CCES 2025 Session Summary

Scaling Circularity Strategies in the Construction & Real Estate Sector

This interactive workshop brought together circular economy practitioners and built environment stakeholders to co-develop solutions to some of the most pressing systemic challenges in Canada's construction and real estate sector. Designed around real-world Innovation Challenges and on-the-ground circular projects, the session encouraged collaboration through hands-on breakout discussions and a mix of global and Canadian perspectives. The objective was to surface enabling conditions, identify barriers to circularity, and foster partnerships to advance demonstration projects, standards development, and capacity-building efforts across the sector.

Date / Location: Wednesday, April 16, 2025, Montreal

Speakers:

- **Raphael Lopoukhine**, Director of Strategic Initiatives, Circular Economy Leadership Canada (session host)
- **René Sigg**, Managing Director, Intep (Switzerland)
- **Stephanie Phillips**, Senior Manager, Circular Economy & Deconstruction, City of San Antonio (USA)

Panel:

- **Hortense Montoux,** Project Lead, CERIEC (moderator)
- **Natalie Voland**, President, GI Quo Vadis
- **Bruno Demers**, Executive Director, Architecture Without Borders Québec / RÉCO
- **Dwayne Torrey**, Director, Workforce Development, CSA Group

Summary of Speaker Presentations

Raphael Lopoukhine, Circular Economy Leadership Canada (CELC)

Raphael opened the session with a land acknowledgment, recognizing the Kanien'kehaka Mohawk Nation and the importance of Indigenous stewardship as a foundation for regenerative systems thinking.

He outlined the scale and urgency of the challenge: globally, the construction sector is responsible for nearly 50% of virgin material use and contributes approximately 37% of global carbon emissions—with 13% from embodied carbon. In Canada, construction produces an estimated 4 million tonnes of waste annually, of which only 16% is diverted from landfill. Despite these figures, data gaps persist across material flows and embodied emissions, limiting systemic planning.

Raphael emphasized that current construction practices are heavily shaped by local contexts, risk aversion, and regulatory fragmentation. These conditions have slowed the adoption of circular practices, particularly in areas like design for disassembly, adaptive reuse, and end-of-life material recovery. He introduced the *Circular Construction Innovation Hub* as a strategic initiative to confront these barriers by supporting demonstration projects, fostering collaboration, and generating actionable insights that feed back into policy and industry standards.

He described CELC's systems-change approach as one that identifies "spikes of innovation" across Canada and works to remove frictions—whether financial, regulatory, or cultural—that prevent these spikes from scaling. The Innovation Hub aims to create a feedback loop between pilot projects, enabling conditions (like standards and policy), and market transformation. CELC is currently building a portfolio of 10–12 initial projects and working with partners to secure core funding, with the long-term vision of embedding circular practices into mainstream construction processes.

René Sigg, Intep

René delivered a global overview rooted in more than 40 years of experience in ESG strategy and sustainable construction. He opened by framing the built environment as a major climate and resource challenge. For René, the shift to circularity is not optional: it's a matter of resilience, climate justice, and long-term viability.

Drawing on international case studies, René illustrated how necessity and constraint can drive radical innovation. From Japan's modular, prefabricated systems designed for seismic risk and high density, to Switzerland's and Singapore's integration of lifecycle and circular benchmarks into building codes, he emphasized how policy leadership unlocks circular design at scale. In China, urban mining has scaled through targeted legislation, with reuse rates surpassing 80% in some provinces.

René pointed to the European Union as a living laboratory, highlighting how the Green Taxonomy and mandatory circularity targets in cities like Zurich, Vienna, and Amsterdam have reshaped public procurement and material sourcing. Material passports, now emerging across Europe, support design for disassembly and turn buildings into traceable material banks—unlocking new reuse markets and systemic circularity.

René identified three consistent levers across regions that enable meaningful progress:

1. **Policy and procurement reform** – mandating circularity in public projects and enabling reuse through building codes;
2. **Finance innovation** – such as green bonds and KPIs tied to reuse and circular performance;
3. **Digital infrastructure** – integrating BIM, material passports, and lifecycle data to support transparency and project viability.

In the Q&A, René emphasized that policy is the most powerful accelerator. While risk and cost can initially rise, he shared examples where industries quickly adapted under clear mandates—citing Zurich's 1985 ban on air conditioning in public buildings as a case where innovation followed swiftly. He also spoke to the need for government-supported de-risking strategies to help startups bridge the gap from prototype to full-scale deployment. Without coordinated public-private collaboration, he warned, the transition will remain slow and fragmented.

He closed by urging Canadian leaders to capitalize on the country's strengths—Indigenous knowledge, local innovation, and growing stakeholder alignment—and to embed global learnings into national strategies. Circular construction, he reminded the audience, is not just about materials. It's about shifting the culture of how and why we build.

Stephanie Phillips, City of San Antonio

Stephanie Phillips delivered an inspiring and grounded perspective on how a U.S. municipality is advancing circularity through policy innovation, workforce development, and public infrastructure. As the architect of the largest deconstruction ordinance in North America, Stephanie showcased how San Antonio is using localized, people-centered strategies to turn waste into community wealth.

She began by positioning deconstruction as a powerful municipal tool for circularity, explaining how cities across the U.S. are increasingly adopting policies that mandate building disassembly and material recovery. In the absence of federal guidance, these efforts are hyper-local, shaped by political climates,

urban form, building stock, and who is doing the demolishing—public sector or private developers. This local variability, she argued, makes stakeholder engagement and tailored policy design critical.

San Antonio's deconstruction ordinance, in effect since September 2022, applies to residential structures up to 8-plexes and requires disassembly by certified contractors. In just over two years, the city has diverted over 125 buildings from demolition, achieving a 60% material recovery rate—most of it destined for reuse. Crucially, the ordinance is housed not in an environmental department, but in the Office of Historic Preservation, reflecting a strategic alignment with cultural and material value recovery rather than just climate goals.

Stephanie emphasized the importance of workforce training, noting that the city began contractor certification programs three years before the ordinance passed. From just five certified contractors at the outset, San Antonio now has over 50, thanks to city-sponsored training programs run annually.

Stephanie shared the layered foundation that made policy implementation successful: targeted data collection, extensive community engagement, and a multi-stakeholder network including developers, city departments, universities, trades, housing organizations, and arts groups. This network supports not only policy rollout but also broader infrastructure, such as San Antonio's city-run Material Innovation Center—a last-stop laydown space where reclaimed materials are matched with community-based projects.

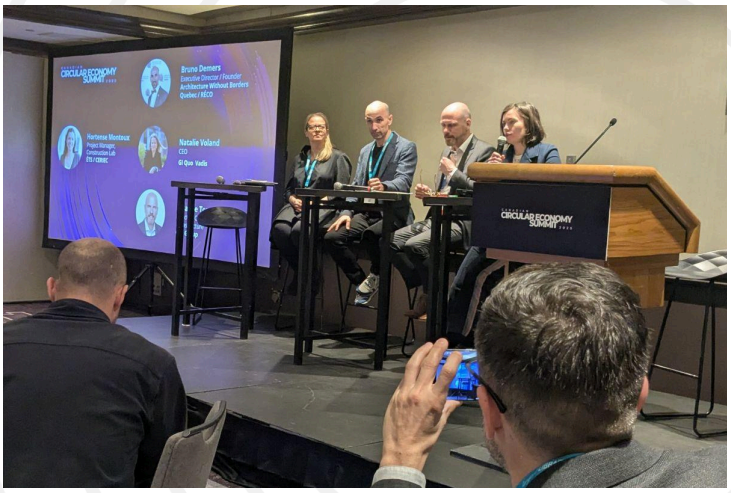
Stephanie closed by highlighting several reuse applications driven by the city: directing salvaged materials to affordable housing repairs, trades education, public art, and even new infrastructure. She showcased prototypes for bus stop shelters and shade structures built from donated reclaimed iron and lumber, emphasizing how municipal procurement can embed circularity into everyday urban systems.

In the Q&A, Stephanie addressed liability concerns by explaining the city's use of waivers for donated materials, modeled after Habitat for Humanity. Her mantra—that waste management can and should be a force for community resilience—anchored the session and offered a clear call to action for Canadian cities: use policy, public capacity, and partnerships to shape not just materials flows, but more equitable futures.

Summary of Panel Discussion

The panel offered a compelling cross-section of Canadian expertise spanning real estate development, architecture and reuse, and national standards development.

Framed by the need for both local experimentation and systemic change, the discussion explored the practical and cultural conditions necessary to scale circularity in the built environment.



Understanding Roles in the Circular Value Chain

- Natalie Voland positioned herself as a real estate developer committed to proving that carbon-neutral, circular, and affordable housing is not only possible, but profitable. She draws on both practice and research (as a PhD candidate at Concordia's Next Generation Cities Institute) to integrate market insights with systems thinking.

- Bruno Demers described his organization's dual role: operating RÉCO, a building material reuse center modeled on North American precedents, and delivering pre-demolition material inventories to bridge reclaimed material flows with design teams and social economy actors.

- Dwayne Torrey emphasized the CSA Group's role as a convener and standard-setter, translating technical expertise from local practitioners into scalable national frameworks. He underscored that standards, though voluntary, shape regulation and innovation by codifying what good practice looks like.

On Collaboration Across Systems and Scales

All three panelists reinforced that circularity is a deeply collaborative practice requiring cross-sectoral partnerships:

- Natalie outlined her use of an integrated design approach that starts with setting project values and KPIs before engaging engineers, architects, and contractors. This process de-risks innovation by replacing ambiguity with clearly defined, non-negotiable sustainability targets.

- Bruno detailed how RÉCO relies on supply-side partnerships with contractors and developers, while building demand by educating architects and homeowners about the viability of reclaimed materials. He also described a unique component-specific partnership (e.g., for reclaimed bricks) that combines philanthropic incentives with private logistics.

- Dwayne shared how CSA Group ensures standards reflect diverse viewpoints—pairing "strong views on one side of the room" with "opposing views on the other" to create balance. He described this consensus-building process as central to translating local practice into national tools.

Key Levers to Amplify Circular Construction

Panelists offered distinct but complimentary ideas on where to focus efforts to mainstream circularity:

- Dwayne pointed to four strategic pillars: continue research to close knowledge gaps, develop and update standards (e.g., Design for Disassembly 2.0), invest in education and capacity building, and scale interoperability through digital tools like BIM and material passports.

- Bruno emphasized cultural transformation, particularly within architecture and design. He called for reshaping aesthetic norms and design values to elevate reuse and make circularity visible, desirable, and technically integrated into practice.

- Natalie insisted that financial models are the most critical lever. Circularity must work economically in real-world development cycles. She shared examples where circular and low-carbon design saved costs by reducing material waste, shortening construction timelines, and lowering long-term operating expenses. Her approach proves that climate-smart development can also deliver market returns when priorities are set early and teams are aligned.

Circular Construction and the Skilled Workforce

A late-session audience question raised concerns about labour shortages in the skilled trades, especially with deconstruction's labour-intensive nature. While no panellist claimed to have a silver bullet, they emphasized:

- Making circular construction "cool" and meaningful can attract younger workers;
- Municipalities and education institutions must evolve training programs to include circular construction competencies, as well as explore the role of technology for enhancing productivity;
- Policy and public-private collaboration are needed to close the training gap and build a skilled, equitable circular workforce.

Natalie closed the panel with a clear call to action: don't settle for second-best. Decisions made at the beginning of a project—on values, contingencies, and storytelling—shape everything that follows. If we want better buildings, we must demand better from the start.

Breakout Group Highlights

The workshop session then included eight breakout table discussions, each led by an innovator or organization working on a key facet of the circular construction transition. Participants self-selected into small group discussions aligned to specific innovation challenges or themes, with some rotating halfway through the 50-minute breakout session for some 'rapid brainstorming'. Conversations focused on surfacing barriers, uncovering enabling conditions, and identifying opportunities for action, collaboration, and/or partnership.

1. **Circular Redevelopment of YMCA Facilities – Ryan Zizzo (Mantle Developments)**
   Explored circular strategies for the deconstruction and redevelopment of two large YMCA sites in the Greater Toronto Area. Key discussion points included building material recovery logistics, funding mechanisms, and storytelling strategies—right down to rehoming dinosaur skulls from a past renovation project.
2. **Deconstruction Data and Infrastructure in BC – Stephanie Dalo (Carbon Leadership Forum BC)**
   This table discussed the need for robust data, coordinated working groups, and value proposition modeling to support infrastructure development for reuse, storage, and digital material tracking. The goal: develop policy and business models to support circular construction across British Columbia.

3. **Making Reuse Business-As-Usual – Natalie Voland & Gil Yaron (Gl Quo Vadis & Light House)**
   Focused on the financial and logistical barriers to making material reuse mainstream in development. Topics included storage constraints, pricing inconsistencies, contractor readiness, and how to strengthen the business case for developers to prioritize reuse from project inception.

4. **Transatlantic Collaboration – Stephanie Phillips & René Sigg (Circular San Antonio & Intep)**
   Participants explored international knowledge exchange models, including delegation programs that bring North American circular economy leaders to Europe. Discussion centered on the types of lessons most useful to Canadian practitioners and how to expand bilateral learning platforms.

5. **Scaling Reuse in Institutional & Commercial Buildings – Bruno Demers (RÉCO / Architecture Without Borders Québec)**
   This table examined strategies to expand material reuse practices in larger building typologies, particularly those outside of the single-family housing sector. Topics included pre-demolition audits, scaling inventory systems, and integrating reclaimed materials into institutional procurement streams.

6. **Mapping the Circular Ecosystem – Carly Connor (Green Salvaged Materials)**
   Focused on creating a shared ecosystem map of businesses, services, and infrastructure relevant to material recovery and reuse. Identified the need for open-access tools that clarify who does what and where bottlenecks exist—particularly around material flow and end markets.

7. **Building the Business Case for Circularity – David Messer (Climate Smart Buildings Alliance / Ellis Don)**
   Tackled economic barriers to retrofits and Design for Disassembly. Explored how to incentivize future-forward decisions today when benefits may only be realized decades later. Questions included: How do we make circularity bankable? What are the roles for private capital and public subsidies?

8. **The Circular Rebound Effect – Li-Anne Sayegh (Arup)**
   Addressed the unintended consequences of circular innovation, where efficiency gains are offset by rising material consumption. Participants explored how behaviour change, design constraints, and systems thinking can help mitigate rebound effects in circular construction strategies.

The session closed with a call to action for continued collaboration, inviting participants to carry forward the momentum, insights, and new partnerships sparked at the tables into real-world projects and systemic change.