needs through listening and dialogue with the local community; secondly, a deep understanding of the site – its cultural context, climate, and physicality; and thirdly, the weaving together of the program with natural systems to optimize the passive design opportunities while enhancing the celebration of the environmental

These steps are demonstrated directly through a case study analysis of the Athabasca Cultural Community Centre Virtual Building that outlines the process and priorities in addressing regenerative design and develops principles focused on a positive relationship

between buildings, communities, and nature. By extension, it will outline a restorative framework for managing energy efficiency in the Architectural, Engineering and Construction (AEC) industry.

The Athabasca Cultural Community Centre Virtual Building is developed as a multidimensional learning tool to deliver a series of micro-credential courses addressing energy efficiency in the AEC industry. The design establishes a regenerative framework that starts with a collaborative process that identifies the need for a new programmatic space for a local indigenous community in the Athabasca region of Alberta.

1. INTRODUCTION

Climate change is defined as a crisis of our time and is increasing at an unprecedented rate. The United Nations report that rising temperatures fuel environmental degradation, natural disasters, weather extremes, food and water insecurity, economic disruption, and conflict.² The environment is at a critical juncture with human-induced climate change, resulting in more frequent and intense extreme events, causing adverse impacts and related losses and damages to nature and people.³ The Architectural, Engineering and Construction (AEC) industry is identified as one of the main contributors to environmental decline causing climate change.⁴ As the industry seeks strategies to reduce the impact of buildings on the environment, we must consider a holistic approach structured around net-positive benefits on all systems that impact communities, including economic, social and cultural values. It is therefore critical that now and over the coming years, architects and engineers develop building

design strategies that will deliver climate resilience, form stronger communities, and realize a positive cultural and social built environment.

1.1. The Impacts of Climate Change – A Canadian Perspective

Climate change impacts are being felt on the ecological, social, and economic systems in many parts of the world, including Canada. The Climate Action Network states, “the increasing frequency of forest fires, storm surges, coastal erosion, landslides, snowstorms, hail, droughts, and floods could have devastating impacts on the critical infrastructure of British Columbia and Alberta.”⁵ In 2021, British Columbia experienced record-breaking temperatures as a heat dome formed over the province resulting in dry and debilitated conditions leaving ecological and forest systems vulnerable. This impact caused a significant increase in forest fires resulting in over 881 million dollars of damage to over 867,000 hectares of land.⁶ Months later, severe rainfall caused significant flooding – partly caused by the loss of biomass destroyed by forest fires – resulting in over 450 million dollars of insurable damages and the costliest extreme weather event in the province’s history.⁷

Moreover, climate change is having a direct impact on the stability of our ecological systems. It is linked to declining biodiversity and pollinator animals,⁸ threatening global food security and impacting overall human health.⁹ Biodiversity and pollinator animals are critical for safeguarding global food security, underpinning healthy and nutritious diets, improving rural livelihoods, and enhancing the resilience of people and communities”.¹⁰ A dramatic die-off of pollinating animals threatens essential food crops valued at half-a-trillion dollars annually.¹¹

1.2. Moving Beyond Sustainability Towards Regenerative Design

Sustainable Development emerged as a process in design in the late 1980s. It was a catalyst toward a framework for achieving higher performance and reducing the use of fossil fuels in building design. In seeking a definition of what the concept of sustainable development could mean, the Brundtland Commission Report boldly stated that sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”¹²

Regenerative design is a concept of ensuring the built

environment has a net positive impact on natural systems.¹³ Regenerative design is the “notion that emphasizes a co-evolutionary, partnered relationship between humans and the natural environment, rather than a managerial one that builds, rather than diminishes, social and natural capitals.”¹⁴ In his article, “Shifting from ‘Sustainability’ to Regeneration,” Bill Reed explains that regenerative design embraces a living system approach formed on the basis of restorative and reconciliation design and acknowledges that humans, and human activity, are an integral part of the natural and natural systems.¹⁵ As the industry seeks strategies and skills to address the climate emergency, it must move beyond sustaining current systems and look towards a restorative framework by forming a positive partnership between buildings, communities, and nature.

This paper identifies some possible steps that seek to address the critical question of how the building industry, including architects and engineers, will move towards a regenerative framework through an integrated design approach in academia and practice.

2. METHODOLOGY TOWARD A REGENERATIVE DESIGN PROCESS

The review of current practice in the AEC industry has highlighted that there are limited examples of how a regenerative framework is being adopted in building design both in academia and in practice.

Through the process of curriculum development of a new regenerative design course at Athabasca University, three steps were identified as a method toward realizing a regenerative design solution. These three steps are examined through the design of the hypothetical Athabasca Cultural Community Centre, a virtual building and case study developed to explore regenerative practices and examine the outcomes. The case study serves as the basis for a learning module for academia and practice that will be delivered as a micro-credential on Energy Efficiency in the AEC Industry. The micro-credential is offered by Athabasca University Power-Ed online learning platform.

The Athabasca Cultural Community Centre is a virtual building developed as a learning tool to explore the impacts of applying a regenerative design framework and process. The virtual building was designed by Assistant Professors Veronica Madonna and Trevor Butler from the RAIC Centre for Architecture at Athabasca University, together with input from Dr

Douglas MacLeod, Dr Henry Tsang, and research assistant Jessica Williams. Veronica Madonna is a professional architect, and Trevor Butler is a professional engineer. Both have received recognition for their work in practice.

2.1. Getting to Know the Community

Investing time at the project outset is important to investigate and understand the programmatic needs of the community through listening and dialogue.

The Athabasca Cultural Community Centre is located in the Town of Athabasca, at the Athabasca University campus. The site is on a natural landscape that includes a woodlot to the east and a series of waterways leading to the Athabasca River to the north. The building is designed as a cultural community centre to provide a social and innovation hub for the local community.

The Town of Athabasca is in northern Alberta, Canada and within Athabasca County. Athabasca County has an overall population of 6,959 people in 2021.¹⁶ Like many northern communities, Athabasca County has been experiencing a population decline of 11.5% since 2016. Even though the County is experiencing an overall population decline, the indigenous population is growing. In 2016, it was reported that over 9.91% of the general population of Athabasca County identified as aboriginal, noting an increase of 22.4% since 2011.¹⁷

The overall population decline results from many factors, including lack of services, infrastructure, and employment.¹⁸ Investing in building infrastructure can positively impact communities, providing an opportunity for developing new job skills, employment, and community-focused venues to form greater support networks. The Athabasca Cultural Community Centre seeks to demonstrate the value of investing in community-centric infrastructure to revitalize northern communities.

As a result of the demographic and social analysis of the area, the Athabasca Cultural Community Centre will have a multi-purpose program centred around indigenous value systems. The building will host various community functions and entrepreneurial resources to encourage innovation and industry connections.

2.2. Listening and Dialogue – The Community Consultation Process

The first and critical step in a regenerative process is establishing a community consultation process based

on listening and sharing knowledge to develop a deep understanding of place, cultural values and needs. The project must be “inspired by stakeholder engagement to harmonize community values with the project goals and to plan for future co-evolution of socio-iconological systems.”¹⁹ This approach sets in place a framework that considers long-term value for the local community and can become a means for establishing new connections and prosperity for long-term growth and renewal.

The site is in the traditional territory of the Cree and Métis people, covered by Treaty 6, signed in 1876. The meeting place at Athabasca University campus is dedicated to the Nukskahtowin, whose primary goal is to acknowledge and develop traditional Indigenous knowledge in the academy and to support, protect and preserve Indigenous knowledge, education, and oral traditions.

Consultation discussions were held with the Nukskahtowin elder and indigenous scholar Dr. Josie Auger to understand better how the program could best serve the community. The input was also provided by Mindful Architecture, who are working with the McMurray Métis on their new carbon-neutral cultural centre. The discussions with the community were highly valued and informative in developing the program of space as well as the cultural context and history of previous uses.

The design process started by identifying the need for a new programmatic space for the local community in Athabasca. The guiding principles of the program are centred around the accessible, equitable, diverse, and inclusive needs of the community. The program included space for learning, connection, celebrations, ceremonies, making and crafting – all through flexibility associated with meeting changes in use over the life of the building.

2.3. Understanding of the Site – Context, Climate and Physicality

The next stage of the design process was to explore the physicality of the site to determine natural environmental capital and how the building could directly interface in a regenerative manner. The site and climatic conditions are studied to provide knowledge to maximize passive benefits in both the site and building design. This process is a valuable investment of time and provides a positive start in the programmatic layout of the building – the first architectural steps.

The project goals are established using unique site characteristics to optimize high-performance strategies and “net positive” impacts on carbon, water, nutrients, air, biodiversity, social, and health.²⁰

This exploration is an essential part of the design, and there are factors that are fixed and others that are variable – all of which have a direct bearing on the long-term building operation.

The location determined longitude and latitude – both of which impact direct solar attributes of equinox and solstices – and the amount of solar energy available. The landscape and soil type offer space for ethnobotany and form part of the overall environmental strategy to moderate solar, manage stormwater, and purify the ventilated air. The subsurface considerations included thermal energy, groundwater, and geology – which provided early indications of appropriate types of structural foundations. The ground temperature and frostline are also important factors.

The quality of outdoor air is impacted by neighbouring noise and pollution from traffic and buildings – and the cleanest reservoir of air is identified for supply to the

building.

The climate is assessed through temperature, relative humidity and wind, as well as precipitation – snow, rain, and hail. The impact of changing climate should also be considered through reference to Pacific Institute for Climatic Solutions (PICS) and other research programs.

The building systems are approached as a living system, adapting to the climatic conditions through the day and seasonal changes.

2.4. Building Massing and Form

Building massing and form influences a sense of place, creates street appeal, and defines the overall aesthetic. It also significantly reduces energy consumption and provides a protective environment against harsh winds or sun. The approach to building massing and form should directly respond to the environment and land and reflect the community’s cultural and social value systems.

The building massing consists of three parts: the north block, south block, and central atrium. Entrances are located in the east and west cardinal directions.



Figure 2. Site plan of the proposed Athabasca Cultural Community Centre Virtual Building illustrating the integration of the building into the natural landscape.

Indigenous knowledge teaches that the cardinal directions form the basis of the life cycle and the holistic connection between mind, spirit, body, and heart. The building's north block strategically raises higher than the south to create a protecting edge against the prevailing winter winds. As a result, the southern landscape is sheltered, providing a positive microclimate effect. Connecting the north and south block is a central atrium that doubles as the primary social gathering space and a solar chimney driving the natural ventilation system.

The site is designed as both a natural and social landscape. A series of pathways weave through the area, creating an experience of natural and social elements that provide opportunities for healing and encourage connection to the natural world and provide places for community engagement.

The primary entrance is at the east with a generous forecourt where visitors and the community can gather and be welcomed into the centre. On the west, the site includes a social gathering space designed as a sharing circle or performance space. The outdoor gathering spaces are lined with native and healing

vegetation, rain gardens and natural bioswales to purify the stormwater. Bioswales are vegetated, shallow landscape depressions designed to capture, treat, and infiltrate stormwater runoff as it moves downstream and recharges water.²¹ The bioswale works to purify the stormwater as it streams towards the natural forests to the east and ultimately lands in the Athabasca River. The ability of the site to evolve and renew, generating net-positive impacts for the ecological systems, is an essential consideration of regenerative design.

Considering that roof spaces are opportunities to extend that natural landscape, the roof is designed with a pollinator and healing garden working to create additional places for local pollinator animals to forge and provide spaces for people to enjoy the natural settings. This reinforces the concept of the building forming part as an extension of the site and natural landscape.

2.5. The Impact of Materials

Selecting materials for a building is a complex balance of achieving the design requirements, minimizing environmental impact, maximizing product performance, and meeting overall project costs. In



Figure 3. Interior view of the Athabasca Cultural Community Centre Virtual Building.

addition, the choice of materials can strengthen local economies, form new skills, and job opportunities for local communities, and enhance cultural values.

There are several considerations when selecting materials for a design project, including cost, performance, durability, availability, maintenance, aesthetic, and embodied carbon. Embodied carbon is an essential consideration as we further understand greenhouse gas emissions due to the extraction, manufacturing, construction installation, maintenance, and end-of-life deconstruction of materials. Unlike operational carbon, embodied carbon is locked in place once the building is constructed and cannot be improved. As the building industry becomes more knowledgeable in reducing operational carbon, embodied carbon will significantly contribute to greenhouse gas emissions due to the construction and demolition of buildings.

The Athabasca Cultural Community Centre is designed with a mass timber structural system. Mass timber is a state-of-the-art technology that binds smaller sections of wood together to form large structural panels, posts, and beams.²² These wood panels are strong, lightweight, and often prefabricated in a quality-controlled environment. Mass timber and wood building products can offer many regenerative benefits, including being a renewable resource and having the natural ability to sequester carbon from the atmosphere. In addition, mass timber members utilize low-energy processes in harvesting and manufacturing. The prefabricated nature of the materials increases the speed of on-site construction and has the potential for disassembly. A recent research study has shown that mass timber structures have the potential to provide over 80% of embodied carbon savings compared to concrete and steel.²³

In addition to the carbon benefits, utilizing wood in building design can benefit the well-being of the building users. The Athabasca Cultural Community Centre exposes the wood structure, providing biophilic benefits and being visually pleasing. Biophilia and its benefits are being increasingly studied as contributing factors to the health and wellbeing of building occupants.²⁴ Using natural materials has been linked to reducing stress and anxiety and increasing cognitive functions.

The use of natural materials extends to the exterior. The north façade of the building utilizes a structural insulated rammed earth façade that combines local

soils with 9% cement compacted with an insulating core expressing the natural beauty of the local soils and providing advanced thermal performance.

2.6. Weaving Together

The first stage of design is to begin the process of weaving the program areas into the knowledge of the site investigations such that passive benefits are maximized through integrated building design. To put this another way, the environmental needs of a certain program space can be best matched with the site's free resources. The environmental needs include daylight, acoustics, ventilation, thermal stability, and glare control. This process is a valuable investment of time and will provide a positive start in the programmatic layout often building – the first architectural steps.

Consideration for connectivity and adjacency between program elements can follow this initial design stage. The design process is iterative, and addressing the linkages of passive design with program and site constraints is essential in delivering the integrated regenerative design scenario.

The weaving of the program with natural systems optimizes the passive design opportunities while enhancing the celebration of the environment.

2.7. Passive Systems

Some design elements that evolved from this process were envelope specific, such as R-values, window wall ratios and shape/size of windows with shading options. The use of the landscape as part of the overall environmental strategy – to moderate solar and stormwater, and to be a purifier of the ventilation air. The landscape design overflowed into a biophilic approach to the architecture with natural materials and systems, such as the solar chimney and extensive green roofs.

2.8. Active Systems

The heat is delivered through in-floor – fed via heat pumps connected to the geo-exchange piling system – an integrated engineering structural and environmental strategy. Outside air volumes are doubled with no energy penalty through the use of the earth tube systems, which also provide passive cooling in conjunction with natural ventilation. Renewable energy extends to the roof and parking areas with integrated solar panels.

The performance of the building must be established

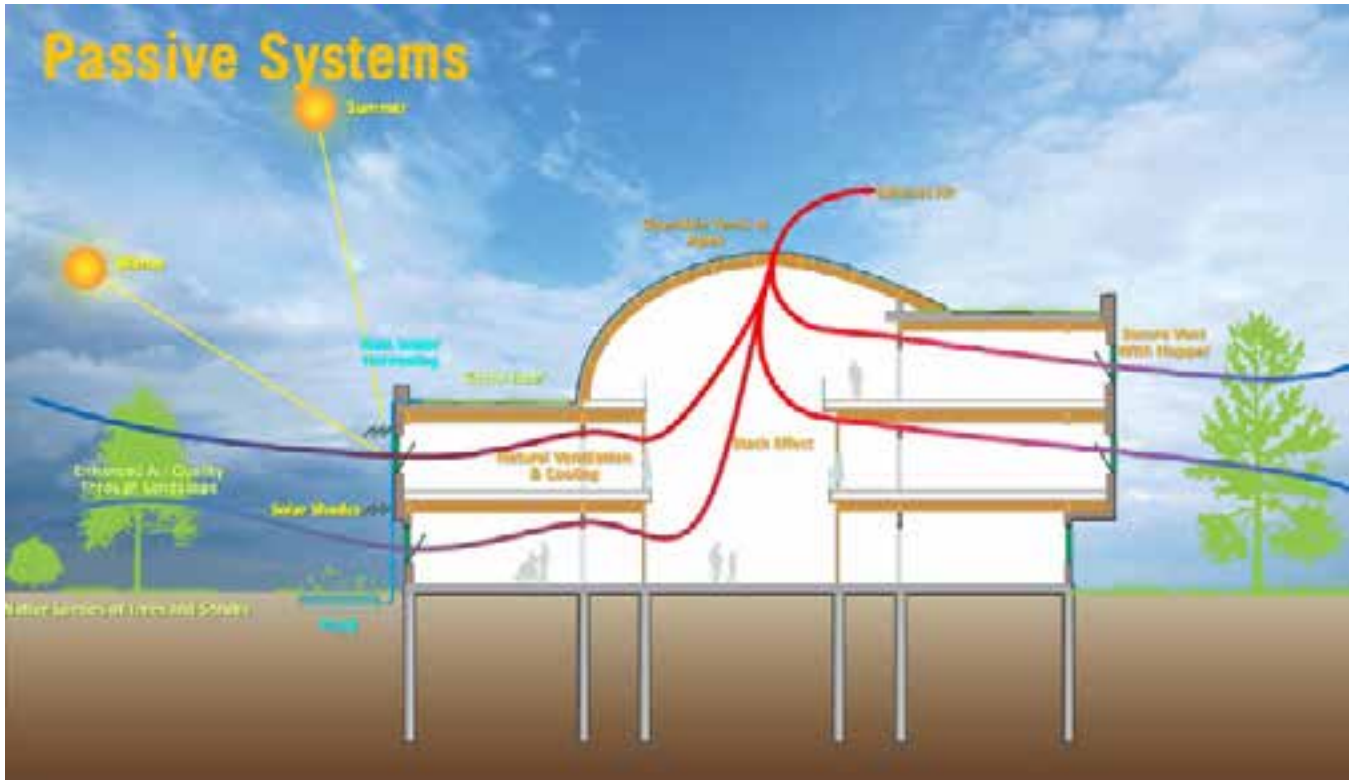


Figure 4. Building section diagram of the proposed passive system mode for the Athabasca Cultural Community Centre Virtual Building.

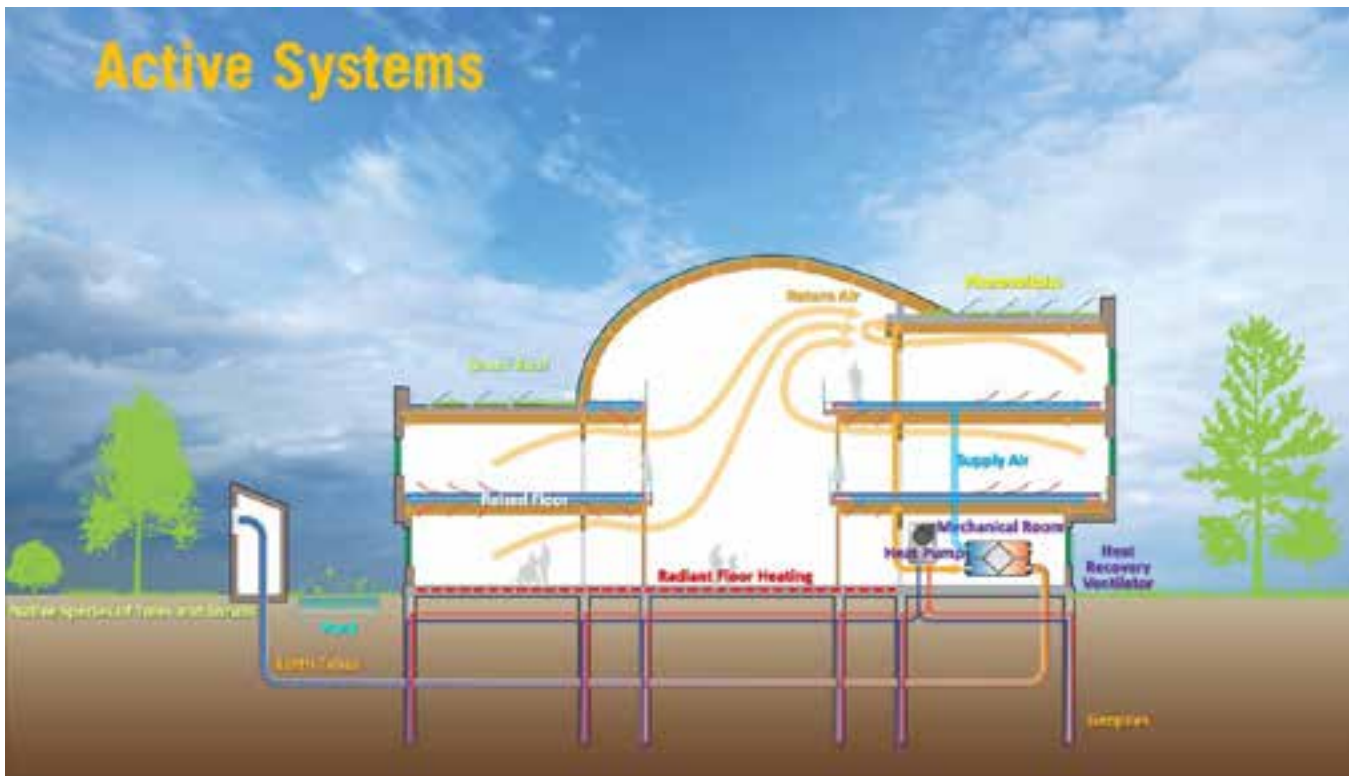


Figure 5. Building section diagram of the proposed active system mode for the Athabasca Cultural Community Centre Virtual Building.

upfront in the design process. The design team needs a clear focus on performance targets such as thermal energy demand intensity (TEDI), total energy use intensity (TEUI) and greenhouse gas intensity (GHGI).

It can be helpful to refer to performance standards including net-zero energy, carbon neutral or assessments like LEED, Living Building Challenge (LBC), One Planet Living (OPL) or Passive House (PH).

2.9. Flexible, Resilient and Restorative Space

As we face more extreme weather events, the term resilience is often used to describe a building's ability to prevent or recover from damage.²⁵ In a regenerative framework, it is important to move beyond the resiliency of the physical building and to include the resiliency of its users. Dr. Terri Peters presents in her research an alternative consideration for resiliency that provides for moving beyond the resiliency of the physical environment to the value of resilient architecture's social context, describing the importance of health, wellness, and the ability for spaces to foster collaboration and collaboration connection.²⁶ Considering the health and social resiliency of architectural space moves

architecture beyond the physical value of the building to environments that have a restorative ability for its occupants.

The Athabasca Cultural Community Centre is designed with a community-centric planning consideration that focuses on the social and cultural value of space as well as the health and wellbeing of the occupants. The building is designed with an open, central atrium as the heart of the building, functioning as a community and social gathering space. The space is accentuated with an expressive mass timber roof structure within integrated glazing and solid units that allows sunlight to fill the space and provides views of the sky, with openings designed to follow the sun's path while avoiding excessive solar exposure.

The World Health Organization defines health as a state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity.²⁷ The consideration of health in our built environment is increasing as we continue to understand the impact of space on the well-being of its users. A series of lounges are provided at various locations in the building and are



Figure 6. Exterior south view of the Athabasca Cultural Community Centre Virtual Building.

designed with multiple scales to consider the emotional impact space has on its users. This strategy finds that while some enjoy being part of a larger space, others prefer smaller, more intimate ones. Providing a variety of scales, proportions, and textures in space becomes an essential consideration in supporting the diversity, inclusivity, and equity of its users. Other areas, such as the healing roof garden, work to connect users to nature by including an extensive pollinator garden supporting biodiversity in the landscape. Biodiversity has become a critical part of the ecological system, providing necessary forging areas for pollinator animals, offering the building as an extension of the natural landscape, and providing biophilic benefits to people.

3. DISCUSSION

Upon critical reflection, the study serves as a case study for academia and industry to demonstrate a new integrated approach to design based on a regenerative design value system. To improve this study, firstly, the case study building should be further expanded to study the regenerative process in various regional locations in Canada and globally. This expanded study can serve as a comparative analysis to further define the process and benefits of adopting a regenerative framework in building design. The outcomes will then be developed into a roadmap towards a regenerative design process to serve academia and industry. Secondly, it would be beneficial to study the positive quantitative impacts of the regenerative framework in consideration of reducing energy and carbon in building design and the impacts on cost and overall health and wellbeing. Studying the operational and embodied carbon impacts of the case study building is the next step for the researchers. It will provide critical data to support the environmental and economic benefits of a regenerative design approach to building design. Lastly, the regenerative design methods should be tested as-built demonstration projects in various communities. These demonstration projects could provide the necessary data to further define the whole system benefits - environmental, economic, social, and cultural benefits - that can be used by academia and industry as-built case study examples to move the entire industry toward a regenerative pathway to climate stability.

4. CONCLUSION

The impacts of climate change are being seen and felt in Canada. As we reflect on the building industries' responsibilities toward the environment and our efforts to respond to the climate emergency, we must be aware

that the impact extends beyond a particular element, affecting multiple systems, including environmental, social, economic, and cultural values. As we move forward, the AEC industry must look toward a new integrated approach that moves beyond sustainability toward a regenerative design process that can meet our present needs and create a net-positive impact on future generations. To do so, industry and academia require a regenerative framework approach to design and demonstration projects that serve as examples for integration.

The Athabasca Cultural Community Centre is a virtual building designed as a learning tool to explore and demonstrate an integrated approach to a regenerative framework. It takes a three-step approach first:

1. The programmatic needs are developed through a collaborative engagement of listening and dialogue with the local community.
2. Considering its cultural context, climate, and physical characteristics, a deep understanding of the site is formed.
3. The program and natural systems are woven together to optimize the passive design opportunities while enhancing the celebration of the environment.

The Athabasca Cultural Community Centre outlines the process and priorities in addressing regenerative design and develops principles focused on a positive relationship between buildings, communities, and nature. This case study outlines a restorative framework for managing energy efficiency in the Architectural, Engineering and Construction (AEC) industry. To continue to develop and analyze the impacts of the regenerative framework, we have identified three critical next steps:

- To put the regenerative design to the test and perform carbon calculations on both an embodied and operational carbon – to see how exactly it is performing in this environment
- To start to analyze the regenerative framework for other building types and start to use that methodology on different types of buildings like housing and other cultural buildings
- To start to look at how it changes as we move through various climatic zones in Canada, and as well, we want to build partnerships with industry and academia to expand knowledge and practice further.

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SHADOW-PLAY: SOME STRATEGIES FROM FILM TOWARD A SUBJECTIVE SITE CONSTRUCTION

Architecture needs to understand its site

NEIL MINUK

University of Manitoba

In the introduction to his first book *Anchoring*, Architect Steven Holl emphatically affirms his theory that ‘**architecture should serve to explain a situation**’¹. He embodies a building’s site in his architecture. Holl believes that architecture should be purposely created for a specific place or context. Architecture is not a mobile home, or at least not in his conception of architecture.

In discussing situation, Holl is referring to the physical qualities of a site: views; sun; weather; terrain but also the poetic, intangible, one might say barely visible, but palpable, qualities of a site. If an architect has an intention to situate their architecture, it is a necessity to grasp and likely map its site. Holl reveals very little about his process of understanding site except for the architecture itself. It is often the case that ways and methods to achieve a resultant production are not revealed architects.

The aim of this writing is to introduce some potential ways to understand site qualities that could become ways that site meaning might be embodied: what are some potential site qualities and what are some ways to explore those qualities? A subjectively biased architecture requires a mapping which privileges certain aspects of its site. I believe that this is a way to imagine and create an architecture that is situated in a manner that is meaningful.

As both architect and architecture educator, I strongly emphasize the importance of understanding and subjectifying site in both my own work and the work of my students. In the university architecture studio, I often assign mapping exercises to my students as a way to start to a design project. The following is from an undergraduate site mapping studio brief, jointly written over 10 years ago with Professor Peter Hasdell,

‘A site is never just an empty piece of land. A site is between the known and the unknown, the expected and the unexpected, and the objective reality of its physical presence and your subjective interpretation. A site touches on the soul of a place or city and resonates with all manner of ghosts or echoes from the past, strange activities from the present and anticipated uses from the future. The qualities and essence of a site are not always understood through the image or as a static or spatial thing alone, otherwise a photo would tell us all we need to know; where for example can one smell the bakery three blocks over? Similarly, a site may be affected by things from outside its physical area; noise from a passing train, wind-blown snow from a distant silo, seeds dropped from passing birds. There may be things hidden under layers of rubble, soil densities only visible when a crop grows differentially on the soil, aspects not evident in a five-minute photo snapshot visit, or things you need to wait a year or a decade to discover.

¹ Additionally, a site is always seen differently by different eyes, different people, at different times of the day or night, season or year. A garbage collector will understand a site very differently from the point of view of the back alley perhaps, a dog might have a smell map in his head, a city planner a vision of mixed use and animated pedestrian scapes, an artist the color of the sky at dusk from their top floor warehouse.

Michel de Certeau writes about spatial stories as narratives about places and the impossibility of these being represented in a map.²

Architecture can privilege the experiential realm, focusing on meaning and its phenomenal reception. Site can be interpreted and understood experientially. Cinema has a strong set of similarities to how one might conceive of an architecture that is meant to be experienced. Film directors are certainly able to see the world with more freedom, away from constraints that an architect is faced with in terms of practical realities, and potentially this is a fruitful place to explore and discover strategies. Of course, site can also be read or understood in relation to signs, rhythms, social aspects, politically, its language, structurally and other post-modern meaning paradigms.

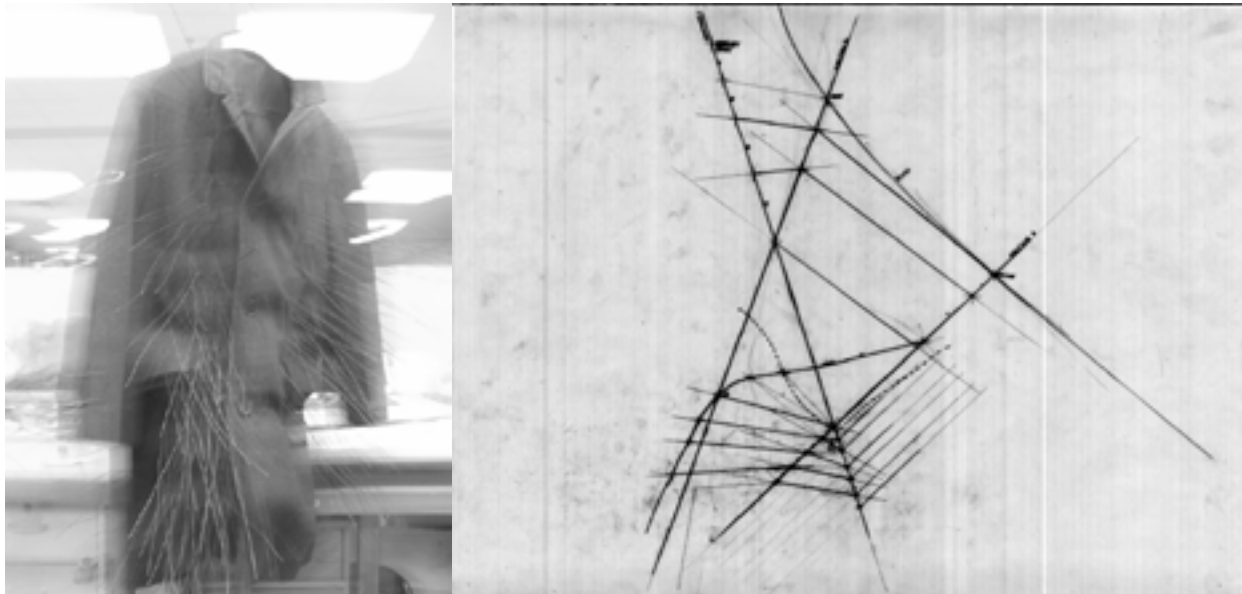


Figure #1. Constructed Coat device for feeling a site and a hand drawing using body for measure
For project in Rosieisle, Manitoba by student Mike VONTIESENHAUSEN 2009

Cinema employs site in meaning

In cinema, a 'mis en scene' is the arrangement within the frame of narrative elements [sets, props, actors, costumes, and lighting] in some larger scenescape or site. That site is often located or situated and usually purposefully created or situated. A site can be constructed as in Swedish director Roy Anderson's films or located as in Antonioni's films. The site, in certain films, plays an important role in the film's meaning.

From 2011-2016, I curated a weekly informal film night for a host of architecture students, fellow professors and practitioners, friends and anyone who wanted to attend. After watching a film together, we would discuss the content and relevance of the film we just watched and how some ideas might have application and agency in architecture. Many of the films that I will refer to here were screened in my film night series. Many of these films have inspired a series of site enhanced films that I have made of models and actual sites for architecture projects. These will be the focus of a subsequent related paper.



Figure #2. Still from 'Eclipse' by Michelangelo Antonioni

"it is in stillness that one may be said to find true speed", Trinh T. Minha³

Slow Movies

The films that I intend to examine are made by a handful of directors that hold immersive beauty as a fundamental aim in their filmmaking. The films that I will refer to privilege the experiential dimension and have been categorized by writers including Ira Jaffe as '**SLOW MOVIES**'⁴. With the exception of *L'Avventura*, the films are mostly set in less than beautiful settings. The less than picturesque settings are still extremely beautiful in a very strange way. Each of the films shares a slowness wherein the viewer is compelled to take in the surrounding or site and the site in each of the films holds multiple meanings. In each of the films, the director has a subjective take and intentionality in relation to how the site is employed. Everyday or banal existence is often the focus of these films. Ordinary lives are examined and the viewer is meant to live the lives lived, through the film.

In this paper, I will analyze the following filmmakers and films. **Michelangelo Antonioni** is an Italian director who made remarkable films starting in the 1950's and became known as an extreme radical with his *L'Avventura* [1960]. *L'Avventura* along with *Il Deserto Rosso* [1964] are mood films rejecting action and plot in favour of contemplation and image and the picturesque. Antonioni is an immersive cinematic artist. His films redefine narrative cinema through a non-linear structure and possess a critical restructuring of storytelling often favouring a non-linearity. There is a realism and directness in his work. Antonioni's films have been analyzed by many authors over the last decades including philosopher Roland Barthes who has written about technique, strategy, and intentions. Antonioni has spoken and written about art and his own films extensively.

Hungarian filmmaker **Bela Tarr** made a number of films over several decades, mostly in his native land. His last film, ***Turin's Horse*** [2011], is the epic minimalist masterpiece. The film is a relentless three-hour sojourn where a father, daughter and horse spend a few days in their bleaker than bleak life. Tarr's films are intensely based on philosophical themes and constructed of extremely long takes. His action-filled ***Werckmeister Harmonies*** [2000] is a strange apocalyptic human condition film built of long shots and seen through multiple characters. The long camera takes the viewer uncomfortably in the strange and unstable scape of the site.

New Yorker **Jim Jarmusch's *Stranger Than Paradise*** [1984], is his first feature film after film school. It has a strange structure; shot as a series of segments that are rarely fully connected, and sometimes not connected at all. The segments are single long takes without the typical shot coverage that serves to logically situate and explain everything in relation to a place.

Robert Bresson's *Au Hazard Balthazar* [1966] is a film believed to be inspired by a passage from Fyodor Dostoyevsky's novel 'The Idiot'. The film's main character is a donkey, and the viewer lives through the donkey from birth to death. The film follows the donkey as he is given to various owners, most of whom treat him very poorly. The film traces both their fates as they live parallel lives, continually taking abuse of all forms from the people they encounter.

The following are some QUALITIES that might hold potential for subjective site construction.

TEMPS MORT

David Bass from his article 'Window/ Glass Reflections on Antonioni',

'In Antonioni films, one isn't looking at the background simply because very little else is happening ... Occasionally, really nothing does happen in his films ... Such a moment of hiatus – a TEMPS MORT – brings the background into prominence, inviting the viewer to inspect the setting as one would a still photograph ... He dissolves relationships between what we have called 'foreground' and 'background', not only by inverting them in the TEMPS MORT's foregrounding of the background, but through other devices such as fogs and disappearances.'⁵



Figure #3 L'Avventura by Michelangelo Antonioni

Bass is referring to *L'avventura* and also referring to a term, TEMPS MORT, widely used in film and having a range of meanings. In Bass's description, he is speaking of a pause in the film where time stands still and that stillness enables the viewer to focus on the setting. Focusing on the setting can privilege the foreground, middle ground, background or some edited view or scape.

Temps Mort can also refer to the endless duration of an immersion [a stuckness]. This stuck-ness can be contemplative or meditative or simply rumination. Time can also be used as a form of power or punishment. Endless duration [tedium, painful] drives the characters insane (and maybe the viewer, too). There is a curious mixture of shock and

duration, especially in *Turin's Horse*, of the instant and endless waiting, the dust, the horse, the endless ride and relentless wind.

Temps Mort can also refer to the multiplicity of historical time. This acknowledging of time in context has a widening rather than narrowing vision of a place. It also belies time in a manner where every time matters. Multiple periods of history are intentionally present in Antonioni's films simultaneously such that multiple pasts, the present and an implied future are evident. In *L'Avventura*, Rome is presented as modern, historic, Roman and also speculative in a very intentional yet ambiguous manner. This collapse of time upon itself serves to acknowledge a historical and future time and space, sort of like a collapse animation.

An Antonioni scholar, Professor Steve Snyder, who taught film studies at the University of Manitoba for several decades, had the fortune to visit Antonioni in his Rome Apartment in the 1980s. Snyder observed that the apartment where Antonioni lived was a circular plan building with a continuous panoramic view in which Antonioni's daily life background was the city of Rome. The city of Rome in Antonioni's apartment scape held a multiple timescape with buildings from several contrasting times in view.

Framing and tempo exist similarly in architecture. In Carlos Scarpa's Brion Cemetery in Altivole, Italy, the wall that surrounds the cemetery removes or eliminates the middle ground from the experience of the open site. The foreground and background are all that are present in one's experience. The foreground is a highly controlled and designed scape and the background is Monte Grappa.

Film can also cover an extensive period of time in a relatively short couple hours, such as in *Bresson's Au Hazard Balthazar*, which has a screen time duration of at least 20 years. Architecture is an everchanging thing. Even though the architect relinquishes control over a building after completion, the building continues to change as does the site where it is situated in. Acknowledging the fact that sites and architecture are not static is being cognizant of meaning as indeterminate.

In her book, *Architecture from the Outside*, author Elizabeth Grosz considers buildings as potential texts. In opposition to a Derridian understanding of text as textile, an interweaving that produces a closed striated space, Grosz, after Deleuze, sees texts as rhizomatic. To this way of thinking, architecture works to embed texts like "little time bombs that, when they do not explode in one's face (as bombs are inclined to do), scatter thoughts and images into different linkages and new alignments without destroying them. Ideally, they produce unexpected intensities, peculiar sites of difference, new connections with other objects, and thus generate both affective and conceptual transformations that problematize, challenge, and move beyond existing intellectual and pragmatic frameworks."⁶

Studying sites and buildings as they evolve and shift over time can only make an architect more cognizant of how a scene might possibly shift.

Figure #4 Bresson's *Au Hazard Balthazar*

THE LONG SHOT | HAPTICITY | FAVOUR EXPERIENCE

In many of Tarr's films, but particularly in *Werkmeister Harmonies* and *Turin's Horse*, the number of edits is very limited. There is a tradition of long, single shots in Eastern European cinema and Tarr employs this strategy with great effect and intention. Many of the shots in these later films are between six and eleven minutes long. Single shots take an incredible amount of time to execute, often days and sometimes up to a month. The actors live the scene that they need to, in a sustained manner. Scenes are practiced, rehearsed and embodied. In many of these shots the camera swoops, glides, pans, and follows. Often it circles the characters, and sometimes even spans.

In the long shot in the bar that opens *Werkmeister Harmonies*, the lack of cuts or edits brings the viewer into the scene to believe that they are present, one is dancing the solar universe dance. There are no cuts, gaps or missing parts since the camera does not stop rolling. How could the scene possibly be staged if there are no cuts? The ASL or average shot length in *Turin's Horse* is 240 seconds. [Circle Closes, Kovacs]⁷ This is remarkable considering the current ASL is 2.5 seconds. Seams and relational languages in architecture are extremely important and one might argue, as author Gevork Hartoonian⁸ does, that the meaning lies in the seam.



Figure #5 *Werkmeister Harmonies* by Bela Tarr

I would argue that the staged, perfect, singular, controlled still images that many successful star architects employ in the selling and marketing of their work is in alignment with how they value their work. I think that this valuation serves to diminish the experiential dimension of the reception of architecture. The stills that they utilize are used to commodify an image-based reception rather than an immersive or felt reception.

In Bela Tarr's *Turin's Horse*, one can taste the dust, one can feel the warmth of the potato and taste the salt on the potato as it is eaten. This happens through being immersed in the scene. The shots are very atmospheric and emotive. Being in the scene comes with an openness of senses, touch, taste and smell.

FELT | IMMERSIVE BEAUTY

All of the filmmakers mentioned earlier are able to find a beauty in ugliness.

In *Red Desert*, by using saturated colour and saturated materiality, Antonioni is able to abstract our experience of a setting and create a kind of psychological immersion or mood. At times it is like we are located in a Mark Rothko painting. The characters and the viewer are literally swimming in a beautiful fog of industrial pollution. A hyperbole or exaggeration of a mood condition enables the immersion. A site can be exaggerated or mythologized to relate to an architecture.

In Jarmusch's *Stranger Than Paradise*, the immersive quality comes from the beauty of the banal ugliness. Not unlike Swiss Photographer Robert Frank's images in his *The Americans*, Jarmusch animates the bleak American rough poverty, something never held up as beautiful and immerses us in it.

OPENNESS | UNCERTAINTY OF MEANING

Robbe-Grillet in a BBC televised tribute to Antonioni in the 1990's, contrasts Antonioni's approach to meaning with that of Hitchcock:

"In a Hitchcock film the meaning of what you see on the screen is constantly delayed, but at the end of his films you understand everything. With Antonioni, it's exactly the opposite. The images don't hide anything. What you see is very clear, but the meaning of the image is constantly problematic, and becomes very problematic as the film unfolds. When the audience leaves the film remains open ... this is one of the most important characteristics of the Modern."⁹

In *L'Avventura* not only is the mystery in the film, the disappearance of a woman, not solved but it is not addressed. The landscape becomes a confounding scene or scape due to this situation. A condition or narrative is imposed upon a site or scape. Antonioni's depiction of site in *L'avventura* assists in the openness or uncertainty. Scenes and site are direct but somehow troubling through the accompanying narrative.

VIGILANCE | CRITICAL AFFIRMATION

Antonioni is described by Roland Barthes in 'Cher Antonioni'¹⁰ as watching or scanning of the world rather than trying to change or develop. Poetic scanning and selective vibration of the existing reality. All four directors can be accused of an attitude of critical affirmation in relation to site. Critical affirmation is the accepting of the dirty reality and creating a vibration from it, subjectifying it.

ENDURANCE

The first time I saw *Stranger than Paradise*, I watched it in a movie theatre. The film had just been released and I knew nothing of the film. The first ½ of the film was a constant struggle to remain in the theatre. I persevered and am so glad that I did. I struggled to make sense of things.

A perseverance through both unfamiliar structure and segmentation, forces one to examine more intensely.

TRYING TO UNDERSTAND NON-LINEAR STRUCTURE

Changing the order of viewing serves to contrast and change meaning in how the site is understood. There is a heightened awareness through a sameness and difference examination. A Non-linear reality frame of view speculates the future of multiple ways that things might unfold. This comes back to Grosz's rhizomatic texts as ways to understand meaning in sites and architectures. The non-linearity of the films forces our brains to understand meaning in a way that is not sequential, ordered or predictable. ***Stranger than Paradise*** is a series of related but unrelated scenes or long takes.

ENACTING A SPATIAL REALM

Many of these films simply focus on the monotony of everydayness. Lives are lived. The subject is the human condition. We are all human beings and alive. We all live and breathe and eat. The psychological human condition is explored and emphasized and examined and heightened in its meaning by the way in which the site and the structure of the films in relation to that.

These qualities in the films described in the preceding writing have the potential to open a range of how one might think about a site and how the site might have some agency in architecture and the experience of that architecture.

The above terms, qualities, intentions and strategies including: **TEMPS MORT: THE LONG SHOT | HAPTICITY | FAVOUR EXPERIENCE; FELT | IMMERSIVE BEAUTY; OPENNESS | UNCERTAINTY OF MEANING; VIGILANCE | CRITICAL AFFIRMATION; ENDURANCE; UNDERSTANDING NON-LINEAR STRUCTURE; and ENACTING A SPATIAL REALM** are potential ways to start to think about biases around mapping or understanding a site and using one's biases in directing how an architecture can reify that meaning and create a rich and meaningful experience.

These identified strategies from these specific filmmakers are fresh and oblique and specifically focused on qualities. Architects have a mountain of functional and pragmatic considerations when designing a project. As part of a design-process architects normally map or study sites and often do so in a literal or direct manner. A Shadow can refer to the instability and subjective nature of reading and also the barely visible. Shadow-Play refers to the fun and creative way in which a site's meaning might be uncovered and explored and embedded into an architecture project.

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Merit Award in the International Competition, Ecologic Power Plant in Taiwan 2018

Waterfront Sustainable Open Solutions to Face Climate Change

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Abstract

The effects of climate change are increasing at an unprecedented rhythm, which demands adaptation and transformation of vulnerable waterfront territories. Cities aim to build up resilience, not only to mitigate losses, but also to transform themselves into stronger, improved built environments. Before the effective adaptation and mitigation, cities face years of discussions and/or lawsuits involving significant costs.

How can cities become more resilient? What must be transformed? Who should lead the process? When is the appropriate time to do it? To enhance resilience, it is necessary to recognize present gaps. Research, namely at geographical, historical, cultural, political, and climatic levels should contribute to develop approaches and find systematic means. There are effective new strategies that have emerged from bottom up initiatives. The protection of the urban environment and the enhancement of urban resilience come from interdisciplinary and comparative cases. The recent research that scratches innovative methodologies is increasingly relevant.

The scope of this research project is to develop a research network, associating architecture schools, urban research laboratories, local authorities and NGOs on architectural and urban design solutions to deal with the problem of the consequences of climate change on the waterfront. The network has the objective to research in different scales: 1) solutions for urban planning (the vast territory), 2) solutions for urban projects (in a scale of the district or smaller urban facade), 3) solutions for public spaces, 4) Architectural solutions at the building level, 5) The contribution of new technologies (warning devices or other) and 6) "social" solutions (organization of the affected populations).

Worldwide, there are many entities already working directly on the topic. This project values design processes that connect the traditional urban design method with multi-source urban big data and AI method

to evaluate the urban form, function, commercial activities, urban environment, ecology and human activity comprehensively.

The selection of best practices, include projects that succeed in conquering public support, integrating the signs of the collective identity based on the evaluation results. Climate change solutions can only be successful in ensuring a resilient city if they also engage citizens, educating them about challenges, solutions, and fostering possible changes in lifestyles. Each of these topics contributes to build component of existing solutions and a component on future or innovative solutions. The research will present the action from universities, research centers, local authorities, stakeholders and communities that are working together with high-density and ecological sensitive waterfront environments to make a link between master plan and future scenarios.

Keywords: waterfront, urban design, climate change, data & technology, innovative co-creation

Introduction

The challenge brought by climate change created by human's actions on the planet, raises multiple questions, opens new perspectives and consequently demands different responses. The discussion regards their impact, how to mitigate and improve the situation. The reduction of the impact of human actions includes the interest for new models.

Five European Cities are taken as laboratory of research, three sites in each city created fifteen possible answers within the Green Deals strategies. The declaration of the World Congress of the International Society of City and Regional Planners – ISOCARP organized in 2020 states a need for new solutions to look beyond the present climate conditions.

We advocate a territorial approach to climate action and resilience by promoting place-based policy responses

to accelerate efforts to mitigate climate change and to more effectively adapt to its local impacts. (...) This action will rely on systems level change and innovation such as in digitalization, big data, new global economic models, (...).¹ The statement is particularly meaningful on waterfront territories, while facing new patterns of natural disasters; they are particularly vulnerable in each of the five cities, Lisbon, Rome

Thessaloniki, Gdansk and Stockholm.

Carbon neutrality emerges as a common goal for the younger generation who claims the same rights and privileges as those of the previous generations. The growing importance of the topic is raising an exponential diversity of answers in order to mitigate and adapt waterfronts to climate change. Editor of the book *Enlightenment and Ecology*, Yavor Tarinski claims that:

"Climate change will deepen ongoing current crises. It has the potential to radically alter the face of the planet, making our future on it quite uncertain. In a sense it is a holistic crisis. Thus, the climate crisis has an existential character that places us on a crossroad – to continue down the road we are currently on, or choose a different path. That's why conventional approaches like responsible parliamentarism and green capitalism seems out of place and offer no real solution to climate change."²

An increasing number of authors agree that our industrialized world endangers, by its hyper consumption, the very future of humanity, thus our research includes the identification of communities that succeed to diminish our ecological footprint and place it as their first duty. The goal of "sos climate waterfront" research project is to find sustainable open solutions and disseminate them to larger audiences in five European Cities.

State of the Art

The reduction of biodiversity, unprecedented climate swings, and the raising costs of maintenance are symptoms of a planet struggling with illness. Human ecology is also something deeper than indispensable in order to further create the necessary relationship between human life and the law inscribed in nature itself. To enhance resilience of the built environment it requires a multidisciplinary approach. Along the lines of a wide range of authors discussing urban resilience, Ayda Eraydin defined a resilient system in terms of "its ability to absorb change and disturbance, and the persistence of systems while retaining its basic functions and structure".³ The persistence of systems raises important challenges for the next generations. To retain basic functions, it is necessary to mitigate risks and develop means to adapt.

The consciousness of the extractive impact of the consumed goods is complementary to the aim for health and positive behaviours. It necessarily leads to continuously consider life of the next generations.⁴

According to authors Vale and Campanella writing on resilient cities, finding a broader perspective will lead to understand the loss of resilience. They define resilience as "the ability to absorb change and disturbance" to the conditions of the community which in many cases is beyond climatic causes: Sometimes, social and political disasters are even self-inflicted, usually by regimes seeking drastic overhaul as a means to promote massive, rapid modernization.⁵

Climate change imposes transformation. Change itself is not necessarily the problem. There are many parameters to be considered, probably too many; therefore, it becomes hard to guess with certainty what the future could become. Transformation does not, by definition, compromise or promote resilience. It brings new challenges which can be converted into opportunities, according to Yoshiki Yamagata, Principal Researcher at the National Institute for Environmental Studies in Japan: Resilience is not a static state of a system. It is a process.

"The process of regeneration seeks to develop adaptation strategies and make waterfronts more resilient. A city is dynamic and is always changing. (...) Resilience is transformative, and in each transformation, tries to create a stronger, improved city".⁶

Some scientists claim that it is during the present decade that humanity will decide to balance the anthropogenic influence with natural habitats. Political decisions are required to take affirmative actions and measures that are effective regarding public health. During the pandemic lockdown, political leaders and local communities have shown the capacity of nations to collaborate and react to protect humans. The quality of life of people, their harmony with the environment, the engagement of natural systems, the promotion of local ecologies and mutual help between nature and human presence.

Hope in technical solutions, merely technical, risk to take into consideration symptoms that do not correspond to the most profound problems. It is necessary to interpret the behaviours of people and each culture; understanding the development of a social group supposes a historical process, within a cultural context, that constantly requires the role of local social authors, from their own perspective. All research that was carried out has been to "cultivate curiosity without being obsessed by utility or profit. In fact, the fundamental discoveries that have revolutionized the history of humankind are the result, mostly, of research far removed from any utilitarian

objective.”⁷

Procedures of justice and scientific information are needed to be considered in order to relate all of the available parameters. Most of the parameters are increasingly difficult to guess with certainty, though the correct combination of parameters is useful into predicting and ascertaining what the future could become.

New paths

In this moment of crisis and conflicting perspectives it is particularly relevant to observe the actions and the positions of the younger generations concerned with the discussion. There are several main complementary ingredients to be considered: nature regeneration in the urban environment, resilience to extreme climate variations, renewable energy production, rainwater collection for reuse, reduction of CO₂ emissions from people’s transport, building energy consumption and construction materials.

Younger researchers were encouraged to integrate scientific high-tech solutions with holistic sustainable strategies and share a critical perspective on economic activities spread worldwide that follow models of continuous growth. It is appropriate to observe their growing awareness and understand how human presence might be less damaging for the planet. What can be improved to mitigate ecological disasters, the exponential loss of biodiversity or how it might be possible to reach a healthy balance of CO₂ emissions?

In each site, there are a number of measures to be incorporated. The work carried out includes an interdisciplinary research⁸ between experts, researchers, professional doctoral students, and the involvement of local institutions that will inevitably have an impact on future decisions. In short the research group privilege design solutions that implement a symbiotic approach by promoting the sponge effect. One that is able to absorb extreme swings of temperature and water. The sponge is resilient, not static. It cooperates in the process of transformation while sustaining permanence. From their perspective, promoting a smooth dialogue between the natural and the built environment is able to regenerate nature.

Conservative political leaders and CEOs of large corporations such as Microsoft⁹, along with other opinion makers, believe scientific innovative solutions and high technology will provide the necessary answers for the climatic crisis. In the five European cities the research is seeking for solutions that improve their resilience, like sponges that are able to absorb without being degraded. The effect of a sponge is smooth, the water is soaked up

discreetly, and the temperature dissipates and gradually returns to its initial condition. The concept of a sponge applied to the built environment requires a shift in the way urban waterfronts have been designed until recently. Sponges take and give, they are passive and active, and open a new realm of opportunities for contemporary design.

The strategies reinforced in the last twenty years give us the evidence of how it can play a role model on waterfront community’s capacity to adapt to climate change.¹⁰ To contribute to the present debate each parameter should be addressed independently but there is an urgent need to find new paradigms as Canadian philosopher Harvey Mead¹¹ states:

“We have no choice: either we change our system by a massive community effort, or this system will collapse under the weight of its excesses, whether of an economic, social or ecological nature.”

Methodology

The strategy applied to each of the fifteen sites makes use of historic and geographic records. The collection of data is used to construct patterns of development, feed algorithms and integrate the support of artificial intelligence to design future possible scenarios.

During the 30 days workshop, a group of international and multidisciplinary researchers have access to the present debate and the recent discussions.¹² They work in groups of four or five persons; they are encouraged to invest in the potential inventiveness of future solutions based on the local cultural context.¹³ At the end of the workshop, each group seek for strategies supported on scientific rigorous use of data and ecologic sensibility to produce imaginative green/blue solutions.

The European Green Deal has a strong influence among researchers, initially, some sought to copy solutions applied elsewhere. It soon became evident that there are no blueprints, and each city has to invent its own solution. The challenges presented by the anthropogenic action on climate change demand the search for innovation, and solutions that are not repeatable, that require the interpretation of each place and the imagination of a specific design.

The central question shared by researchers, expresses the general perception of the next younger generation. Previous models seem outdated and the urgency to find adequate answers is brought to the centre of the discussion. Promoting solutions of circular economy, the European Green Deal takes over in search for new potential models, which introduces the transition to the core of the debate. In his book *Political Ecology: Beyond Environmentalism*, Dimitrios Roussopoulos stated that

there are fundamental questions to be addressed:

"Despite many international meetings, dealing with every subject from biodiversity to climate change, the national political elites have found it impossible to come to meaningful agreements to deal with the environmental crisis. [...] There is no avoiding of imagining new and different scenarios than the status quo. Surely another world is possible."¹⁴

The methodology adopted brought local knowledge, and local talent to find the best local solutions from local designers. Several authors claim the importance of linking existing public spaces and waterside areas, as argued by Nyka & Burda, referring to social benefits, and advantages of building a more comprehensive and creative city landscape, though the means to implement these measures can be interpreted broadly.¹⁵

Solutions intended to combine a good balance between rigor and creativity, while speculating on and opening up new perspectives. Invention relies on both, and flourishes when they are in balance. The central question regards the inevitable process of regeneration. Where should "sponge" strategies be implemented? How may adaption and mitigation improve the resilience of waterfronts?

Outcomes

To shrink the ecological footprint and improve resilience the implementation of long-term strategies is required. Research from international and multidisciplinary backgrounds are committed to the exchange of best practices and further stimulate new ideas that are occasionally useful in finding solutions that are betting in the future or in other words present the best guessing to face the present threats.¹⁶

To envision the new opportunities, it is necessary to engage the next generation, namely graduate students and young professionals that contribute positively to the discussion. Planning regulations, academic perception of planning and their methods are outdated. The methodology adopted in the workshop aims to develop concepts useful for the future. Young researcher's contributions may be shaped in a creative and intense way, with new strengths that show a commitment to future generations, or it may be seen as a source of despair of irreversible mistakes towards a dead end.¹⁷

Researchers were encouraged to think "out of the box" to imagine beyond predictable scenarios and to take risks. The concepts of symbiosis and biophilia in urban ecology are transversally integrated and applied in the design to develop solutions that may become an inspiration to new visions.

The research, by design, takes into consideration the influence of geographic conditions, historical buildings,

and climatic indicators. The frequency of extreme events affects the urban environment with floods and high tides, tropical hurricanes, droughts, and the urban heat island effect. The expenses that each of the events bring to the municipalities, stakeholders and the community require the improvement of related infrastructures and consequently exponential cost.

Historical heritage, industrial artefacts, buildings, docks, cranes, and canals are relevant, each have address climatic conditions that are useful when designing future systems of circular economy, to build a post-industrial area that is committed to capturing CO₂ that mix ecologic solution of passive energy, vertical farms, and floating platforms and innovative systems to protect biodiversity and human presence in the territory.

Data related to sea level rise and frequent floods influenced the researchers to redefine the contour of the line separating the land and water. Geographic data proves the necessity for new infrastructures, the use of renewable energy sources, combined with green systems and urban farming and the protection of local biodiversity in land and on the water. Together, these measures empower sustainability goals.

European Processes

The illustration of the hypothesis presented for each location in developing solutions and strategies to face climate change is innovative. A high level of expertise and international excellency among professionals integrates our research project, thus providing the competences necessary to develop futuristic solutions for waterfronts. Researchers from several European countries have analyzed geographic and historic records, data collected in the last 100 years in Lisbon, Gdansk, Thessaloniki, Rome and Stockholm. In each city, researchers processed large quantities of information on climate, pollution, energy consumption, transformation of the built environment and consumption behaviours.

Sustaining new approaches requires a systematic and rigorous collection of data, the identification of patterns of evolution.

To elaborate future scenarios, it is necessary to combine rigor and invention. It is mandatory to establish an open dialogue with local representatives before imagining future scenarios for adapting and mitigating risks for specific sites. Rigorous approaches do not tend to value innovative visions. Innovation presents new ideas or methods to be tested for the first time and does not strictly emerge from being accurate. The question is how to find the right balance between the two, imagination and accuracy?

During the processes there is the enhancement of

critical thinking and scepticism. Take for granted that only a tiny portion of the results will be valuable. Most of the outcomes of an experimental workshop are not useful, they are wasted, but the small part that is relevant is worth the effort and opens new perspectives.

The speculative design proposals produced during the meetings are becoming relevant due to their capacity to combine systems that were not necessarily related. The integration and the connection of them offer the opportunity to envision integrated mechanisms in symbiosis. Among the participants, the imminent and inevitable climatic disaster is not taken from a pessimistic perspective only. The new climatic patterns also sustain new ideas and become a creative engine to redefine the rules, the goals and most importantly, the dream of the next generation.

In short, the design proposals briefly presented in this paper prioritize the following aims: integrity of the city and the protection of the urban environment as a place of integration, unity, safety, and sense of belonging. They succeed in contributing to the present discussion by combining systems that are not related.

The participants acknowledged that possibility when processing the scientific data; they did not ignore the facts, though they did decide to invest in an optimistic vision based on the perception that previous generations have been able to move quickly and respond positively.

The engagement of young professionals from different disciplines with graduate students from all over Europe is particularly useful for the discussion. The previous generations did not anticipate that modernity and strategies of control of nature would lead humanity to the present situation. Participants involved in the meetings do not see it as a source of despair of irreversible mistakes towards a dead end. On the contrary difficulties become an engine of innovative design, include smart solutions and new governance shaped in a creative and intense way, with new strengths that show a commitment to the future generations.

Conclusion

To face the climatic crisis there is no single solution, the solution arises from a multiplicity of factors and their correct relation.

Each site faces different challenges and raise complementary questions regarding the communities, local infrastructures, and the local ecology. Human settlements located in low lying coastal areas or near streams, rivers, or the seacoast likely have a higher risk of damage from sea level rise or flooding.¹⁸

The illustration of the hypothesis presented for each location in developing solutions and strategies to face

climate change is a meaningful contribution with cultural impact on stakeholder's municipality representatives and the community. Researchers from several European countries analyzing geographic and historic records, data collected in the last 100 years and processing large quantities of information on climate, pollution, energy consumption, transformation of the built environment are able to contribute with innovative solutions, imagining future scenarios for adapting and mitigating risks for each site.

The methodology and defined outputs are possible to use outside Europe by sharing the state of the art and using similar new paths. Image 5 shows a summary of principles and the urban/architecture design selected from a Graduate Architecture Studio carried on at Université Laval under my supervision. Other researchers from Laval in Canada also have been published in our H2020 research publications enhancing scientific collaboration across the Atlantic.

The expansion of the consumerism society to larger numbers of the world population leads ecosystems to unprecedented levels of stress and destruction. Such evidence is so hard to face that a large number of humans develop a sense of denial and keep their current lifestyles. It is the way human beings organize themselves to feed all self-destructive addictions: trying not to see them, struggling not to recognize them, postponing important decisions, acting as if humanity could go on.

A central aspect of consumerism society is the continuous growth of consumption of resources and energy. Several experts agree on the need to prioritize green buildings and urban transport. But it is difficult for some measures deemed necessary to be peacefully taken by society without a substantial improvement in transport, enhancing frequency of services and security. In the five waterfront cities the importance of these points of view always contributes to the analysis of the built environment. The projects and solutions presented in this book were not driven by the pursuit of beauty. This has been considered to not be enough, because it must serve another kind of beauty.

To deal with the complexity of the ecological crisis and its multiple causes, there is a growing recognition it cannot come from a single way of interpreting and transforming reality. It is an opportunity to address the diversity of cultural conditions, learn the art and poetry, the inner life and spirituality of each community. It becomes evident that to build ecology, and the reparation of all that has been destroyed, no branch of science and no form of wisdom can be neglected.

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Figure 1. Water-pumping system from al-Jazzari, The book of knowledge of ingenious mechanical devices (1206)

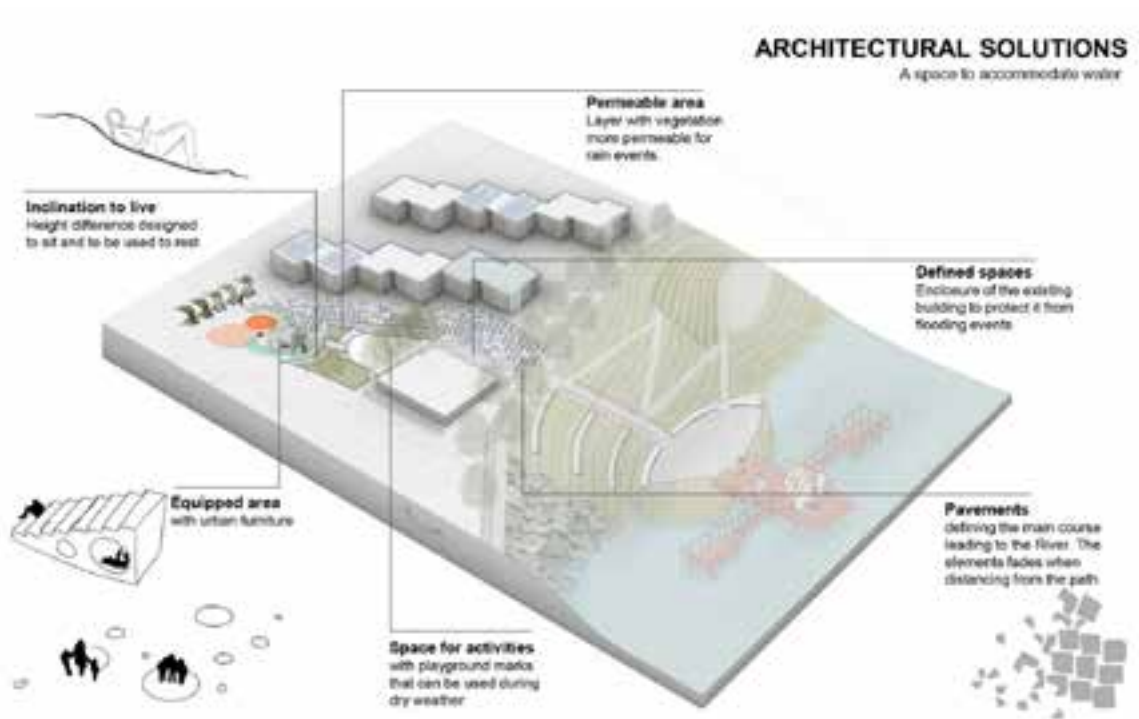


Figure 2. Architecture Solutions A space to accommodate water, SOS Climate Waterfront, Rome book

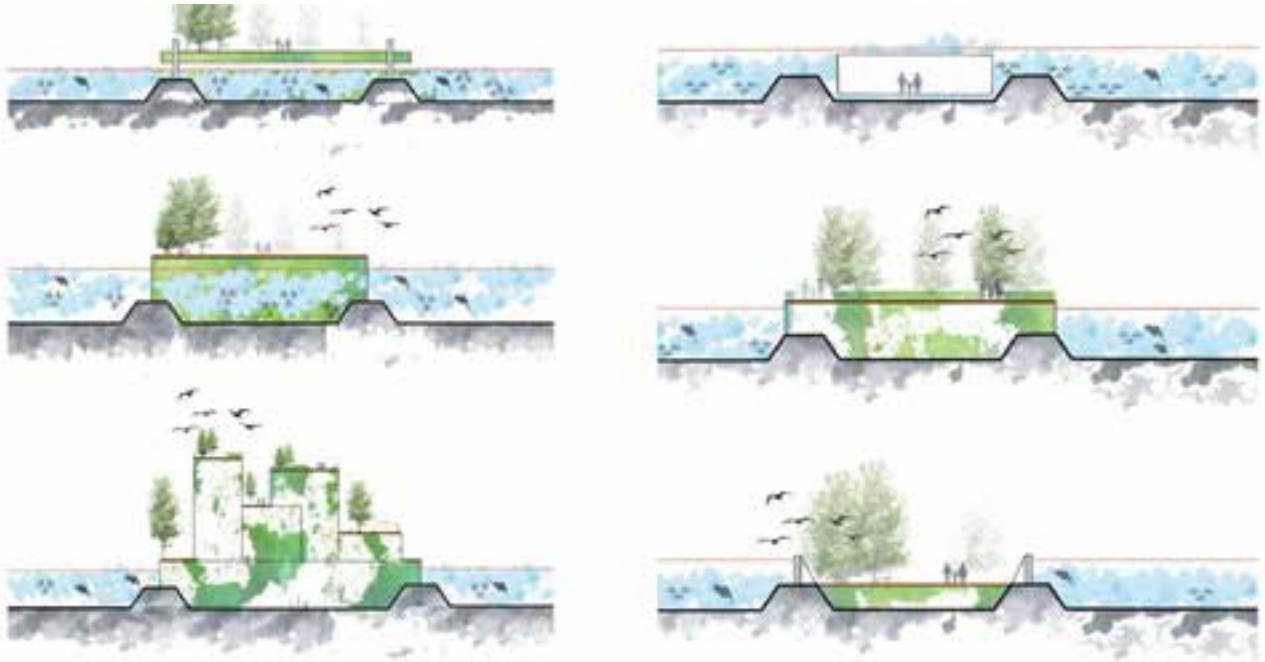


Figure 3. SOS Climate Waterfront, Lisbon Book

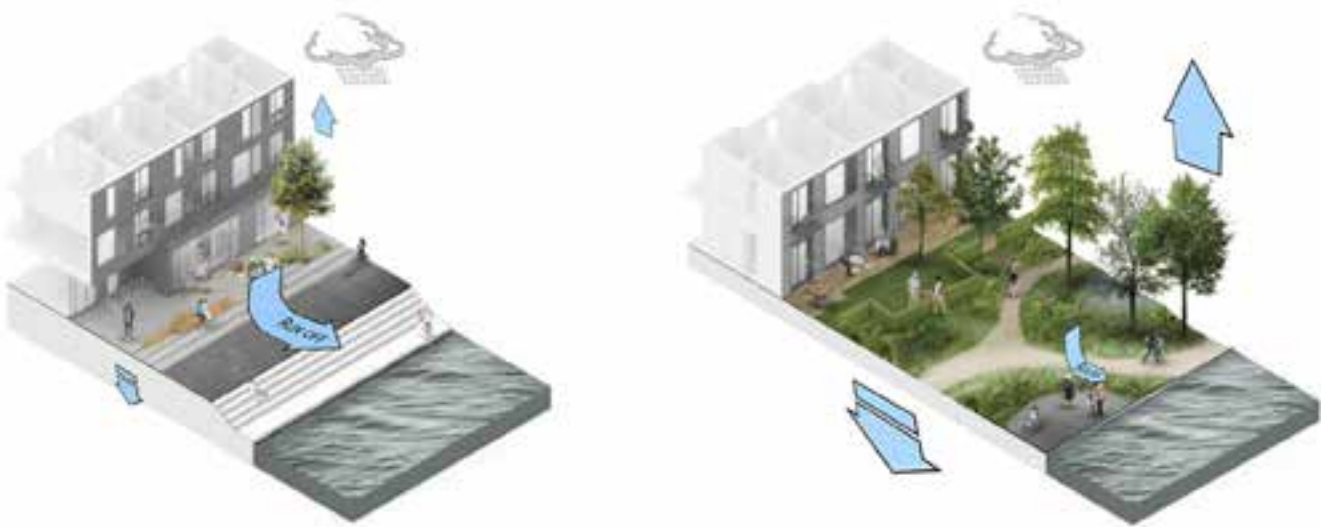


Figure 4. Human impacts on water

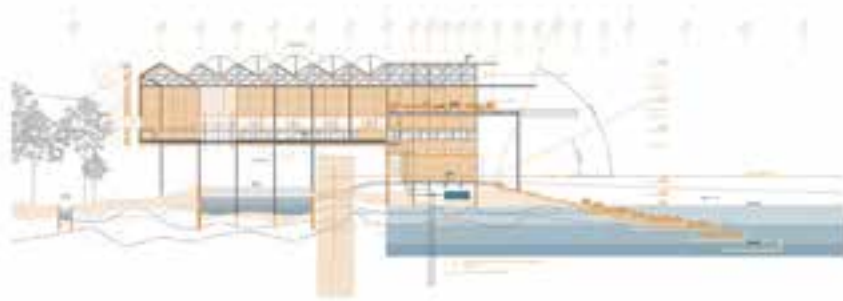


Figure 5. Green Deal Architectural Solutions, by Raphaëlle Gosselin Supervised by Pedro Ressano Garcia

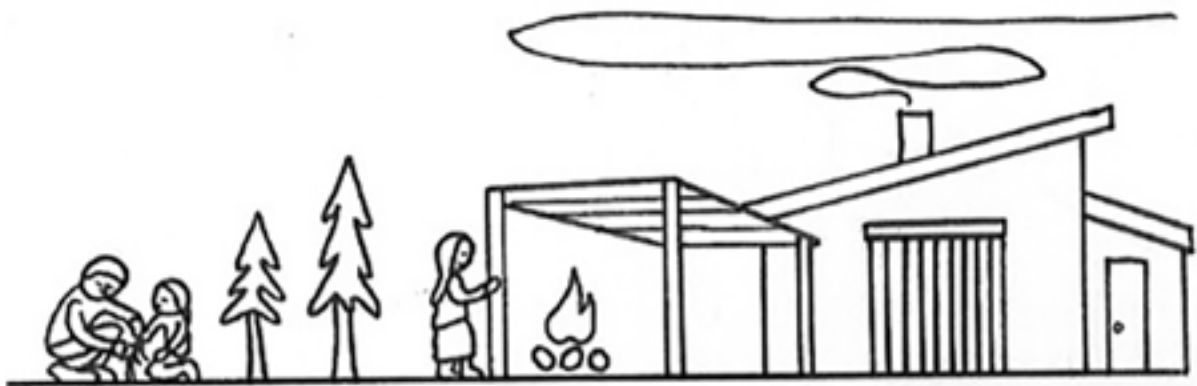
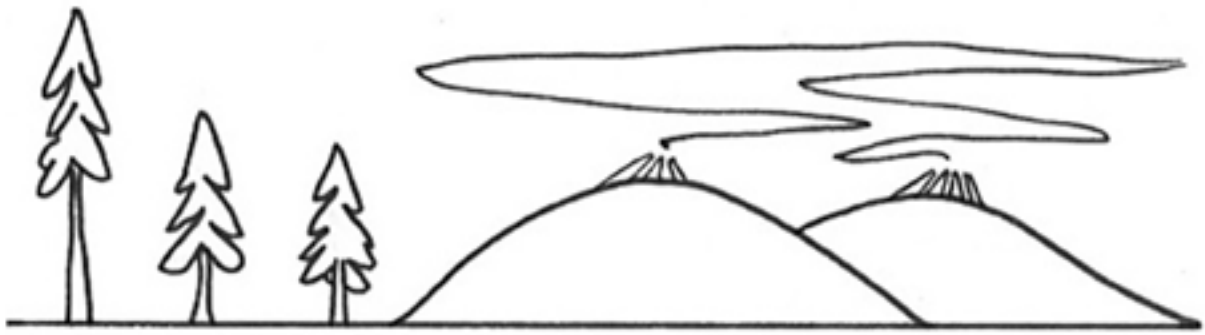


Figure 1. The Yunesit'in House and Land. Drawings by Russell Myers Ross.

Wildfire House Prototype

JOHN BASS

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RUSSELL MYERS ROSS

Former Chief (Nits'il'in), Yunesit'in Government

The Wildfire House Prototype is a reciprocal research project that the Yunesit'in Government, one of six communities of the Tsilhqot'in National Government (TNG) and UBC SALA have been doing for the past several years. This project is one of many that UBC researchers, Yunesit'in, the TNG and others are working on across many disciplines.

We'd like to begin by acknowledging that John lives and works as an uninvited guest on the traditional territory of the Musqueam people, in what is currently called Vancouver.

But the work described in this essay is situated not on Musqueam territory but in Yunesit'in, a Tsilhqot'in community in south-central British Columbia that Russ calls home. It therefore seems appropriate to share some thoughts about development, reconciliation, and the value of land, which are defined quite differently in remote Indigenous territories than in urban ones.

Recent Provincial and Federal court decisions now require the "consent" of Indigenous people before development can occur within their traditional territories.¹ This high bar replaced the previous, vague "duty to consult" standard.

For public and private development interests working in British Columbia, this change is reconfiguring long-held assumptions about land. It is leading to partnerships between prominent land developers in the Lower Mainland and the Musqueam, Tsilhqot'in, and Squamish First Nations (collectively referred to as the MST), who have become a new development power centre.²

These positive steps are quantifying the value of land in the MST's traditional, now urbanized, territories. In

the Lower Mainland's transformed geography, land is money. For the MST, that money has created many opportunities, including funding housing, education and social programs, and developing skills and management capacity among MST community members.

British Columbia's remote Indigenous communities have to contend with a different form of development. In the ecologically and economically fragile territories they inhabit, development is not a matter of real estate but of resource extraction. But in these communities, being good stewards of the land is a first principle. This creates obvious tension with the extractive status quo, and poses challenges for these communities to find alternative paths to building capacity and an economy.

Reconciliation requires that limited capacity in remote Indigenous communities be understood and addressed. This includes in the timeframes and modes of interaction that settlers and their institutions co-create with Indigenous communities as they work together.

It is among the ironies of reconciliation with remote Indigenous communities that settlers working through how to be good allies produce new tasks to be managed by dedicated Indigenous partners who already have a lot on their plates. These are the circumstances that made it impossible for Russ to co-present today.

Russ's thinking and work on his community's self-reliance are integrated into the beginning and end of this presentation. Recently, as he has reflected on the issue of housing in his community, Russ made the drawings seen at left (Fig. 1). They describe some of his key thoughts about stewardship, the house and land: the traditional Yunesit'in pit house embedded in the land; the house being made from the land; and the house as an extension of the land.

Yunesit'in is located in south-central B.C. It is about a 12-hour drive from Vancouver. Yunesit'in is set atop the Chilcotin Plateau, a high elevation landscape of grasslands, forests, mountains and canyons.

It is a small, tight-knit community of roughly 150 people. Its housing stock runs from the well-maintained to the abandoned. There are currently about 50 individuals and families on the housing waiting list. Whatever their condition, many Yunesit'in houses are surrounded by horse corrals, a reflection of Tsilhqot'in culture's long connection to the wild horses that make the plateau their home.

Another view of Yunesit'in and Tsilhqot'in territory can be seen in the TNG's mapping of the 2017 wildfires that occurred there. The fires were intensified by declining precipitation and increasing temperatures, both effects of climate change. Over more than two months, Yunesit'in was encircled by fires jumping from place to place around it as fire fighters responded to its shifting behaviour.³ The Hanceville Fire Complex, though the only one that threatened a Tsilhqot'in community, was just one of many wildfires in Tsilhqot'in territory that summer.

An important touchstone of our work and securing the funding to do it is a document called *The Fires Awakened Us*.⁴ Published in 2019 in the aftermath of the fires by the TNG in collaboration with UBC Law faculty, it functions as a white paper addressing gaps in government-to-government-to-government negotiations on reconciliation.

Summing up the Tsilhqot'in position is this quote taken from the report, by Chief Joe Alphonse, Tribal Chair of the Tsilhqot'in National Government: "The fires were never a threat to us. It was the state that was the threat." What Chief Alphonse is saying is that his community's way of life is under threat due to the actions of human beings and their effect on the environment. He insists that this needs to be on the table as a basic term of reference for reconciliation. *The Fires Awakened Us* contained reports from the six Tsilhqot'in communities on the support and actions they needed so that they could effectively respond to the growing threat of wildfire, including the development of fire-resistant housing and infrastructure.

With that as background, we'll now describe the preliminary work we did in 2018-19, which corresponded roughly to a scoping process. This

"getting to know each other and the issues" work was done before we received funding in 2020 to develop the house prototype.

Early work addressed several issues, including establishing a baseline of housing needs and desires, identifying human and resource capacity, and exploring building design and site options. This process built a basic trust among collaborators and led to terms of reference for our ensuing work.

Establishing a baseline was done through "facts, needs and desires" discussions and materials. Project collaborator Ecotrust Canada analyzed responses to a community housing needs questionnaire we co-developed.⁵ The most common concerns were consistent with Ecotrust's own Yunesit'in-based research, and included the need for major home repairs, high energy costs, overcrowding, and mold.

Mold, a common presence in on-reserve housing, contributes to many respiratory health problems.⁶ In the context of Yunesit'in those respiratory problems are exacerbated by smoke from wildfires.⁷ Mold is a by-product of poorly constructed, ventilated, and maintained housing. Through technical aspects of design we will address some of the causes of mold, and contributing domestic practices will be managed by post-occupancy processes that are built into our work.

Along with these concerns, we also identified the most frequently mentioned elements community members wanted in their homes. These included storage sheds ("Tish" in the Tsilhqot'in language), alternative energy sources, decks or patios, fish smokehouses, and gardens. All of these features are incorporated into the Wildfire House Prototype design.

During this early (pre-COVID) phase we had several fairly straightforward brainstorming sessions in Yunesit'in and at UBC. The sessions used discussion facilitation tools including diagrams and recent housing precedents from other First Nations communities. These helped to frame our discussions.

We used diagrams to emphasize particular issues of concern to the Yunesit'in, but also to raise questions about means and ends. For example, we discussed where and how the strong desire to recreate the traditional Tsilhqot'in pit house did and didn't intersect with domestic life in the community today. We also discussed Yunesit'in's timber resources and how to best

integrate them into both house construction and skills training.

In parallel with discussions about capacity, means and ends, we explored a range of house designs. From tiny homes to multi-family types, these were early attempts to synthesize, share, and discuss the opinions and concerns we were hearing.

Toward the end of this preliminary work, we developed a two-bedroom house on a vacant site in the village. What resulted was a very schematic design, with a few key attributes that would remain as the project advanced. These included a central room that recalled the pit house, a link connecting the Tish through the house entry to the kitchen that responds to the indoor-outdoor nature of food processing, and a gravel fire apron on the house perimeter that represented the initial thoughts about building fire resiliency into the design.

Wrapping up this pre-grant phase were the terms of reference for the house design that started to emerge. Among the key terms of reference were: 1/ capacity building; 2/ indoor air quality; 3/ Tsilhqot'in Pit House elements; 4/ simplicity, quality and durability; 5/ indoor and outdoor working spaces, and 6/ making these goals repeatable.

Another principle was to set a construction budget, about \$325,000 dollars, that would support these goals without compromise.

In early 2020, we received good news on our grant funding for the development of the Wildfire House Prototype project. COVID's isolation practices however came into being shortly thereafter, and despite our plan to do much of our work together in-person, we began working that spring on Zoom.

There is no substitute for physically working together in a place, and many of us have still not met in person. In this regard, the pandemic has had unknown effects on our team's work. Anecdotal knowledge crucial to a project is often passed from one person to another. That exchange happens in informal settings, and Zoom provides anything but that. But Zoom's immediacy has in other ways helped, especially by making our meetings more frequent than they might otherwise have been.

Much of the early funded work focused on technical development and energy performance of the assemblies. The decision on a site and client was still

forthcoming, so we had time to focus on technical options and principles related to material and energy. The design from the preliminary phase served as the vehicle.

The first explorations of the wall and roof assemblies were based on leveraging Yunesit'in's existing capacity by using its two wood milling facilities; a sawmill that produced raw lumber, and a large wood shop with the ability to turn that raw lumber into a variety of building elements, including laminated structural elements.

Ultimately, we developed a hybrid: hempcrete block walls and a wood framed roof. This decision stems in part due the rise, post-COVID, of lumber costs. But more prospectively, it is motivated by Tsilhqot'in interest in using the project's "prototype" to develop capacity to build with hempcrete. Long term, the Tsilhqot'in want to cultivate and manufacture regenerative, carbon sequestering construction-grade hemp building components on their own, and at scale.

Another part of this early technical analysis were preliminary energy performance simulations. The simulations were run in summer 2020 by UBC colleague Dr. Adam Rysanek. The project team agreed that the performance goals of the house would meet British Columbia's Step Code 4 specifications, which is near to Passive House standards.

During his analysis, Adam also identified the problem of heat gain through the roof. This was a climate change impact that we did not anticipate, but which is only going to increase as temperatures increase. In response, the house will have a cool roof with the highest available solar reflectance.

The final site was selected in fall 2020 as was the decision to design a two-bedroom house (Fig.2). The final site has an orientation, view and topographic conditions fundamentally different from the preliminary site. This brought into play a tension between the asymmetry of a northwestern orientation and the symmetrical and centralized organization of the pit house.

The site's topography gave us new design opportunities. The house and Tish are cut into existing mounds to produce fill for additional berms around the house. As in the preliminary design, the buildings are surrounded by a gravel fire apron. We also reestablished the exterior-to-interior food processing and storage sequence. Berries

traditionally harvested by the Tsilhqot'in are located on the gardening berms that surround the house. The berry bushes help to extinguish windborne embers, a bit of Tsilhqot'in knowledge discovered by a student in a Yunesit'in-UBC reciprocal research studio in fall 2020.

The basic organization of the house is modest and straightforward (Fig. 3). It has a compact square plan under a hip roof. Unlike the preliminary design, there are no recesses in the plan, reducing construction costs. It is organized around a central wood stove and skylight, with a large living area oriented toward the northwest view. The utility room is a hinge between the kitchen/dining area and the outdoor patio/food processing area. The dining room table will be made by Leading Edge and double-functions as part of the kitchen workspace. The variations in overhang depth respond to sun orientation and shelter at the main entrance.

The house construction includes a 16-inch deep insulating layer above the structural roof (Fig. 4). This ensures that there is no place where condensation can occur on the warm side of the vapour barrier, thereby eliminating a space that can harbour mold in typical light wood frame assemblies. The height of the wall at the perimeter is seven feet, reducing the vertical presence of the building in the landscape and compressing the space of the interior.

As a figure in the landscape, the traditional pit house is recalled in a few ways. The house is a singular form, a pyramidal hip roof with a chimney rising from its apex. The house is embedded in the surrounding berry gardening berms, in the land. And though not illustrated here, one can imagine how the berry bushes surrounding the house would crop out much of the presence of the house's relatively low exterior walls, increasing this sense of embedment. We need to make that drawing, but as you can see, our focus has not included presentation drawings just yet.

We've focused on three ways to use the project as an opportunity to build capacity within the Yunesit'in and Tsilhqot'in community. These are all in addition to the skill-building acquired in building a house per se, which of course is not unimportant in itself.

The first is embedded in millwork details we have developed as part of the technical drawing set for the house. Millwork production will leverage the capacity of Leading Edge, the community's wood shop, to produce many house elements, including siding and

flooring, laminated wood countertop and table surfaces, cabinetry, and trim, and non-structural assembly components such as the 16-inch-deep thermal truss joist-like elements above the structural roof.

We will also set up a finishing space at Leading Edge to process the exterior siding by charring it to increase its fire resistance, reconciling the community's desire to use locally sourced wood with its vulnerability to fire. This skill is something that can be employed in future projects where wood siding is used in housing or other building projects.

Finally, we are developing a capacity building piece that is about communicating, learning, and construction. This takes the form of hybrid technical/training drawings focused on envelope construction sequencing at specific, often poorly executed, details in constructing wall and roof openings (Fig. 5). These will be part of the construction document set, and we hope useful to experienced builders as they train apprentices.

We have also developed several 3D walkthrough animations that have iteratively described the key features of the project. This has been an important visualization tool in discussions with the client, empowering them to more fully understand and be immersed in the spatial experience of the proposal, which of course allows for more informed judgment and comment about it.

It begins immediately outside the main entry, where the berry bush ember screens, gravel apron and fire resistant cladding appear. It then moves inside, through a generous entry leading into a large northwest-oriented living/kitchen/eating space. That space features a central wood stove and skylight framed by two columns and their wall surface counterparts, a reference to the central figure of the traditional pit house.

The walkthrough shown at the RAIC/CCUSA conference is a work in progress, and was edited for time as well. It includes a quick sweep through the bedrooms and washroom, and through the kitchen to the utility room, which are still very schematic. The completed version will extend from there to show the relationship between indoor and outdoor food processing and storage sequences.

Under Russ's leadership, the Yunesit'in have developed resilience in physical developments, including ones that support food security, off-grid energy, skill

diversification, resource stewardship, and forest to frame processes.

Russ's success in leading Yunesit'in to complete all of these projects within his eight-year tenure as Chief is an indication of his dedication. But like many leaders in remote communities with limited human resource capacity, it is also an indication of the demands that are placed on his time.

Russ's work on the house prototype is just one part of his broader work on houses and housing policy. He works methodically, and is currently working with Ecotrust on a Housing Ecosystem Framework for Yunesit'in, in particular to build out the community's policies and practices for financing houses and housing. The Wildfire House Prototype project is just one piece of a much larger, and much more complex, set of long-term aspirations for Yunesit'in and the TNG. This is perhaps best summed up in these thoughts Russ shared as we developed this presentation:

"As a First Nation community impacted by the Indian Act, the idea of home has been one of displacement, confinement, and the creation of sedentary lifestyles that we were unaccustomed to.

"The purpose of engaging with UBC SALA is to explore what is possible given these circumstances. With UBC, we've looked at what came before, what living in our houses looks like in the current landscape, reviewed our mistakes, and incorporated what we are already doing to address housing. And more recently, taking all those ideas and applying it to the Wildfire House Prototype that attempts to address the impacts of climate change.

"The Wildfire House project is an important opportunity for the Tsilhqot'in to reflect on, research, and develop a house design in relation to our values and cultural practices. I've always taken a perspective that there is no one solution, and that we need to try things in order to improve upon them, which may be viewed as innovation."

Our focus now is constructing the house, and in doing so, contributing knowledge to the infrastructure of resilience that Russ and his community are building. Much will be learned by developing and completing the prototype project and recording what we learn in the process. Right now, that includes very real-world problems like the implications of a tight construction labour market and COVID-related inflation and supply chain issues.

We have been working on the project now for about two years, and during that time a house built of locally-milled 6"x10" stacked timber was constructed at Yunesit'in. That is a fundamentally different approach. using simple, locally sourced building materials and methods. This model resonates with many First Nations communities that have access to timber, and needs to be further explored. As Russ states, there is a need to "try things," and "that there is no one solution."

Constructing durable housing is among the highest priorities for Indigenous communities across Canada's diverse Indigenous cultures and the environments they inhabit. The Wildfire House Prototype is but one of many approaches being explored by architects and designers across Canada.

Prominent among the many stains of the Indian Act are its legacy of on-reserve housing policies and their indifference to the specificities of climate and culture. Climate and cultural specificity must matter as we consider the materials and physical resources, geographies, cultural practices, and leveraged economic opportunities associated with building houses and housing in the long arc of reconciliation.

Finally, a quick note for those who are involved in educating future architects. We urge you to fold into your teaching experiences that students can use to consider the impact of "consult" being replaced by "consent" as it pertains to their professional training.

The reciprocal nature of the process undertaken in Wildfire House Prototype project has opened up intersectional possibilities in design education. Studios grounded in the relationships developed as part of the project have given graduate students in the UBC architecture and landscape architecture programs the opportunity to experience and consider how reconciliation will change the general future of design practice and how it might specifically shape theirs. Examples include two Graduation Projects completed in spring 2022 by students in the UBC Master of Landscape Architecture Program. Both were initiated after a fall 2020 reciprocal research studio we directed in collaboration with Yunesit'in and Xeni Gwet'in community knowledge holders.

There is clearly a growing desire among students in professional design education to learn how to be effective allies and agents in an era when reconciliation will figure prominently in professional practice. It is crucial their teachers acknowledge and support that desire.



Figure 2. Site Plan, Wildfire House Prototype, drawing by John Bass



Figure 3. Plan, Wildfire House Prototype, drawing by John Bass

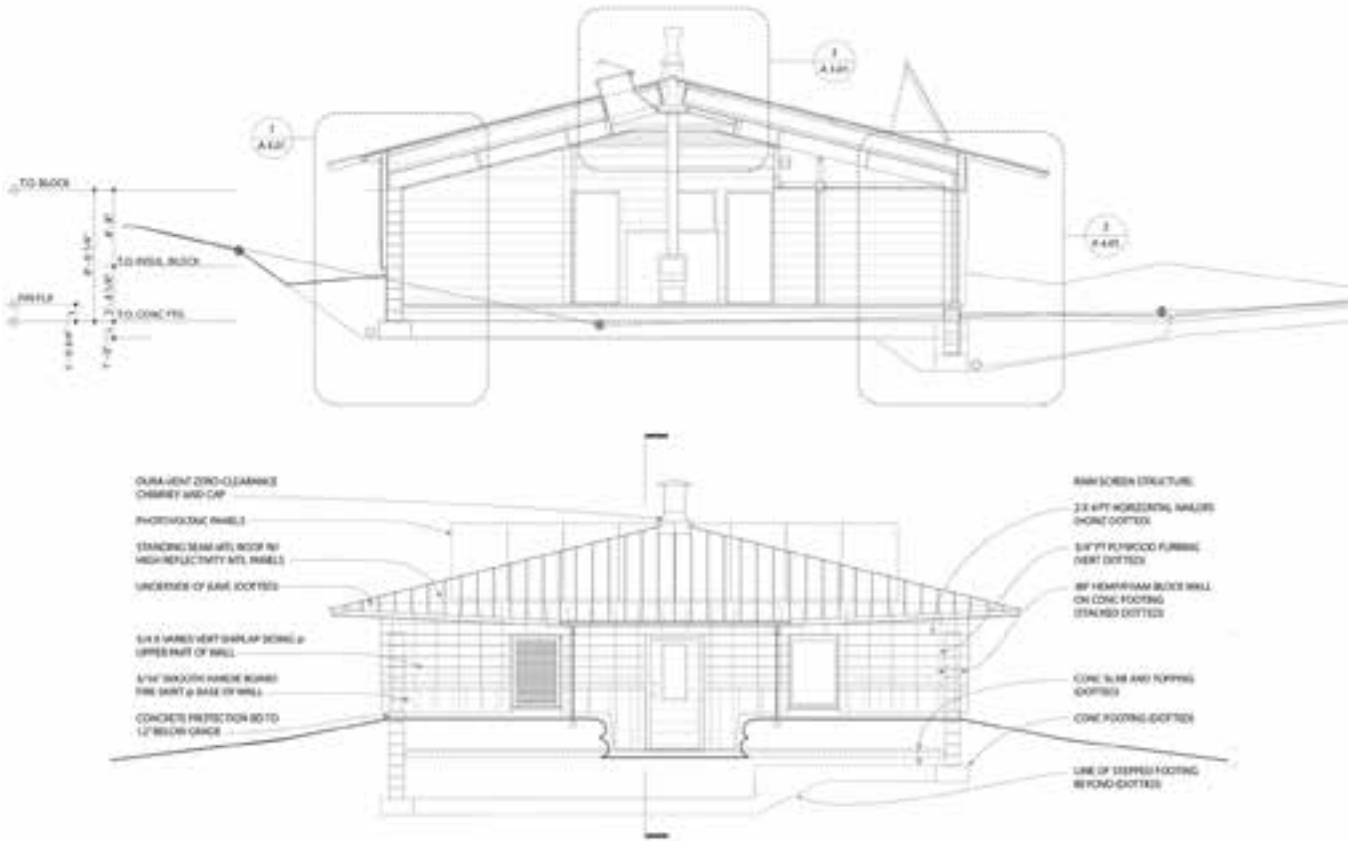


Figure 4. Section and South Elevation, drawings by John Bass

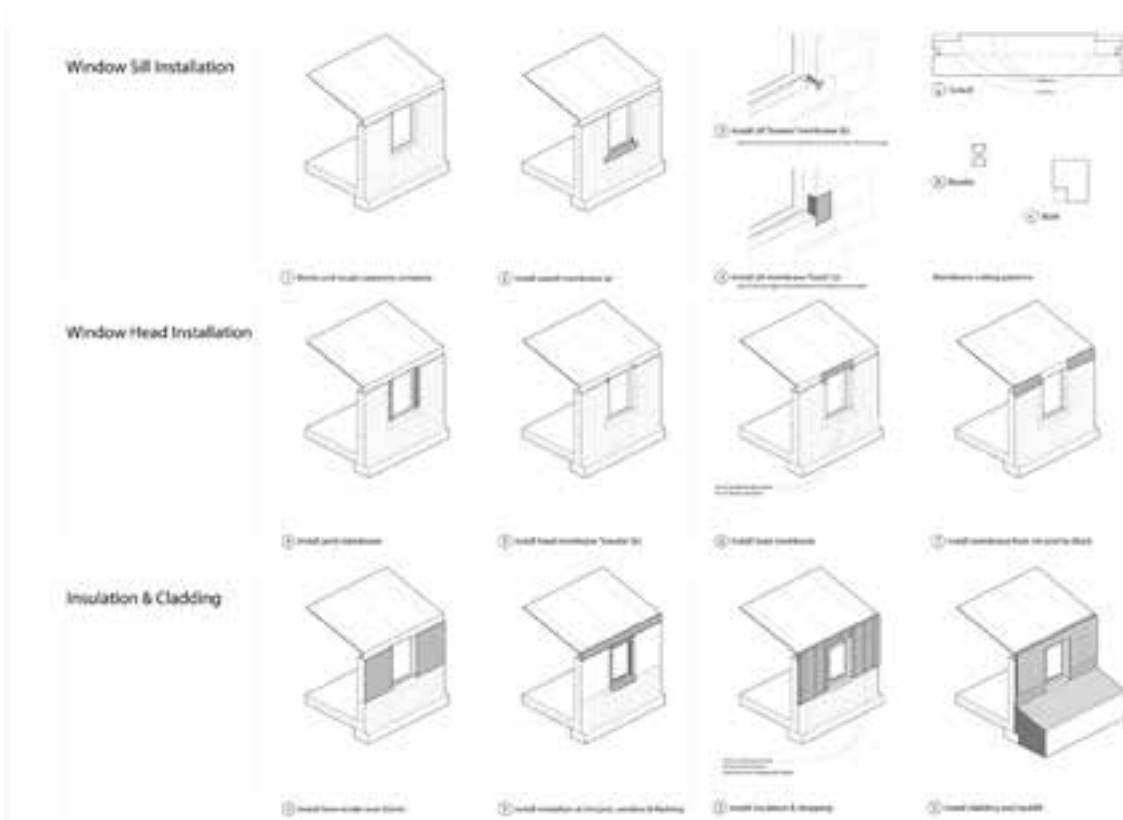


Figure 5. Construction Sequence at Wall Opening, drawing by Lauren Stokes

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Recovering the Public Spaces of Shahjahanabad – the Old Walled City of Delhi, India – through Participatory Architectural Conservation and Ecological Urbanism

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Theme: Climate Action – Counteracting climate change and mitigating the impacts of the climate crisis on people and communities

Keywords: counteracting climate change in traditional cities located in the Global South, ecological urbanism, hydrological systems, public space design, urban acupuncture, action-oriented design, participatory architectural conservation and preservation, mitigating the climate crisis

Abstract

This paper addresses how we might begin to recover landscapes -both ecological and cultural – through ecological urbanism with the agency to recover public spaces. Further, it will project how these strategies might begin to counteract climate change and mitigate the impacts of the climate crisis on people and communities within the scope of the study. These issues are probed through action-oriented design research and two graduate design studios, which examine the issues currently being faced by the Old Walled City of Delhi – Shahjahanabad - in India. The studio focused on the Chandni Chowk, an historic shop street running East and West within Shahjahanabad, anchored to the East by the Red Fort UNESCO site and the Yamuna River, and to the West by the Fatehpur Masjid, a local neighborhood and community mosque. The design research is also being supported by a Social Sciences and Humanities Research Council (SSHRC) Insight Development Grant, in collaboration with the Delhi School of Planning and Architecture (SPA), based in New Delhi, India. Design research includes participatory community engagement within Shahjahanabad, in addition to working with key stakeholders, constituents, elected officials and members of the community, including those whose voices have traditionally been marginalized in conventional planning practices and processes.

The research area of study lies within the urban zone of Shahjahanabad, which is currently challenged with

architectural decay and degradation, in addition to the ecological fragmentation of a once resilient urban fabric and cultural landscape. The area is also susceptible to urban flooding. Comprised of a series of interconnected public spaces, the urban layout includes a series of bazaars, markets and maidans. The latent potential of these public spaces are examined, and how they might re-introduce performative ecological systems layered onto them. These have the potential to dual as meaningful public spaces, in addition to mitigating the impacts of climate change. Shahjahanabad's public space system was initially overlaid with performative hydrological systems, which became fragmented over time. This first began with the British Colonization begun in the mid 1850ies which removed the Chandni Chowk water channel. Mapping builds upon the cognitive mapping studies conducted by Kevin Lynch in his seminal "the Image of the City". These were further iterated and developed by Sarah Williams in her book, "Data Action – Using Data for Public Good," which examines using data as a tool for the empowerment of communities, as opposed to for their oppression.

In conclusion, the paper will synthesize the best-case practices in ecological urbanism and participatory architectural conservation from both the design research and graduate studios conducted.

This paper addresses, as illustrated through design research, how we might begin to recover landscapes - both ecological and cultural – through participatory architectural conservation and ecological urbanism. Further, it will project how these proposed and speculative urban design strategies might begin to both counteract and mitigate the impacts of the climate crisis on people and communities within the physical scope of the study. The project research site is located in a geographic region where communities are being and

will be more susceptible to climate change, the Global South. The area of research will include the recovering of the public spaces of Shahjahanabad, the Old Walled City of Delhi, India. These issues are probed with action-oriented design research and through the vehicle of two graduate architecture design studios undertaken at the McEwen School of Architecture (MSoA) at Laurentian University in Sudbury, Ontario. The two studios, run in the Fall semesters of 2021 and 2022 respectively, examined the increasingly dire issues currently being confronted by the Old Walled City of Delhi. These issues are endemic to many other cities located within the Global South. These communities are currently facing the dire issues related to climate change. Included is increased urban flooding which can be attributed to the impervious surfaces and the culverting of water channels and landscape-based hydrological systems introduced with modernization under the aegis of “hygiene”. These supplanted the vernacular and intricate ecological and hydrological systems found in traditional Indian settlements and cities. The industrialization of the landscape under the agendas of “modernization” and “hygiene” which began with the Colonization by the British in India in the 1850ies. In the area immediately adjacent to the Yamuna River, which lies to the east of the Old Walled City of Delhi. Migrants currently live in informal settlements in precarious conditions.

Seasonal temperatures have also significantly increased over the past twenty-five years, leading to extreme urban heat island effect experienced by urban dwellers in India.

The first India Graduate Architecture Studio which was run in 2021, due to COVID restrictions which prevented international travel to the site in India by students, was based in Sudbury, Ontario. We were able to work remotely with collaborators in India via Zoom. We also hired a filmmaker who, with a 3-d Go-Pro, was able to document the study area for us and share it digitally. The effects were impressive, as far as the students being afforded a complete and comprehensive grasp of the site without having physically visited it. When I was finally able to travel to Delhi, India and to visit our site during the Summer of 2022, I was impressed on how much the students had been able to understand and grasp of the site remotely. This, in turn, informed their design proposals and urban strategies. The subsequent Graduate Architecture Studio which run in the Fall 2022, was able to travel to India to work on-site within Shahjahanabad.

At that time, students also visited informative precedents during the trip, including Jaipur, Rajasthan, the Water City.

They also had the opportunity to meet and collaborate with Indian students at the Delhi School of Planning (SPA) and to present their design proposals to them and professors there in the Departments of Architecture, Landscape Architecture, Urban Design and Architectural Conservation.

The scope of the design research project focused on the Chandni Chowk, an historic shop and market street spine running East-West and located within the central core of Shahjahanabad. The Chandni Chowk is anchored to the East by the Red Fort, which is currently a designated a UNESCO World Heritage Site and to the east of this by the Yamuna River. One of India’s major rivers. the Yamuna originates in the lower Himalayas, and is one of main tributaries of India’s most significant and holiest of rivers, the Ganges River. The Fatehpur Masjid local mosque anchors the Chandni Chowk to the West. This ongoing design research is funded by a Social Sciences and Humanities Research Council of Canada (SSHRC) Insight Development Grant from the Canadian Government. The project is in collaboration with the Head of Architectural Conservation at the Delhi School of Planning and Architecture (SPA) in India, Professor Anuradha Chaturvedi. Chaturvedi is also serving as an Advisor to the ongoing consultation process on the Delhi 2041 Masterplan, of which Shahjahanabad prefigures a significant component of. Architect Smita Datta Makija, is also serving as a professional consultant on the project. Makija is the founder of the New Delhi-based architectural practice AVESANA and is also the current Chair of the International Council on Monuments and Sites (ICOMOS) India North Zone. The team continues to engage in participatory community engagement within Shahjahanabad, in addition to working with key stakeholders, constituents, elected officials and members of the community, including those who have been traditionally marginalized in the planning process, as part of an ongoing dynamic design process and feedback loop. The design proposals will be presented in the Fall 2023 in Shahjahanabad to the stakeholders for their valuable input, in order to further the design process and proposals.

The area of study for the research project lies within the urban zone of Shahjahanabad – Old Delhi. The area is currently challenged with architectural decay and degradation. Further, there is significant fragmentation to its once ecologically resilient urban fabric and cultural landscape. The urban layout includes an interconnected public space system, including a series of bazaars, market spaces and maidans.

Historical Layout and Design of Shahjahanabad – Sophisticated Urban Ecological Systems

Shahjahanabad's initial urban layout in 1639 demonstrated a sophisticated integration of ecological systems within its architecture and urban fabric.

Ecological practices were deployed across a spectrum of nested design scales. This translated across the initial layout of the city of Delhi, to the organization of the block and street infrastructure, to the architectural typology(ies) of the haveli-courtyard spaces. Hydrological systems originated from Delhi's Western Ridge, a naturally-occurring higher level topography located to the west of the then settlement of the Walled City. Water entered Shahjahanabad to the West through a primary main irrigation channel. This was called the Chandni Chowk, a major linear water landscape feature that, anecdotally, glowed in the moonlight. This branched off into secondary irrigation channels which fed the Mughal gardens and landscapes within the Old Walled City to the North of the Chandni Chowk and within the Red Fort.

These public spaces are examined for their latent potential and how they might begin to both recover and reintegrate performative ecological systems back into them. These have the potential to dual as meaningful public spaces, with the ability to mitigate the impacts of climate change through their performative ecological systems.

With Delhi and India's initial colonization in the mid 1800ies by the British, the water channel which initially ran down the middle of the Chandni Chowk and which fed into its adjacent green spaces, landscapes and neighborhoods, was removed and put into a buried culvert beneath its surface. Also removed, were the Mughal gardens initially located within the Walled City. These had served as productive urban agricultural landscapes, for both their fruit, vegetables and natural herbal medicines. These were replaced by largely aesthetic English garden designs with ornamental trees grown at the Sunder Nursery located in the British Raj New Delhi designed by Edwin Lutyens, a British architect for the Raj.

Mapping as Design Research

Mapping undertaken as design research was inspired by, and builds upon the cognitive mapping studies conducted by Kevin Lynch in his seminal book, "The Image of the City". This method of cognitive mapping was further iterated and developed by Sarah Williams in her recently published and also seminal book, "Data Action – Using Data for Public Good". Here she examines using data as a tool for the empowerment of communities, as opposed

to for their oppression. Initial mapping explorations undertaken by students, focused on mapping Delhi's Urban Ecologies and the city's diverse and intertwined ecological layers. This included mapping the city's hydrological systems and the Yamuna River's flood-zones located its course over several times. The River was originally located immediately at the base of the embankment upon which the Red Fort currently sits on. Therein now lies an unused park and at-grade Ring Road, located between the Red Fort/Eastern Shahjahanabad edge and the Yamuna River. Several informal settlements also currently lie along the Yamuna River's flood-zones.



Figure 1. Mapping builds upon the seminal cognitive mapping studies conducted by Kevin Lynch in his seminal book, "The Image of the City" and is further developed by Sarah Williams in her book, "Data Action – Using Data for Public Good", which examines using data as a tool for the empowerment of communities, rather than for their oppression. Credit: Keller Ziesmann

Here, many migrant workers currently live in precarious conditions due to the exacerbated seasonal flooding being experienced during the Monsoon Season, being experienced due to the impacts of climate change. Also, of note, are the currently fragmented habitat corridors originating from Delhi's Western Ridge, which used to run East from the Ridge, to the Yamuna River and its linear green corridors running North-South along it. Therein lies the potential for their re-aggregation and subsequent re-wilding.

This would also present an opportunity to re-introduce the initially sophisticated hydrological and water-management systems which were originally part of Delhi and its Old Walled City. In current-day Delhi, this could serve as an important stormwater management infrastructural system which, again, might begin to address the increased urban flooding currently being experienced due to climate change. Non-pervious surfaces were first introduced during the modernization period ushered in by the British in the mid 1850ies, in the name of hygiene. The impact of their initial colonization to the urban fabric, was to remove the

highly sophisticated vernacular and traditional urban water management systems of India and to replace them with a rationalized culvert and stormwater system which was privatized and controlled by the British for the duration of their Colonial rule over India from the mid 1850ies, up until India's Independence from England in 1947. This legacy remains.

Students also studied and traced key historic mappings of the Old Walled City of Delhi. Mappings which were drawn pre the British Colonization period, depicted intact Mughal Gardens which comprised of productive landscapes and medicinal herbal gardens. With the initial British occupation and colonization of Delhi and India writ-large, the intricate and intact hydrological systems and the productive gardens were ripped out and replaced with aesthetic, ornamental and non-productive English Gardens. The historical mappings served as both useful and instructive palimpsests from which to begin to recover the previously formally productive and sustainable urban and ecological landscapes for their ensuing design proposals.

Masterplans – Green and Blue infrastructure as Connective Urban and Ecological Tissues

Featured architectural proposals featured here, operated across a series of nested scales. Proposed Masterplans included larger-scale green and blue-infrastructure

proposals. Many proposed the daylighting and reviving of the now buried main Chandni Chowk linear water landscape feature. This also included removing the current barriers to access the once publicly accessible and former Mughal garden spaces, and the re-introduction of the traditional productive urban agricultural and medicinal plantings there. Proposals also illustrate the re-stitching of the traditional physical connections of Shahjahanabad back to the Yamuna River waterfront. The River was initially located directly at the base of the Eastern bank of the Red Fort. The ruler Shahjahan, who was the founder and architect of Shahjahanabad, would pull up in a boat coming from Agra where the seat of power of the Mughal rulers used to be located. He would enter the Red Fort complex from a water gate located at the River level. An enclosed staircase would, and still, ascends to the elevated plinth of the Red Fort itself. As previously mentioned, the Yamuna River has changed its course several times since. There now exists a highly un-used "park" located to the "rear" River-facing side of the Red Fort. An at-grade Motorway currently lies between the River with an at-grade crossing. An historical ghat on the River's edge (steps down to the water where rituals were traditionally performed), still exists along the banks of the Yamuna River. Fairly large informal settlement currently resides in the flood-zones lying immediately adjacent to the Yamuna River.



Figure 2. Masterplan Proposal for Shahjahanabad and the Chandni Chowk – Re-introduction of performative Ecological Systems - Blue and Green - to Shahjahanabad. Credit: Sarah Belchkar, Jonathan Kabumbe, Aaron McRoberts, Sydney Sheppard

Urban Design Scaled Interventions - Green and Blue Infrastructure on Chandni Chowk's Adjacent Façades and Arcades

Urban design-scaled schemes adjacent to and facing both the North and the South sides of the Chandni Chowk, propose reintroducing the reintegration and connection of a series of interconnected arcade systems along the facades facing the proposed restored Chowk. Overlaid with living wall systems, these infrastructures have the potential to provide performative ecological services to Shahjahanabad. This includes contributing to the mitigation of the current heat-island effect experienced, which has significantly increased urban temperatures and which has also been exacerbated over the past twenty-years from the effects of climate-change. Operating at the pedestrian-scale of urban street-dwellers, these also provide shade and an interstitial space for pop-up programming. The current implemented design for the Chandni Chowk has removed all of the trees and has fenced off access to its narrow green median. The

proposed interconnected living-wall and arcade system, also provides spaces for habitat and methods of filtering and cleaning water from the Monsoon. This precipitation which would first hit the tributary areas of the flat roofs of the buildings adjacent to the Chowk. Further design proposals include a contiguous green infrastructure, including green roofs, which are still incubating and being tested in India. This contiguous green infrastructural system would serve to begin to mitigate the impacts of stormwater run-off within the urban realm, which has also significantly increased due to climate change. Greater precipitation occurring during the Monsoon season has contributed to severe urban flooding. Reclaimed roofscapes also present opportunities for traditional programming, such as kite and pigeon flying.

The landscape provides cooler surfaces, along with proposed shading. Shelter infrastructures were also proposed to accommodate sleeping areas for the homeless urban street dwellers.

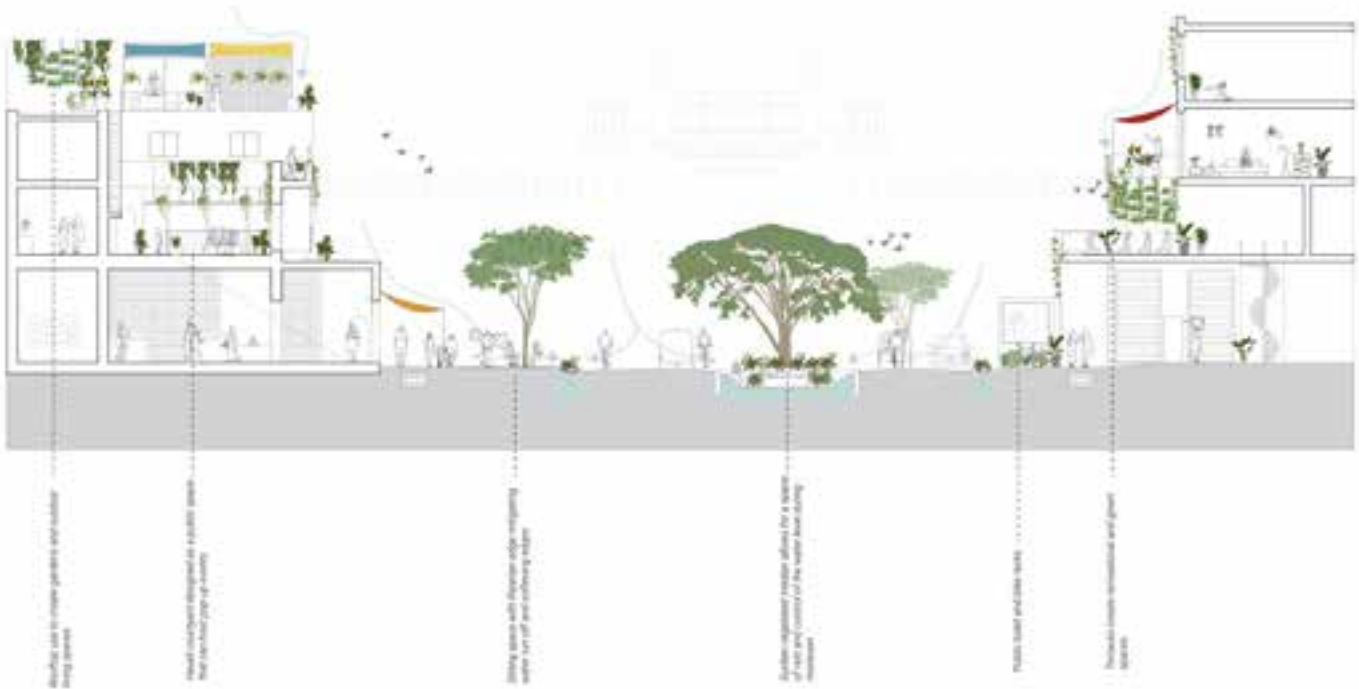


Figure 3. Arcades Proposal for the Chandni Chowk, Shahjahanabad - Green and Blue Infrastructures Proposal Credit: Sydney Sheppard

Urban Architectural Interventions: Designing for the Interstitial space between the Red Fort's Eastern Wall/ the Eastern Edge of Shahjahanabad and the Western Edge of the Yamuna River

One design team specifically addressed the interstitial space currently lying in-between the Red Fort's Eastern Wall/Eastern Edge of Shahjahanabad and the Western edge of the Yamuna River and its flood-zone. Their design proposals address the largely, to-date, undeveloped potential and opportunity to recover the traditional active pedestrian connections from the Old Walled City Delhi and the Red Fort, to the Yamuna River, which historically existed pre-colonization by the British.

Their design proposal effectively re-stitches the traditional pedestrian paths and access from the main Chandni Chowk to Yamuna River, through the introduction of an interpretive pathway system which hugs the traditional moat encircling the Red Fort and which was once filled with water fed by the Chandni Chowk. The scheme further proposes more flexible programming and pop-up spaces in order to activate the space, including shade infrastructure.

A subterranean passageway, inspired by India's iconic traditional subterranean stepwell temples, is proposed to serve as an underground pedestrian passageway. This would travel under the current at-grade Ring Road motorway and connect the Eastern edge of Shahjahanabad/Eastern Red Fort edge to the current green-space corridor running North-South along the Yamuna River. In addition to serving as a circulation passageway for pedestrian circulation, this underground structure houses pop-up market spaces and cultural programming.

Additional architectural proposals, as part of this scheme, include a water treatment plant for purifying the water beside the Yamuna River. An architectural proposal as part of the larger urban strategy, also includes designing housing for the migrant workers who are currently living in informal settlements located along the flood zone of the Yamuna River. These are raised on stilts in order to take into account the ephemeral flooding conditions occurring underneath them seasonally.



Participatory Architectural Conservation – Proposed Haveli Restoration and Cultural Programming

The design scheme featured here proposes the architectural conservation and restoration of the currently deteriorated conditions of many of the havelis (courtyards) within Shahjahanabad. Operating at an architectural scale, these iconic and rich typologies were originally open-air courtyards. These served as places for urban agriculture and medicinal herbal gardens at the residential-scale. Their predominantly residential programs wrapped themselves around these courtyard spaces, which were the sources of light and operated as passive design strategies enabling cross-ventilation and heat evacuation through the chimney effect. India achieved its Independence from the British in 1947. With this Independence came, almost immediately, Partition. During Partition, India was split into two countries divided along religious lines. The new countries of Pakistan (West and East) were formed on either side of India. East Pakistan later became Bangladesh. This was of urban significance to Shahjahanabad.

The predominantly Muslim inhabitants originally living in Shahjahanabad were displaced to Pakistan, having to flee their properties immediately. Conversely, Hindu inhabitants living at that time in Pakistan, were also forced to flee immediately to what is now India. Many arrived to Delhi and had settled in Shahjahanabad. The presence of abandoned evacuee properties is still an issue within Shahjahanabad. They are still legally owned by those who had to flee to Pakistan and their descendants. This abandonment had caused architectural deterioration and squatting. The area has also experienced an influx of migrant workers due to the presence of industrial land usages which were newly introduced into Shahjahanabad.

A large amount of the traditional havelis, which previously might have housed a single family, have been overtaken by multiple families and, in some cases, squatters. The courtyard spaces which were originally open-air have, in many instances, been covered over and occupied with informal settlements and temporary construction.

The design strategy featured here proposes the introduction of flexible public spaces which are strategically inserted as urban acupuncture into these conserved and restored havelis. Here, the interiors of the havelis also become an inter-connected, off-road pedestrian system. Formal new programs inserted into the haveli courtyards include a new community library and third-space programs.

Figure 4. Housing Cluster proposal for Informal Settlements located in the Yamuna Flood-zone to the East of the Red Fort and the Eastern Edge of Shahjahanabad
Credit: Jan Paolo Masangkay



Figure 5. Havelis in Shahjahanabad Proposal – Urban Acupuncture through Participatory Architectural Conservation and Ecological Urbanism. Credit: Jonathan Kabumbe



Figure 6. Proposed Stewardship Centre Axonometric: Central Library and Cultural Centre Complex with United Nations Sustainable Development Goals (UN SDG's). Credit: Keller Ziesmann

Proposed Stewardship Centre: Central Library and Cultural Centre

A Library and Cultural Centre are proposed on the site of the current Shahjahanabad Library. This adaptive reuse proposal includes the introduction of a green roof, which can serve as a home to newly re-introduced non-human habitat into the area, as well as cultural programming. Newly re-integrated ecological systems include water harvesting and collection, with the potential to be re-circulated as gray water to irrigation channels for the proposed urban agriculture in the adjacent reclaimed Mughal Gardens, as well as for fixtures within the complex to provide running water to their inhabitants.

Proposed Adaptive Re-use of the Existing Shahjahanabad Townhall

A number of design schemes proposed the adaptive re-use of the existing Shahjahanabad Townhall. This lies on the Chandni Chowk and acts as an anchor at the south-end of the North-South running axis which has the potential to connect the Chandni Chowk, through a sequence of public spaces, the major Delhi Railway Station. With their Colonization of Delhi in the mid 1850ies, the British bulldozed a large swatch of the North of Shahjahanabad and ran the railway and primary Delhi Railway station into it. Its removal would be challenging as it acts as the gateway to the rest of India. Proposed new programming includes an Interpretive Centre, a Women's Cooperative and Pop-up Farmers' Markets. Both schemes propose the removal of the current primary Delhi Railway Station to the North. As part of the design discussion, the proposed Mall, which is perceived as detrimental to the lively and traditional street-life market of the Chandni Chowk. The

design overlays a waste treatment plant into the site. A circular-economy system is proposed, whereby garbage and refuse is collected by workers as part of the informal economy. It is then processed and transformed at the new Centre.

Conclusion

In conclusion, this paper synthesizes and illustrates key examples of the design research undertaken as part of the larger ongoing research within this study. The design interventions described, underline and engage some of the best-case practices in participatory architectural conservation and ecological urbanism. The vehicle for the research undertaken in the two Graduate Architecture India Studios conducted during the Fall semesters of 2021 and 2022 at the McEwen School of Architecture (MSoA) at Laurentian University in Sudbury, Ontario. These have the potential to serve as useful precedents which address, through design research, a recovering of the many traditional cities and communities located in the Global South, which are particularly susceptible to the impacts of climate-change. These take inspiration from the traditional and vernacular ways of settlement and the sophisticated integration of ecological systems into the urban fabric.

The conclusion of this SSHRC Insight Development Grant will be conducted in the Fall 2023, where the community stakeholders and elected officials will be presented the design projects and their input collected. Innovative crowd-sourcing and data visualization will also serve as a useful feedback loop with which to move forward with and to iterate into the design strategies moving forward. These will inform the current planning underway as part

of the Delhi 2041 Strategic Plan. A full documentation of this ongoing work and design research can be found at the Project's Website located at:

<https://www.recoveringshahjahanabad.com>

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Veronica's work and research are at the forefront of critical debate on architecture. She has lectured nationally and internationally on mass timber advancements, regenerative design practices, and affordable housing in Canada. She recently contributed to the Canadian Wood Council publication, the Canadian Guide to Mid-Rise Wood Construction. Her current research initiatives involve holistic methodologies toward reducing operation and embodied carbon across Canada. She is a member of the Ontario Association Sustainable Built Environment Committee and the Canadian Green Building Councils Workforce 2030 Tall Timber Working Group. In 2020, Veronica was awarded a Fellow of the Royal Architectural Institute of Canada for her outstanding contributions to the architectural profession.



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He holds the belief that architecture should be enacted, and this belief guides his teaching, research and practice. His desire is to build a process for making felt, immersive architecture that needs to be experienced first-hand; an architecture that recognizes the uncertainty and multiplicity of reception and is predicated on a non-linear unfolding of meaning set out from both a real and subjectively constructed site and narrative. His research involves the study of diverse cultural productions including film, music, art and architecture that embody these beliefs.



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Pedro Ressano Garcia is an architect who divides his time between research, teaching and the practice of architecture, with extensive experience in waterfront urban design. He has lived and worked in several waterfront cities around the world, including Barcelona, Lisbon, Quebec, Oporto, Rio de Janeiro, and San Francisco. Garcia started teaching at the University of California, Berkeley in 1995, was Head of Department of the Architecture Department at Lusofona University in Lisbon, Portugal and currently teaches at Université Laval in Quebec. Garcia's architecture practice has received several awards and is widely published. He is a visiting scholar at international conferences and workshops and coordinates the European Workshops on Waterfront Urban Design. He is currently the coordinator of the H2020 MSCA-RISE, a research project that links research and innovation on waterfronts through technology for excellence of resilience to face climate change.



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Her design work and research has been exhibited both nationally and internationally, at the Hong Kong Shenzhen Bi-City Biennale of Urbanism and Architecture (2012) and the BUGAIK International Architectural Exhibition. She was awarded a National Endowment for the Arts (NEA) grant for (Re)Stitch Tampa. The publication, "(Re)Stitch Tampa: Designing the Post-War Coastal American City through Ecologies" published by ACTAR ensued.

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