RESEARCH &
INNOVATION
SYMPOSIUM

2024

COLLOQUE SUR
LA RECHERCHE
& L'INNOVATION

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JULY 2024

Conference Report

Research & Innovation Symposium 2024

HOUSING, INFRASTRUCTURE AND COMMUNITIES CANADA

With the passing of [Bill C–59](#) on June 20, 2024, Infrastructure Canada (INFC) is now officially the department of Housing, Infrastructure and Communities Canada (HICC).

Public infrastructure projects address challenges Canadians face every day. The mission of HICC is to improve the quality of life of Canadians by creating jobs and economic growth, supporting climate resilience, and building a stronger and more inclusive Canada. HICC makes significant investments in public infrastructure, builds public–private–partnerships, develops policies and delivers programs to improve the lives of all Canadians.

HICC is a Government of Canada department that:

- collaborates with all orders of government, Indigenous communities and other stakeholders to create world–class, modern public infrastructure;
- invests in infrastructure to foster more inclusive and sustainable Canadian communities, including public transit and efforts to prevent and eliminate chronic homelessness;
- conducts research and economic analysis and collects data to identify the priorities of communities and supports long–term planning toward a net–zero, low–carbon, and climate–resilient future;
- works with Crown agencies and the private sector to deliver major infrastructure projects, and leverages alternative financing and investment options, to promote economic growth; and
- supports climate–ready structural and natural infrastructure projects to mitigate the impacts of natural disasters triggered by climate change and help communities adapt and build resilience.

LAND ACKNOWLEDGEMENT

The Research and Innovation Symposium was held in Gatineau, Quebec on the traditional unceded territory of the Algonquin Anishinaabe People, whose presence here reaches back to time immemorial. Housing, Infrastructure and Communities Canada was grateful for the opportunity to gather and exchange knowledge on this land and recognizes the impactful ideas that Indigenous leaders and advocates contributed to this event.

The Symposium also coincided with National Indigenous Peoples' Day on June 21, 2024, a time dedicated to celebrating the culture and heritage of Indigenous peoples at the time of the summer solstice.

ACKNOWLEDGEMENTS

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Conrad Speckert, Architect, LGA Architectural Partners

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Denisa Ionescu, Senior Manager, Technical Research and Education at BC Housing

Duncan Prahl, Senior Applied Research Scientist, CUNY Building Performance Lab

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Rochelle Nieuwenhuis, Community Co–Researcher, InWithForward

Sabine Dietz , Executive Director, CLIMAtlantic

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Stefania di Mauro–Nava, Director of Development, Metrolab Network

Steven Robins, Head of Strategy, Canada Infrastructure Bank

Suzanne Faiza, Knowledge and Partnerships Lead, Tapestry community Capital

T'Brenn Kelly–McKinnon, Director of Fund Delivery & Impact, BC Rental Protection Fund

Teresa Goldstein, Manager of Planning, Advisory and Coordination and Chair of Calgary Planning Commission, City of Calgary

Ursula Eicker, Professor Building, Civil, and Environmental Engineering, Concordia University

Zahra Ebrahim, Co–Founder, Monumental; Urbanist in Residence, University of Toronto School of Cities

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EXECUTIVE SUMMARY

Introduction

On June 20-21, 2024, the Department of Housing, Infrastructure and Communities Canada (HICC) convened the first Research and Innovation Symposium, tackling the theme of "Exploring Innovations in Housing and Public Infrastructure." Organized as a free, bilingual, hybrid event by the Research and Innovation Division, organizers sought to connect public servants from all areas of government in Canada with key actors in the private sector, academia, and non-profit organizations working on research and policies in target areas. Over 100 people attended the Symposium in-person at HICC's invitation, with sessions seeing between 15 and 115 attendees join virtually.

Bringing together individuals across industries and disciplines, the event program was organized around three thematic pillars:

1. **Building better**, with sessions focused on innovation in building materials and the construction industry. What are the areas of opportunity for innovative materials, building codes and production processes that can spur the development of affordable and resilient housing and public infrastructure?

2. **Designing better**, with sessions focused on innovative data collection on community needs, multi-stakeholder dialogue and novel partnerships connecting on the ground needs with policy. What tools are needed to better understand community housing and infrastructure needs? How can novel partnerships better facilitate integrated planning?

3. **Financing better**, with panels focused on innovation in funding policies supporting affordable housing, and approaches for financing housing and public infrastructure over the long term. What opportunities exist if we unpack the capital stack? Where can collaborative finance practices spur opportunities to retrofit and maintain assets or build the next generation of infrastructure?

In organizing the symposium, the Research and Innovation Division operated from the view that research is key for equipping decision-makers at all levels and across spheres with robust knowledge, state-of-the-art tools, and best practices. The Research and Innovation Symposium prioritized demonstrating how research can inform an evidence-based approach to policy making and evaluation. Additionally, the event took an intentionally inter-disciplinary approach, aiming to bring together those traditionally not in conversation with one another, breaking down operational silos and fostering collaboration between individuals in different sectors tackling the same or adjacent problems.

Program Overview

Over the course of two days, the Research and Innovation Symposium featured six plenary panel sessions, nine concurrent workshops and three keynote speakers. Of the 46 speakers on the program, 32 joined in-person while 12 presented virtually. Each pillar featured two plenary panel sessions, enabling the exchange of ideas between leading experts from various disciplines. Complementing these discussions, each pillar featured a block of three concurrent workshop sessions, allowing attendees to grapple with specific policies, projects and practices being conducted across Canada. Three keynote addresses from high-profile academics and practitioners complemented the event's agenda, prompting attendees to think outside the box on housing, infrastructure and community issues.

Key Points

The panels, workshops and keynote addresses comprising each of the symposium's thematic pillars yielded valuable insights into the challenges and opportunities for innovating in the way we build, design, and finance housing and infrastructure in Canada.

Build Better

Major breakthroughs have been made in the development of sustainable and resilient construction materials, especially in mass timber and sustainable concrete. These developments are not only about the materials themselves, but how they are made and incorporated into construction processes. Yet, production at scale and adoption of such materials within Canada has been slow, further burdened by slow adoption of modular and offsite construction technologies that show promise in many other countries. Why? Both plenary panels and workshop participants highlighted the role of risk assessments in the construction industry and limited education on the durability and decreased cost of such materials, and their utility beyond aesthetics. Yet the "look" and "feel" of certain innovative building materials, especially mass timber and 3D printed concrete, is also a barrier to adoption. Modular construction also faces the problem of being perceived as "cheap" or limited in opportunities for bespoke layouts and design features. A perceived tension exists in construction between efficiency and aesthetics.

Yet, innovations are coming, not only in materials but also in how we build. Presentations on the opportunities presented by single egress building code reform and modular construction emphasized the flexibility such changing standards offer for the construction sector. We need to be prepared to capitalize on these system level changes when they do arise, which will require preparation and further education within the housing and construction sectors.

Design Better

A house is not always a "home", and a "home" is often not a single-detached dwelling. Presenters highlighted the central notion that attachment to "place" is often a source of tension in the planning process. People have emotional links to their built environment, emphasizing that what makes something "home" is key to any research on housing, infrastructure and communities. Presenters, such as Colin Ellard from the University of Waterloo, stressed the role of the built environment on people's sense of belonging and well-being, highlighting that attributes of spatial design produce predictable effects in humans and these responses can inform design choices for strengthening overall connections and wellness in society.

Whether adapting to community growth and development, or changing climate contexts, people are strongly connected to their, and this can heighten resistance to change. For some communities, this resistance further stems from the historical inequities faced by many communities forced to move in Canada, especially amongst indigenous and Black Canadians, as well as linguistic minorities such as French speaking Acadians in Atlantic Canada. Resistance can often manifest in "not-in-my-backyard" positioning on change.

How can we overcome tensions and resistance to change? One means of doing so is re-imagining our central unit of analysis. The Canadian Urban Institute's (CUI) Measuring Main Street dashboard does this by evaluating the impact of construction and development on the heart of many communities: their main streets.[1] The CUI is creating tools that enable communities to visualize and engage with changing community designs and dynamics that affect them, with a focus on the heart of neighbourhoods. Organizations such as InWithForward adopt a "grounded change" method, working directly with affected communities to assess interventions.

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1. The dashboard and related reports can be found at https://measuringmainstreets.ca/

<u>**Finance Better**</u>

In the course of our finance better sessions, distinction between costs, funding and financing of projects emerged as a central theme. In particular, it was noted that it is important to differentiate between funding – the ways in which dollars are provided to projects – from financing, which speaks to the ways in which investment capital is mobilized over time to support project delivery. Presenters highlighted that when discussing the money behind a project, every actor involved needs a common understanding of funding, financing and costs in these terms, or they may talk past one another about options.

Key points were made regarding cost control, and that even while we explore innovative methods for mobilizing funding and investment to meet growing needs, we cannot lose sight of basic measures for ensuring costs are reasonable and necessary. North America has seen higher costs for major infrastructure projects relative to other jurisdictions, and key lessons can be drawn from abroad for managing costs effectively. Sessions also grappled with where much needed funding for housing and public infrastructure can come from. Regarding affordable and non-profit housing, panelists and workshops highlighted the importance of deconstructing the capital stack, allowing contributions from innovative sources such as rental protection funds, community bonds, and private equity. Looking to public infrastructure and private housing development, the strategic role and use of development charges, tax measures, and finance models addressing costs throughout the lifecycle of a project were also discussed. Sessions demonstrated that the role governments can play in this conversation, at any level, is evolving, especially in how funds are leveraged via different financial tools.

The central question of who bears the risk of an investment in an asset remains, as well as what financial contributors view as sources of risk in today's economy. How best can we preserve the assets we have, while complementing them with new strategic investments? Promising interventions include the Canada Infrastructure Bank's public private partnership approach to delivering infrastructure assets, leveraging the CIB's capacity to manage risk over an asset's life-cycle while activating financing options from various sources. However, more analysis is needed to understand what we're at risk of losing in terms of housing and public infrastructure in the coming decade, as well as where targeted retrofits and maintenance can prevent net losses in assets where construction is lagging.

Emergent Themes

In addition to findings specific to each pillar, three cross-cutting themes consistently emerged throughout the symposium proceedings. Important questions pertaining to problem-solving for "big" problems, community engagement, and the role of data were salient amongst presentations and the question-and-answer periods.

① Solving "Big" Problems with Interdisciplinary Partnerships

Solving big problems like a national housing crisis or infrastructure gap is no one person or organization's job. Relatedly, when organizations set themselves daily and weekly output objectives as ways of measuring their progress, they invariably fail at addressing big problems. Fostering and enabling a shared understanding of the 'big picture', i.e. broader objectives and how stakeholders' roles interplay with each other, also emerged as central if we are aiming to move the markers.

Across discussions about collaboration, it was also evident that no researcher or organization needs to be an expert in everything; but they do need to be expert at convening the right players. Being able to do so requires knowledge: who is working in what space, and has what expertise? It also requires a willingness by individuals to join partnerships outside their comfort zone.

It was well evidenced by panelists and workshops that partnerships between governments, the private sector, non-profits and/or academics can foster data driven approaches to policy questions, leveraging complementary expertise and skills. This was particularly demonstrated by organizations like the Metrolab Network, Vivre en Ville and the Canadian Urban Institute. Engaging in such practical partnerships across disciplinary silos, and inviting cross-sectoral dialogue, is especially important in housing and public infrastructure where decisions in one sector have clear implications for others involved, including but not limited to engineering, architecture, planning, economics and social policy amongst others.

This led to an important question: how can we shift mindsets in the housing and public infrastructure space to a collaborative one across sectors in the long term? One way of doing this may be using demonstration projects that spark capacity, build partnerships and show what's possible. Panelists and workshop presenters demonstrated the utility of such pilots, such as the CMHC 3D printing project or the Rental Protection Fund in British Columbia.

2 Dialogue and Democratic Practice

Multi-stakeholder dialogue requires meaningful engagement across generations, demographics and regions. Regardless of whether the conversation is about where to build, how to build, or how to finance a project, dialogue with relevant individuals at the right moment in a project is key. Panels and workshops across the three thematic pillars stressed the importance of conscious planning and strategic involvement of certain groups at key inflection points.

Beyond inclusion in the decision-making process, however, it was also stressed that the means by which individuals are involved in decision making need to evolve. The work being done by the Simon Fraser University Wosk Center for Dialogue's Renovate the Public Hearing Initiative demonstrated that a resident's assembly may be more empowering for community residents than an adversarial public hearing, fostering better engagement, representation, and equity in community consultations.[2] Likewise, Innovation7 presented ways of reconceptualizing consultations with indigenous populations both on and off reserve.[3] Meeting people where they are, via social media or virtual engagement options, can reach communities traditionally disengaged from the public consultation process as well. Creative approaches to engagement can also help to foster a sense of empowerment and collective ownership in the planning process and reduce the sentiment of development or growth 'happening to us.'

Presenters highlighted that innovations in democratic practices and community consultations are indeed being put into practice, from a resident's assembly pilot in Gibsons, BC to the City of Calgary's Housing Strategy. They highlighted ways to address one of the perennial challenges in infrastructure: aligning interests can often take too long and can threaten project delivery. When we re-imagine multi-stakeholder dialogue in innovative ways, emphasizing approaches that allow residents to engage early in collective visions for their community and in ways that help people to hear and share with one another, we can overcome this challenge.

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2. For more information see Renovate the Public Hearing | SFU Centre for Dialogue | British Columbia
3. More information about innovation7 and their consultation and engagement services with indigenous communities can be found on their website: https://www.innovation7.ca/

3 **Data and Digitalization**

We live in a world where data collection exists for almost every aspect of our lives: from the price of inputs and labour in production to geolocated data on a building level, we have a lot of data on housing, individuals, communities and all aspects of infrastructure. We also have numerous dashboards to facilitate visualizing and accessing data on key issues and modelling the future infrastructure needs of assets given rates of deterioration. Yet, a lot of the data we need to build informed models is often disaggregated across levels of government and regions or held by for-profit organizations behind a paywall.

Panelists emphasized that in many cases, we need to disseminate that such data exists and collaborate more on aggregation to prevent duplicative work, especially within the public, private, academic and non-profit sectors. Moreover, greater education is needed regarding the opportunities that data dashboards, digital twins and building information modelling (BIM) can provide in the domains of housing, infrastructure and communities.

Data in the right places, through the right systems, can turn activities that are impossible or take months to accomplish manually, into tasks that take mere minutes. Strong examples of this include the use of BIM to inform asset maintenance and performance in the Montreal Olympic Stadium where previously disaggregated datasets from the 1970s have been collected, updated and restructured into a comprehensive interoperable database by firms including BIM One. Other dashboards such as the University of British Columbia's Housing Needs Assessment Tool (HART), the Rental Protection Fund's Strategic Housing Acquisition Resource Platform (SHARP) or Vivre en Ville's digitization of building codes in Montreal allow communities and organizations to access massive amounts of data in user-friendly dashboards to facilitate decision-making.

By leaning into data informed practices, it's possible to have a better understanding of the problems faced by housing and public infrastructure today while also having a targeted assessment of what impacts real-time changes can have, and long-term needs will be.

SESSION SUMMARIES – BUILD BETTER

Opening Keynote Address – Craig Mitchell

Opportunities for Innovation in Construction: The use of offsite and modular construction to assist in solving our current housing and infrastructure challenges

Speaker:
- **Craig Mitchell**, Principal, Blackbox Offsite Solutions and Project Development of 720 Solutions

Session Description: Craig spoke about the human and individual aspects of what each of us can do to lead by example and embrace innovation - especially if using offsite/modular construction. He addressed key questions such as 'what is modular construction?', 'what are the current barriers and enablers to its broader adoption in Canada?' and 'how can we deliver more effective housing and infrastructure projects using these approaches?'

Key Messages
- Challenges affecting Canada's housing and infrastructure include productivity, labour shortages, and escalating costs. Craig emphasized the potential of offsite construction to address these issues by improving productivity, maintaining schedules, managing costs, ensuring quality, and promoting sustainability.
- The future of construction in Canada is moving towards offsite construction methods like closed panel systems, commercial modular, and mass timber. However, adoption of these technologies is still in the early stages, with mass timber being the most advanced due to extensive research and private sector involvement.
- Offsite construction offers benefits such as faster build times, reduced labour needs, and increased sustainability. However, it faces challenges such as supply chain risks, the need for more factories, and the need for education and understanding in the sector. Financing offsite construction also presents unique challenges due to its different cash flow requirements.
- To successfully implement offsite construction, collaboration, pre-qualification, and a strong pre-construction process are essential. Contract types like progressive design build and construction management with early integration can facilitate the process. Learning from global leaders in offsite construction, such as Japan, Sweden, China, the UK, Singapore, and the US, can provide valuable insights for Canada.

"I'm going to talk about off site construction, the use of volumetric modular primarily. It's not the silver bullet...you've seen it splashed around the media that we're [going to] go to an industrialized housing strategy. This is hopefully making a dent in our housing and our infrastructure needs. But I'm here to tell you that it is not the silver bullet, but it should be at the table every time we discuss how to build a project." – **Craig Mitchell, Blackbox Offsite Solutions and Project Development of 720 Solutions**

Build Better Panel 1

Next Generation Materials: A conversation at the intersection of innovation and implementation

Moderator:
- **Matti Siemiatycki**, Professor, Geography and Planning; Director, Infrastructure Institute, University of Toronto

Panelists:
- **Joe Hicken**, Vice President, Business Development and Policy, Sublime Systems
- **Natalie Telewiak**, Principal, Michael Green Architecture
- **Denisa Ionescu**, Senior Manager, Technical Research and Education at BC Housing

Session Description: This session featured leading experts on innovation in building methods and materials to develop more affordable, sustainable, and durable housing and infrastructure. From mass timber and sustainable concrete to offsite and modular construction, it explored what's next for these options in Canada.

Key Messages
- Low-carbon cement from Sublime Systems reduces greenhouse gas emissions from cement manufacturing by eliminating emissions during the manufacturing process. The cement produced by this method meets industry-accepted performance standards and can be cost-competitive with Ordinary Portland Cement (OPC) at scale.
- Mass timber is a catch-all term for various types of timber, but collectively all methods use 88% less carbon dioxide than traditional construction. It is also lighter than concrete and steel. It may be more appropriate for urban areas where developers can add to existing buildings and increase building height while ensuring climate and seismic resilience.
- BC Housing is the largest developer in BC, and they have developed, managed and administered a variety of subsidized housing options in British Columbia. They license over 8000 private companies who build for the private market. They complement this work with an in-house research-informed assessment of sustainable and resilient building materials and practices and toolkits such as their building envelope guide. BC Housing currently has four mass timber projects underway, with several others proposed.

Points of Discussion

The main challenge to the implementation of low carbon cement is the allocation of risk and the current capacity to produce the material. Currently, there is a scaling premium attached to production which should disappear once companies like Sublime Systems reach steady state mass manufacturing scale. There is a policy opportunity for the pricing of low-carbon materials to value the environmental benefit of materials. As knowledge and familiarity grows with mass timber, it has become cost-competitive with steel and concrete. However, cost-competitiveness depends on various factors, such as the site and the type of project; the taller the building, the more cost-effective mass timber can be. The government also plays a role in the use of innovative building material, through promoting innovation, regulating and protecting public interest while collaborating with private sectors to secure pilot projects and case studies for innovative solutions.

> "...When we look at the cost of a mass timber solution, it's really important to think of the whole building. Mass timber, the structural component, is only a small percentage of the overall cost." – **Natalie Telewiak, Michael Green Architecture**
>
> "We often partner on adopting a particular innovation with other agencies, that help bridge that budget, because when you introduce a new technology, you need to do research and that's applied research for the project." – **Denisa Ionescu, BC Housing**

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Build Better Panel 2
Engaging Community and Building Better

Moderator:
- **Sabine Dietz**, Executive Director, CLIMAtlantic

Panelists:
- **Dale Booth,** Owner and President, Innovation7
- **Gregory Spencer**, Director of Research, Canadian Urban Institute
- **Franck Murat**, Expertise Director, BIM One

Session Description: How do we best connect data on what communities need with policy? This session sought to answer that question by discussing innovations in multi-stakeholder dialogue and data mapping for innovative community design, with a focus on accessibility, community wellbeing, outreach and resilient infrastructure.

Key Messages
- Panelists highlighted the central role of data in each of their portfolios: who owns it, how can such information be collected, modelled and shared to inform the construction process?
- The Canadian Urban Institute has developed a tool for mapping communities in Canada with main streets as the central unit of analysis. Their research found that main streets that predominantly serve a local community directly are the most resilient compared to those that rely on people commuting downtown for work or tourism.
- Indigenous owned consulting firm Innovation7 facilitates the consultation and employment indigenous knowledge when planning and designing housing and public infrastructure.
- BIM serves as an emerging tool combining the latest developments in data engineering and modelling to assess opportunities for optimal retrofitting, developing and routing of materials, and asset performance over time.
- Transportation of material and infrastructure to communities is a barrier to development outside of major Canadian cities, particularly due to the challenges caused by climate change in the North and Atlantic provinces. The use of disaster mitigation technologies can also help communities, with construction mitigation further ensuring communities and local businesses continue to thrive during periods of rapid growth and construction. Data can inform all of this.

Points of Discussion
The role of capacity building at the community level is recognized as crucial for effective engagement and consultation to change the power imbalances associated with data and access to information. The concept of traditional ecological and cultural knowledge is introduced as a metric for measuring community resilience in Indigenous contexts.

> "It's about looking at ways that you can bring in Indigenous knowledge at the earliest stages. And when we think about climate change and we think about the benefits of what Indigenous knowledge could bring, we're seeing things on projects now where we're talking about early warning, culturally informed decision-making." – **Dale Booth, Innovation7**
>
> « Le BIM n'est pas juste utile à la phase de conception, c'est vraiment utile à la phase d'exploitation et entretien. » – **Franck Murat, BIM One**
>
> "And so when we do our work, we try to not only provide that information, but have the communities be part of the process of creating that information." – **Gregory Spencer, Canadian Urban Institute**

Housing, Infrastructure
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Build Better Plenary Workshop

Single Stair Alternative Solutions: Construction Innovation for Missing Middle Housing

Speaker:
- **Conrad Speckert**, Architect, LGA Architectural Partners

Session Description: In Canada, multi-unit residential buildings require at least two exits for safety. However, international examples show that with extra fire protection features, buildings can be safely designed with a single staircase. This session explained why this is beneficial towards solving Canada's Missing Middle problem, as well as other benefits of this design.

Key Messages
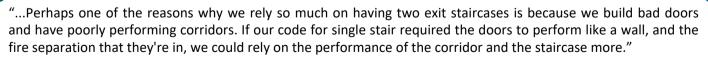
Benefits of Single Staircase Designs:
- Increased Floor Area Efficiency: Single staircases allow for more efficient use of floor space, as they eliminate the need for redundant staircases.
- Better Design Aesthetics: Architects can create more open and visually appealing layouts without the constraints of dual staircases.
- Daylight and Fresh Air: Single staircases provide opportunities for larger windows and better ventilation.

Safety Considerations:
- The absence of a second staircase raises safety concerns, especially during emergencies like fires. However, other jurisdictions (Germany and Seattle) have shown that this can be overcome with better and more stringent fire safety measures for the design of the building and use of material (e.g. use of doors with stronger fire resistance ratings).

Impact on Toronto's Housing Supply:
- Adopting single stair designs at a 1% rate could add approximately 6,000 bedrooms to Toronto's housing supply over the next ten years.

Points of Discussion

Canadian Building code was adopted in 1941, when fire safety theory dictated that the acceptable unit of loss was the building. As a result, it made sense to require 2 exit staircases to ensure timely evacuations. The code has since evolved to reflect that building loss is no longer acceptable: instead, the priority is that a fire is suppressed and extinguished with enough time to ensure that it does not compromise the building. This shift in beliefs also came with new requirements for fire suppression measures such as integrated sprinkler systems. Now, the risk of fire spreading beyond a specific room is much lower, such that the original requirement for two staircases may not always be necessary in small residential homes or mid-rise complexes up to 6 storeys.

> "...Perhaps one of the reasons why we rely so much on having two exit staircases is because we build bad doors and have poorly performing corridors. If our code for single stair required the doors to perform like a wall, and the fire separation that they're in, we could rely on the performance of the corridor and the staircase more."
>
> "In Canada today, we typically see a large housing stock of single detached and low rise single family housing and of course tall buildings. But Canada is, compared to the rest of the world, extremely bad at building anything in between."
>
> "[Regarding the building code for multi-unit dwellings]...Canada is the second most restrictive jurisdiction worldwide."
>
> **– Conrad Speckert, LGA Architectural Partners**

Housing, Infrastructure
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Build Better Workshop 1

Reconciliation in Action – Infrastructure Projects: Is it Working?

Speakers:
- **Jamey Burr,** Senior Consultant, Innovation7
- **Jonathan Kipling**, Consultant, Innovation7

Session Description: Panelists discussed recent experiences in working with Indigenous communities, all levels of government and the private sector to make progress on the Calls to Action from the Truth and Reconciliation Commission.

Key Takeaways
- It is crucial for non-Indigenous individuals and organizations to understand Indigenous perspectives, values, and approaches to engagement in order to foster mutual respect and effective collaboration.
- Project managers' and finance managers' need for clear, predictable outcomes clashes with the circular and adaptive nature of Indigenous decision-making processes.
- Engagement must be respectful of community pace and processes to avoid engagement fatigue. Effective engagement requires focusing on desired outcomes rather than rigid plans.
- Project leaders should adapt engagement strategies to include modern communication tools (e.g., social media, online platforms) and leveraging technology to reach a broader audience and facilitate ongoing dialogue.
- Indigenous issues remain contemporary and evolving, requiring ongoing commitment to reconciliation efforts. Effective engagement necessitates personal connections, cultural sensitivity, and a deep understanding of Indigenous perspectives and aspirations.

Points of Discussion

Successful examples of addressing Indigenous housing issues include health centers collaborating with friendship centers which recognized that poor housing quality affect health outcomes. By leveraging their networks and community trust, they initiated housing projects effectively. The Impact Assessment Agency of Canada's website offers comprehensive tools and an Indigenous Advisory Committee. They provide information on Section 35 rights and effective communication strategies.

Engaging communities effectively involves respecting Indigenous engagement protocols. Initiatives like reimbursing expenses for participation can facilitate involvement and ensure fair representation.

> "The two roles most anxious about Indigenous engagement are that of project managers and finance managers as they have controlling functions. The Indigenous way of thinking encompasses a circular comprehensive approach, there is no start and finish, no prescribed schedule." – **Jamey Burr, Innovation7**
>
> "Engagement is reconciliation, right? Indigenous engagement is a large contributor to reconciliation…Actively learning and trying to find new ways to progress relationships with First Nations and Indigenous peoples throughout Canada." – **Jonathan Kipling, Innovation7**

Build Better Workshop 2

Digital Twins and Data for Community Scale Decarbonization – A New York/Montreal dialogue

Speakers:
- **Ursula Eicker,** Professor Building, Civil, and Environmental Engineering, Concordia University
- **Oriol Gavaldà**, Lead Zero Carbon Communities, Next–Generation Cities Institute, Concordia University
- **Honey Berk**, Executive Director, CUNY Building Performance Lab
- **Duncan Prahl**, Senior Applied Research Scientist, CUNY Building Performance Lab

Session Description: This session discussed analyses using digital twins and building data on a mass scale to help municipalities plan and implement decarbonization strategies and policies. The speakers emphasized that analyses can be accomplished at the city or neighborhood scale, on individual or portfolios of buildings, or at the individual mechanical plant or system level.

Key Takeaways
- Digital twins are virtual models that replicate physical assets, crucial for assessing and predicting decarbonization strategies' impacts on buildings and communities.
- Data collection and open-source data are important for creating accurate models to drive decarbonization strategies. Municipal bylaws in New York and Montreal require buildings to publish emission data, which makes them a good starting point for this work.
- Various modeling tools have been developed to predict scenarios, assess building performance, and guide retrofit decisions by integrating multiple data sources, including geospatial data, building characteristics, and energy consumption data. Examples of successful retrofits, such as the Empire State Building, illustrate the economic feasibility and benefits of retrofitting existing buildings.
- Identified challenges include the lack of standardized data and scalability of tools and educated staff to use them. Solutions involve developing methodologies to spatially join heterogeneous data sets and creating flexible, scalable tools that can be adapted to different contexts, and innovative internship programs to give the next generation of civil engineers the tools to make use of these models.

Points of Discussion
In Canada, there is no central database or common data model for urban-related issues. Efforts towards data harmonization, such as Generic Modeling Objects (GMOs), aim to standardize data structure and provide semantic information. However, a unified system to align geometry, usage, and construction data is lacking. In New York City, all buildings over 25k square feet must undergo an energy audit. The audit data is entered into a platform called Audit Template, created by the US Department of Energy. Despite this, the data remains underutilized because it is primarily collected for compliance, making integration into a structured data model challenging. The Next Generation Cities institute at Concordia University is developing methodologies to spatially join these heterogeneous data sets. There is ongoing research to correlate energy consumption with rent levels in various city areas as well.

> "Is retrofitting feasible? The answer is yes, especially when considering lifecycle perspectives. Retrofitting is normally a better solution than rebuilding very energy-efficient buildings, particularly when taking into account embodied energy considerations. The question is why is it not happening? Basically, we have some references that show it's due to knowledge gap, expertise gap, lack of political commitment, inadequate policies to be scaled up, and low return on investment." – **Oriol Gavaldà, Next–Generation Cities Institute, Concordia University**

SESSION SUMMARIES – DESIGN BETTER

Closing Keynote Address – Amina Yasin

Talk This Way: A dialogue on public hearing prohibition, engagement and assembly alternatives

Speaker:
- **Amina Yasin**, Director of Public Hearings and Planning at Simon Fraser University – Morris J. Wosk Centre for Dialogue, Renovate the Public Hearing Initiative (RPHI) and is a Fellow in urban planning, civic engagement, and housing, as well as Co–Chair Commissioner of the Vancouver City Planning Commission

Session Description: Public hearings have recently come under scrutiny due to the housing crisis. In fact, some provinces like B.C. have moved towards a prohibition on public hearings. This session presented findings of the Renovate the Public Hearing Initiative (RPHI), a $2.5 million CMHC-funded program. The project has spent the last two years researching, piloting and evaluating alternatives to public hearings and innovative approaches to public participation in land use planning. The session delved into the question 'what's the big deal with land use public hearings and what comes after prohibition?'

Key Messages
- Difficulties associated with public hearings can be seen in municipalities like Metro Vancouver. A proposal for a daycare in Port Coquitlam faced opposition due to concerns about parking, property values and bears. The proposal was eventually reversed by the mayor due to public backlash.
- There are systemic inequities in public hearings, where white, property-owning individuals are more likely to participate. This leads to decisions that do not necessarily represent well the communities facing development and growth, as well as antagonistic processes of engagement that can be adversarial, argumentative and counter-productive.
- The history of public hearings is traced back to British legal practices and colonial decision-making procedures. The practice today is often viewed as a core democratic practice and anchored accordingly in community regulations; however, analysis of public hearing proceedings and impacts reveal that participation is skewed, experiences can be more exclusionary than inclusive for certain populations, and effects can ultimately undermine the democratic intent.
- The Town of Gibsons' Residents Assembly provides a case study of an alternative model to involving residents in the land use decision-making process to update the town's Official Community Plan (OCP).
- The resident's assembly model establishes a representative group of people from the community who are selected by a two-stage lottery system (also known as sortition or a civic lottery) to closely reflect key demographics of the community. Through facilitated consultations, the resident's assembly then puts forth a set of recommendations to the relevant municipal council.

> "If housing is a human right, would it be more equitable to consult or to not consult?"
> – **Amina Yasin, Simon Fraser University**

Keynote Address – Colin Ellard

The Cognitive Neuroscience of Residential Design

Speaker:
- [Colin Ellard](#), Professor and Director of Urban Realities Laboratory, University of Waterloo

Session Description: In the presentation, Dr. Ellard described some of the neural underpinnings of home and place attachment and the way the design of the places where we dwell can influence attachment and thereby promote wellbeing. He discussed the development of recent methods in cognitive neuroscience and environmental psychology that allow measurement of the impact of design variables, including sensory properties like size, shape and texture and functional properties that promote our feeling of agency. The presentation concluded with recommendations for key principles from neuroscience that could guide the development of housing policy.

Key Messages
- Recent work in neuroarchitecture and neuro-aesthetics shows how the form and appearances of places affect our emotional state and will in turn affect the quality and strength of attraction to place. Some of the features that contribute to this include surfaces (e.g., hominess, coherence, fascination), geometry (e.g., want to see but not be seen), and agency (e.g., ownership of space related to visibility).
- The discussion touched on policy recommendations for incorporating design principles into housing, the need for future research on the long-term impact of design on residents, and the importance of thoughtful inclusion of design principles to benefit all forms of housing.
- Policy suggestions included:
  - Subtle and often inexpensive details matter because they show that someone cares.
  - Physical properties matter. We approach curves, nature, symmetry. We avoid voids, sharp angles, asymmetry.
  - Geometry determines viewsheds. Viewsheds influence ownership and enhance feelings of agency.
- Attention to these factors of design can also help with shifts in our perception of housing and how it is experienced in the future (for example, considering how the population adapts to denser communities).

Point of Discussion
As we introduce infill and mass housing to our communities, it can create certain negative emotions which can be seen in the rise of NIMBYism. To manage these new emotions, we need to place importance on the participation process and help reinforce a sense of agency through these changes. There are also opportunities to consider, more intentionally, the design features that help foster positive psychological responses and general feelings of wellness from our built environment.

> "And so, we thought, aha, we've proven our obvious point that if you took a little bit more care with affordable housing, if you just paid a little bit more attention to the aesthetics of the design...You could have a whole different kind of atmosphere for the people who lived in that setting. And I would argue that's going to have knock on consequences for their state of well-being."
>
> "If it's a good place on its own merits. I mean, there are exceptions to this, but if it's a good place on its own merits, it's less likely to ever be empty."
>
> **– Colin Ellard, University of Waterloo**

Design Better Panel 1

Data Driven Approaches to Designing Better Communities

Moderator:
- [Maya Roy](#), CEO of Coalition of Innovation Leaders Against Racism (CILAR)

Panelists:
- [Craig Jones](#), Associate Director, Housing Research Collaborative, The University of British Columbia
- [Kofi Hope](#), Co–Founder, Monumental; Urbanist in Residence, University of Toronto School of Cities
- [Zahra Ebrahim](#), Co–Founder, Monumental; Urbanist in Residence, University of Toronto School of Cities

Session Description: This session brought together experts to discuss how best to implement innovative construction practices and community engagement into housing and community development. It set out to answer the question 'how can we improve the project planning and development processes and the impact of the construction sector on communities?'

Key Messages
- There is a need for data sets that truly capture the diversity of communities and reflect nuances of different lived experiences. Using mixed method approaches, such as diverse survey collection methods, eliminates bias and ensures data is germane to participants' lives.
- Automating routine data analysis can also free up resources and enable more in-depth community work.
- At the same time, it can be costly to collect data, develop expertise and knowledge on datasets, and interpret and communicate results. Distrust within communities and the precariousness of people's lives may also limit their ability to engage in research.

Points of Discussion
The Housing Assessment Resource Tools (HART) project at UBC aims to develop standardized, replicable, and equity-focused tools. It offers interactive visualizations of an analysis of core housing need from the Census. It also includes analysis of core housing need for urban, rural and northern Indigenous households, and a tool to look at the housing need differences between homeowners and renters.

Monumental works to leverage data for inclusive design in major development projects. The co-founders stress the significance of understanding community members' lived experiences and preferences beyond traditional data collection. They advocate for a broader definition of evidence, incorporating qualitative data and participatory design to ensure community voices are central to decision-making.

> "When we're asking people about their housing desires, we have to think about the neighborhoods around them, and I think you'll find many Canadians are willing to sacrifice, you know, square footage and some of those amenities if it means they live in a connected community and in a neighborhood that has the other pieces that make life worth living." – **Kofi Hope, University of Toronto School of Cities**
>
> "When we're asking people about their housing desires, we have to think about the neighborhoods around them, and I think you'll find many Canadians are willing to sacrifice, you know, square footage and some of those amenities if it means they live in a connected community and in a neighborhood that has the other pieces that make life worth living." – **Craig Jones, University of British Columbia**

Design Better Panel 2

Practical Partnerships for Future Communities

Moderator:
- [Mary Rowe](#), President and CEO, Canadian Urban Institute

Panelists:
- [Stefania di Mauro–Nava](#)**,** Director of Development, Metrolab Network
- [Adam Mongrain](#), Director, Habitation, Vivre en Ville
- [Teresa Goldstein](#), Manager of Planning, Advisory and Coordination and Chair of Calgary Planning Commission, City of Calgary

Session Description: How can evidence-based advice and practical partnerships help develop sustainable and resilient communities? This session gathered leaders from key organizations providing community-led training, and facilitating practical partnerships, to connect evidence on housing and infrastructure needs with decision-makers on the ground.

Key Messages
- Panelists highlighted the need to align housing solutions with business interests, particularly in the context of rent controls and the perception of housing as a business versus a community necessity. We should work towards less distrust between the public and private sectors.
- The places that deliver the most purpose-built rentals in the world are places with strong tenant and rent controls. Demand for rental housing is propped up by security of tenure and predictability in price level of housing services. In places without rent control, home ownership is rent control for the homeowner. If the environment is improved for tenants, the demand for rental buildings may increase, yielding a space for developers to capitalize on demand and opportunity for returns.
- The session also discussed the challenges of tackling big problems involving many players, and concluded with the idea of driving innovative solutions by starting with pilots and gradually scaling up, balancing the need for speed with the necessity of thoughtful planning to avoid failures.

Points of Discussion
- The panelists covered topics such as digitizing building codes and bylaws, creating rental registries to track housing market trends, and converting underutilized office spaces into residential units through informed partnerships facilitated by their respective affiliations.
- The Metrolab Network is an organization that fosters collaboration between local governments and universities to drive data-informed decision-making and innovation in urban development.
- Vivre en Ville is a non-profit advocating for better policies in land use. They have worked on the digitization of building codes and bylaws and the development of a [rental registry](#) in Montreal.
- The City of Calgary was acknowledged for its efforts in addressing housing affordability through the Housing and Affordability Task Force and its 98 recommendations.

> "Start small. There's this impulse that [a partnership] has to be this like humongous thing right off the bat and it doesn't." – **Stefania Di Mauro–Nava, Metrolab Network**
>
> "This is something that we don't talk about and is kind of taboo to talk about, but it's okay for the private sector to make money. However, they are also the experts in delivering housing." – **Teresa Goldstein, City of Calgary**
>
> "And whether we want to or not, we [need to] have a big conversation about 'is this a good idea?' Every four years. And we know that if they do, if anyone wants to make any demonstration in leadership, it's going to be contentious and there's going to be an electoral challenge because this is what leadership does. Yes, it creates counter narratives. So, if you want to convene and if you want to have a productive partnership between citizen actors, industry, nonprofits, governments, everyone needs to tell the state the same story." – **Adam Mongrain, Vivre en Ville**

Housing, Infrastructure and Communities Canada   Logement, Infrastructures et Collectivités Canada

Design Better Plenary Workshop
3D Printed Homes: A revolutionary and disruptive construction method

Speakers:
- **Ian Arthur**, Co–Founder and Head of Partnerships, Nidus3d
- **Fiona Coughlin**, CEO/Executive Director, Habitat for Humanity Windsor–Essex
- **Sreekanta Das**, Professor, Civil and Environmental Engineering, University of Windsor

Session Description: This workshop brought together project collaborators from a CMHC-led pilot that produced the first 3D printed homes in Canada, located in Windsor, Ontario. The three speakers discussed the current state of the technology, as well as the challenges and opportunities associated with scaling 3D printed housing in Canada from a business, social enterprise and research-based perspective respectively.

Key Messages
- The CMHC pilot project demonstrated that 3D printed homes is feasible and cost effective. Such a pilot enables building performance measurement, with 2 3D printed builds situated next to two conventional builds on the same lot, and data measurement continuing after construction. Such a project allows for powerful comparative assessment of the technology vs conventional methods during and after construction in terms of cost and performance.
- The advantages of 3D printed construction include faster and cheaper construction processes relative to traditional methods; reduced labour inputs, which lead to lower costs, injuries and deaths; reduced construction waste and pollution; greater architectural flexibility; and ability to be combined with other forms of manufacturing such as modular construction.
- Scalability of the technology is essential to make it a competitive construction method for developers and homebuilders. Currently 3D printers largely patented by foreign companies.
- The primary barriers to the adoption and scalability of 3D printing in housing and construction include a lack of clear 3D printed building codes in Canada; a lack of supportive government policy; the need for continued research and innovation funding; and a lack of awareness about the advantages of the technology. Further research is being developed on 3D printed material performance at the University of Windsor, including 3D printed clay and hempcrete.

Points of Discussion
Funding should focus on refining and perfecting 3D printing technology, testing for climate resilience, developing alternative concrete materials, optimizing structures, establishing building codes, and developing partnerships between developers, innovators and social housing.

> "Without research we cannot move." – **Sreekanta Das, University of Windsor**
>
> "The ability to go from the 4 to 40 in the U.S. is there, the government supports are there, and the willingness of developers to take on a bit more risk than what we see in Canada is also there." – **Ian Arthur, Nidus3d**
>
> "The way the government can really leverage their dollars to do more is to incentivize collaboration." – **Fiona Coughlin, Habitat for Humanity Windsor–Essex**

Design Better, Workshop 1
R&D for Transformative Social Infrastructure

Speakers:
- [Natalie Napier](#), Research & Storytelling Lead, InWithForward
- [Rochelle Nieuwenhuis](#), Community Co–Researcher, InWithForward

Session Description: This presentation offered a different perspective for thinking about "social infrastructure" beyond the physical assets that deliver social services. They asked what good social infrastructure does and how it can intervene on seemingly intractable patterns of social exclusion and disconnection. The session provided examples of approaches that enable residents to foster trust, respect, belonging, and ultimately, wellbeing.

Key Takeaways
- Social vs. Physical Infrastructure: While physical infrastructure refers to tangible assets like roads and buildings, social infrastructure can also encompass the intangible networks and relationships that support social cohesion and collaboration. It can manifest in various forms, including physical (e.g., community gathering spaces), human (e.g., community organizers), cultural institutional (e.g., traditions and shared practices), technological (e.g., social media), and public resources (e.g., libraries).
- The SoLoss Prototype aims to create supportive environments and cultures where people can build relationships, share experiences, and collectively navigate their grief. This model emphasizes the importance of informal relationships and creative expressions in the process of healing and community care, emphasizing the importance of human-to-human connections.
- Auricle is a relational data collection tool designed to gather qualitative and quantitative data from communities. It engages community members in the data collection and sense-making process. The app helps with measuring well-being to capture nuanced and meaningful insights into what contributes to well-being from community members.

Point of Discussion
Barriers to integrating new approaches to measuring well-being into policy and government initiatives include traditional expectations of data and metrics, and the difficulty of valuing qualitative information like stories and experiences as legitimate data.

> "Modern social infrastructure must evolve to enhance overall well-being, promote a sense of connection and belonging, and fulfill broader social functions beyond their traditional roles."– **Natalie Napier, InWithForward**
>
> "Empowering individuals within communities involves developing their competence and agency to actively shape the systems that influence their lives. This includes creating opportunities for individuals to participate in decision-making processes and community initiatives that impact their well-being and social infrastructure."– **Rochelle Nieuwenhuis, InWithForward**

Design Better, Workshop 2

Data–Driven Decision–Making & Analytics in the Community Housing Sector

Speaker:
- **T'Brenn Kelly–McKinnon**, Director of Fund Delivery & Impact, Rental Protection Fund

Session Description: The workshop provided an overview of BC's Rental Protection Fund, a groundbreaking initiative supporting the community housing sector in acquiring existing, deeply affordable rental buildings, addressing a critical gap in housing policy – the erosion of affordability in the private rental market. The Fund has developed a suite of data-driven Business Intelligence tools, mapping platforms and real-time analytics dashboards to monitor key performance indicators for both internal and external use. The Fund also previewed its Strategic Housing Acquisition Resource Platform (SHARP).

Key Takeaways
- The BC Rental Protection Fund was created to address the erosion of affordable housing through a historic $500 million investment. It focuses on purchasing and preserving existing affordable housing by providing equity contributions to non-profits.
- Data-driven decision-making is essential in the community housing sector. Leveraging vast amounts of real estate and community-specific data helps identify and intervene in at-risk sites, ensuring strategic investments and preservation of affordable housing stock in BC.
- Preserving naturally occurring affordable housing (NOAH) is critical in preventing displacement and maintaining long-term affordability, especially for vulnerable populations.
- The Strategic Housing Acquisition Resource Platform (SHARP) is a cloud-based mapping application designed to help nonprofits identify strategic acquisitions by leveraging a robust data library of government-owned and community housing sector properties.
- The organization's primary call to action is to accelerate the deployment of funds from the Canadian Rental Protection Fund announced in Budget 2024. Only $5 million of $1.5 billion total has been allocated for the first year, which is insufficient for significant impact. Expedited release of funds is needed for nonprofits to acquire critical sites, especially in high-need areas.

Points of Discussion

The organization collaborates with several nonprofits that are either Indigenous-led or nation-affiliated. On Vancouver Island, it has acquired over 200 units designated for Indigenous-led operators. Its first acquisition was with Luma Native Housing Society in Esquimalt. This kind of collaboration is a priority, highlighting the possibility of partnering with non-profit housing organizations of various types serving diverse communities.

> "Data on its own has limited utility. The integration of data and the selective automation of its analysis is critical in order to make data-driven decisions."
>
> "The longer the tenancy, often the greater the vulnerability to displacement. We're talking about seniors who have lived in the communities for decades, worked, and contributed to the formation of their neighbourhoods. Displacement from the communities doesn't just remove them from the building, the city, or the neighborhood but removes them from the region."
>
> – **T'Brenn Kelly-McKinnon, Rental Protection Fund**

SESSION SUMMARIES – FINANCE BETTER

Finance Better Panel 1

Scaling Community–Centric Financing Solutions for Affordable Housing

Moderator:
- **James McKellar,** Professor of Real Estate and Infrastructure, Schulich School of Business, York University

Panelists:
- **Katie Maslechko,** Chief Executive Officer, BC Rental Protection Fund
- **Suzanne Faiza**, Knowledge and Partnerships Lead, Tapestry community Capital
- **Jeanhy Shim**, President and CEO, Crosswalk Communities

Session Description: This session took a closer look at non-traditional financing models for affordable housing that adopt a community-centric lens, provide enticing business cases for non-government actors to invest, and emphasize tangible solutions that can contribute to improving the affordable housing supply in the immediate term, as well as for future generations to come.

Key Messages
- The Rental Protection Fund is highlighted for enabling community housing providers to purchase and secure affordability of existing, occupied rental buildings. The Rental Protection Fund does not acquire assets directly but rather enables the community housing sector to acquire, retrofit and maintain properties. The entire portfolio of acquired units is on average 48% below market price. These units are acquired for on average 75% less than cost of building new. It is far more cost effective to maintain affordability by preserving existing rental units than building new ones.
- Tapestry Community Capital manages community bonds for many non-profit housing and community organizations. They highlighted that community bonds are flexible (the organizations themselves can set the terms), inclusive (individuals and institutions can invest), engaging (stimulates pride and ownership in community), efficient (faster than traditional donations campaigns), in-demand (each campaign is oversubscribed) and scalable (70% reinvestment rate).
- Tax incentives (i.e. federal tax credits) and loan guarantees (from government, philanthropy or financial institutions) as well as first-loss capital can help de-risk community bonds.
- It's important to recognize that while non-profit and community housing providers recognize social impact capital, they nonetheless still expect returns on investment, risk management alignment and financial rigour. They will not assume all of the development risk.

> "If we were to, when a road gets a few too many potholes in it, instead of filling them in, we were to just cut off to a new road and start building a new one, we would never actually be able to keep up with the growth of our cities. And it's the same thing here. Not every building, not every road is worth a full repair, certainly, but if we don't kind of retain and renew what we've already got while also building new supply, we're never gonna stand a chance of keeping up." – **Katie Maslechko, BC Rental Protection Fund**

> "So by taking, by issuing a bond, Community Housing providers are basically taking on debt and they are taking on debt from community investors, people like you and me. This is both a retail investment product and an institutional investment product. It's also a security. So it's it operates under National Instrument 45-106, which is the prospectus exemption. So it's a piece of security regulation that enables nonprofits and charities in Canada across the board to raise investment and debt without actually having to provide a prospectus." – **Suzanne Faiza, Tapestry Community Capital**

> "[For] the private developers building affordable housing, it'll always be the least affordable yet official definition of affordable housing." – **Jeanhy Shim, Crosswalk Communities**

Finance Better Panel 2

Catch Me If You Can: Sustainable funding and financing strategies to close the infrastructure gap

Moderator:
- **Lisa Mitchell**, President and CEO, Canadian Council for Public–Private Partnerships

Panelists:
- **Dr. Marco Chitti**, Research Fellow, NYU Marron Institute of Urban Management; Postdoctoral Researcher, McGill University
- **Dr. Adam Found**, Metropolitan City Fellow, C.D. Howe Institute and sessional lecturer in Economics at Trent University
- **Karen Shlesinger**, Director, Sustainable Infrastructure Fellowship Program, Schulich School of Business, York University
- **Steven Robins**, Head of Strategy, Canada Infrastructure Bank ("CIB")

Session Description: This session brought together experts from the infrastructure sector to unpack the challenges and opportunities associated with innovative funding and financing solutions for public infrastructure. Key topics included public-private partnerships, public transit costs and funding, development charges, and alternative infrastructure finance modeling.

<u>Key Takeaways</u>
- Challenges in Infrastructure Delivery include cost overruns, exacerbated by regulatory compliance, stakeholder demands, and lack of standardized guidelines for testing and procurement; and project financing, higher interest rates pose challenges, necessitating innovative financing structures and risk-sharing mechanisms.
- Financing infrastructure projects allows municipalities to build now and use future revenue streams to pay for the infrastructure over time. Property taxes, user fees, utility, and development charges were highlighted as sufficient tools for municipalities if used effectively.
- Innovative financing instruments like P3s and revenue-sharing models can leverage private sector capabilities and capital which also enhance operational efficiency, quality, and financial outcomes. This comes up against demand for bespoke, "beautiful" infrastructure which comes with higher costs.
- Governments can incentivize private investment by creating favorable policy environments, reducing regulatory barriers, tailored financing tools, and providing guarantees on revenue streams to mitigate investor risk and attract private capital to infrastructure projects.

<u>Points of Discussion</u>
Issues highlighted include cost overruns, delays, and varying standards in construction and safety compliance. Speakers emphasized the need to adopt best practices from other countries with established national authorities for transit procurement guidelines and standards. Canada needs more streamlined testing and procurement processes to reduce uncertainties and delays, especially for transit-oriented development and public infrastructure. Speakers also noted the tension between funding and financing, with many working in the space confusing the two terms or treating them as synonymous: **Funding:** Refers to the money provided to pay for infrastructure projects. This typically comes from sources like government budgets, taxes, user fees, and possibly grants; **Financing:** Refers to how the funds are obtained and managed over time as investment. It includes loans, bonds, public-private partnerships (PPPs), and other financial instruments.

> "If you can deliver the same amount of benefit with a lower cost...doing 90 % of the benefit with 50 % of the cost is already better than doing 100% of the benefit with 100% of the cost." – **Marco Chitti, McGill University**
>
> "I think it's really important that we innovate on our business models." – **Karen Schlesinger, Schulich School of Business, York University**

Finance Better Plenary Workshop

Developing a Successful Canadian Rent Bank Model for Eviction Prevention: International lessons in promising practices

Speakers:
- **Alison Smith**, Associate Professor, Political Science, University of Toronto Mississauga
- **Hannah Brais**, Research Coordinator, Old Brewery Mission Montreal
- **Dr. Jayne Malenfant**, McGill University

Session Description: Eviction prevention is recognized as an important emergency-level strategy for keeping financially precarious households from losing their dwelling. This session presented an international evidence base for promising practices in emergency rental assistance measures, including their respective political contexts; their perceived effectiveness; possibilities for innovation; and how rent banks fit within a broader homelessness prevention typology.

Key Messages
- Rent banks offer emergency financial assistance, typically in the form of loans or grants, for households at risk of eviction due to financial difficulties. Rent banks are targeted towards households experiencing a short-term emergency and would not apply to all types of evictions. They prevent individuals from sliding down the housing continuum, especially at a time when moving from homelessness to housed can be more difficult than remaining housed.
- Countries with especially poor system-level supports for primary interventions are heavily reliant on rent banks. While grants are beneficial for households because they don't need to pay it back, loans inject money back into the program. Some households prefer loans.
- The need for wrap-around services, such as financial literacy and tenant rights education, was emphasized as a crucial component of successful rent bank programs. Additionally, the balance between frontline discretion, strong governance structure and clear application process is crucial for program flexibility and clarity. Continuous funding and investment in infrastructure and caseworkers are necessary to support these programs.
- Overall, rent banks are seen as increasingly crucial interventions that are becoming institutionalized due to necessity, but more research is needed to assess their development and integration into broader systemic changes for homelessness prevention in Canada.

Points of Discussion

The cost savings to keeping people housed in their existing homes rather than supporting them through emergency housing transitions are significant (this is supported by findings from the HomeBase Grant Program in NYC). Stronger structural interventions, such as vacancy controls that are less subject to political cycles, can further prevent evictions and homelessness. It was noted that there is less available comparative data on overall societal costs of structural measures versus emergency programs but that this was a key area for further exploration.

> "Households are looking at a bunch of options, either spending a lot more money on rent than they were previously or living in a lower quality of housing or both because of the lack of availability of housing. And in some cases, this can lead to a rapid deterioration in the quality of housing that can lead to homelessness." – **Alison Smith, University of Toronto Mississauga**
>
> "But often enough [Rent Banks] come out of more of a community interest to keep people housed on really the ground level. So, it's more of a bottom-up level, even though in Canada we do see a lot of government levels, they often enough start off at much more community level where small service providers are creating these funds just to keep their people housed." – **Hannah Brais, Old Brewery Mission Montreal**

Finance Better Workshop 1

Supporting Renters Effectively: Unpacking the Canada Housing Benefit

Speaker:
- [Catherine Leviten–Reid](#), Associate Professor, Community Economic Development, Cape Breton University

Session Description: This session discussed a case study of the Canada Housing Benefit (CHB) as implemented in Nova Scotia, using the framework of adequate housing.

Key Takeaways
- ·Dr. Leviten-Reid discussed findings from a study she conducted tracking the long-term effects of housing policies on individuals and communities over time with the aim of understanding how housing stability impacts overall well-being and economic outcomes.
- ·Cape Breton Context: Cape Breton experiences one of the lowest vacancy rates in the province, which exacerbates housing scarcity and affordability issues. Housing conditions vary widely, and limited stock forces tenants to accept substandard conditions or risk homelessness.
- ·CHB Effectiveness and Challenges: The CHB is capped at the average market rent (AMR). The data used to determine average market rent, collected annually by CMHC, primarily focuses on the primary rental market and often excludes secondary market rentals, leading to outdated and inaccurate figures.
- ·Recommendations include expanding CHB coverage to include utilities and advocates suggest removing the cap on CHB payments to adjust to local market realities and improve affordability.
- ·There is a call for a stronger federal role in ensuring affordable and livable housing for vulnerable communities, potentially through enhanced funding, policy frameworks, or collaborative initiatives with provincial and municipal governments.

Points of Discussion
Comparison of Old vs. New CHB Programs: The old program offered stronger tenant protections and better housing quality through inspections and direct negotiation of rental terms with landlords which highlights lessons for improving current CHB policies.

Further Research and Data Needs: Further research is needed to explore the impacts of policy changes, such as rent controls and housing inspections, on housing stability and affordability in Nova Scotia and comparable regions.

> "The CHB is failing to allow tenants to live in housing that's truly affordable… Shelter costs are not just rent, they are rent and utilities." **— Catherine Leviten-Reid, Cape Breton University**

Finance Better Workshop 2

The Nuts and Bolts of BC Builds: BC's new housing program to build housing on public land

Speaker:
- [Lisa Helps](), Executive Lead, BC Builds Project Origination and Process Innovation, BC Housing

Session Description: The session provided an overview of the BC Builds program, which aims to streamline the development of new rental housing by leveraging low-cost land, low-interest financing. and grants.

Key Messages
- **Low-Interest Financing and Grants:** BC Builds offers low-interest financing and grants through a $2 billion financing facility from the provincial government for construction, supplemented by an additional $2 billion in federal funding which has been allocated from the Apartment Construction Loan program.
- **Leveraging Underutilized Assets:** The program focuses on using underutilized and non-residential lands (e.g., surplus government land, religious institutions, etc.) for development.
- **Streamlined Development Process:** BC Builds streamlines processes and partners with various stakeholders including government entities, nonprofits, and private developers to achieve rapid timelines from concept to construction (12-18 months).
- **Facilitating Collaboration:** BC Builds operates an online housing development opportunities platform, which is designed to connect landowners who are seeking to develop housing units on their land with potential development partners. The land that is listed on the platform must be pre-zoned for the density that the municipality wants to see on that site.

Points of Discussion
A first-year case study of the BC Builds program will be made available in February, 2025. The case study will outline lessons learned from the first year of the program that can provide guidance for the development of new initiatives in other parts of the country. When asked about future directions and examination of affordable homeownership, it was indicated that the team at BC Builds was expecting this to become an area of focus in early 2025.

> "Partnerships are built through energizing people and providing opportunities for each partner to deliver in the process." – **Lisa Helps, BC Housing**

RESEARCH SHOWCASE CATALOGUE

During the first day of the Research and Innovation Symposium, in-person attendees were invited to visit a collection of informational booths and engage with representatives of research projects funded through the first phase of the Research and Knowledge Initiative, as well as those led by various Housing, Infrastructure and Community Canada divisions and the Canada Infrastructure Bank. To learn more about the projects featured in the showcase, please see the Research Showcase Catalogue.

LOOKING AHEAD

The Research and Innovation Symposium brought together a dynamic and interdisciplinary array of experts and practitioners from academia, the non-profit and private sectors, and government to engage in an enriching dialogue that set out to answer the ambitious question 'what's next for innovations in housing and public infrastructure?'.

Many cutting-edge technologies, state-of-the-art tools, and nuanced best practices were shared over the course of the two-day event. Crucially, the discussions also highlighted key knowledge gaps that must still be addressed to ensure Canada's communities are affordable, inclusive, and vibrant places to live, work and play.

To capitalize on the momentum of the symposium and harness the collective expertise of the practitioners gathered, HICC's Research and Innovation Division is working to develop a network for participants to remain connected, continue exploring pressing research and data questions, and leverage opportunities for collaboration.

If you would like to connect with representatives from HICC's Research and Innovation Division, please reach out via email at research–recherche@infc.gc.ca.