



British Columbia
Construction Roundtable
Building our construction network

OVERCOMING OBSTACLES IN THE CONSTRUCTION INDUSTRY'S SUSTAINABILITY JOURNEY

British Columbia Construction Roundtable White Paper – January 2024

Event Objective

Roundtable discussion to support learning and dialogue between owners, consultants, general contractors, and others in the construction industry on overcoming obstacles in the Construction Industry's sustainability journey.

Thank you, Lafarge and Tetra Tech,
for sponsoring the BCCR Sustainability
in Construction Roundtable.



Event Overview

The British Columbia Construction Roundtable (BCCR) held a roundtable on January 25, 2024, with 100 participants representing owners, consultants, contractors, suppliers, and others from the Vancouver, BC Construction Industry. BCCR roundtable events aim to engage the industry in a robust discussion, explore issues, and discuss opportunities and trends on topics affecting the construction industry.

Marcos Alejandro Badra – City of Richmond, Program Manager – Circular Economy; Stephanie Voysey – Lafarge, Head of Sustainability and Environment; and Pia Abercromby – McElhanney, Lead – Sustainability, Climate and Asset Management Solutions, offered their knowledge and experience on overcoming obstacles in the Construction Industry's sustainability journey. This was followed by facilitated roundtable conversations to encourage cross-industry dialogue.

The Sustainability Roundtable Discussion was preceded by an educational session on October 26, 2023, led by Lourette Swanepoel, the Envision Canada Program Manager, Anthony Pak, Principal at Priopta and Dorit Mason, TransLink's Director of Safety, Environment and Emergency Management, to set the stage for the Sustainability Roundtable. The breakfast session introduced three key sustainability topics relevant to today's construction market: Sustainable Infrastructure, Decarbonization and Resiliency.



Introduction

The 1987 United Nations Brundtland Commission defines sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.”

The discussion on sustainability in the construction industry, specifically in the context of British Columbia, emphasized the complex and multifaceted nature of implementing sustainable practices. Understanding that being “sustainable” means considering environmental, social and economic outcomes from a project (not just environmental) can change the buy in of interested parties and stakeholders in this concept through this common, clear definition of the term.

A highlight of the conversation was that while sustainability is recognized as a critical goal, achieving it faces numerous challenges stemming from entrenched practices, economic considerations, and regulatory frameworks.

Sustainability was characterized as a dynamic target, influenced by the prevailing industry focus on minimizing costs and the varied effectiveness of sustainability measures depending on the scale of evaluation. For example, decisions made internally within a country about reducing fossil fuel energy generation may conflict with decisions that promote less sustainable external outcomes, such as exporting coal for energy generation in other countries. This dichotomy illustrates the complexity of achieving sustainability goals facing competing interests and priorities.

The implementation of sustainability in the construction industry is largely seen as contingent upon the willingness of owners and private developers to prioritize and drive sustainable practices from the design phase. However, the industry faces inherent challenges, such as engineers' conservatism, the misalignment of priority of capital costs versus life cycle costs, and cultural perspectives prioritizing short-term gains over long-term sustainability.

Regulatory frameworks and incentives are identified as potential levers to promote sustainability. Suggestions include setting clear performance standards at the beginning of projects and encouraging using recycled materials.

Nonetheless, the discussion acknowledged significant resistance to change, partly due to a lack of education and awareness about sustainable options and partly due to the perceived economic risks associated with deviating from established practices.

The Key Elements of Sustainability

The table groups defined sustainability in the construction industry through several lenses, emphasizing its complexity and the varying perspectives on what constitutes sustainable practices. Here are the key elements of sustainability identified by attendees:

1. **Moving Target:** Sustainability is a moving target, indicating that its definition and the means of achieving it evolve based on societal values, economic conditions, and technological advancements.
2. **Scale of Evaluation:** The effectiveness of sustainability measures varies depending on the scale at which they are evaluated. Discussions contrasted internal sustainability measures, such as reducing fossil fuel energy generation, with external decisions that may promote less sustainable outcomes, like approving coal mines for export purposes. This distinction underscores the need to consider sustainability from multiple dimensions and scales.
3. **Openness to Change:** Sustainability is framed as requiring an openness to change, particularly in the face of increasing complexity and outdated processes. Achieving sustainability involves not only the adoption of specific practices but also a willingness to revise and update approaches in response to emerging challenges and information.
4. **Implementation Challenges:** The discussion on implementation highlights that the drive for sustainability often comes from owners/private developers, as they have significant influence over design and decision-making processes. Sustainability should ideally be incorporated at the design stage rather than being an afterthought during construction. However, conversations also pointed out the conservatism within the engineering field can stifle the use of new, sustainable solutions.
5. **Regulatory Considerations:** Regulations could compel owners to adopt more sustainable practices, thereby raising the bar for the entire industry.
6. **Economic Considerations:** There were discussions of capital costs versus life cycle costs revealing an economic dimension of sustainability, emphasizing the need to capture the full value and impact of sustainable options over a project's lifespan.
7. **Cultural Perspectives:** It was noted that the impact of short-term and individualistic cultural perspectives in North America can hinder the adoption of sustainable strategies that have long-term benefits but may involve upfront costs or changes to traditional practices.

Sustainability in the construction industry is an evolving goal that encompasses environmental, economic, and social considerations. Achieving sustainability requires a shift in mindset, practices and policies driven by a collective effort from all stakeholders involved in the construction process.

Examples of Successful Sustainability Practices:

The examples discussed included potential strategies and specific examples of implemented practices. Below is a summary of areas where successful sustainability practices were mentioned:

1. **Use of Recycled Materials:** The discussion highlighted efforts to include recycled products in construction projects. An example mentioned is Lafarge's initiative, which demonstrates that recycled products, such as reclaimed asphalt pavement (RAP), can be as cost-effective as virgin materials while significantly reducing carbon emissions.
2. **Regulatory Drivers:** New carbon policies and building permit requirements have been implemented by the City of Vancouver mandating reduced carbon emissions, indicating a regulatory approach to enforcing sustainability. By 2025, building permits will need to demonstrate a 10-20% reduction in carbon, showcasing a successful regulatory strategy to promote sustainable development.
3. **Sustainable Product Development:** Lafarge's ECOPlanet cement being produced with 30% lower carbon emissions than standard General Use cement highlights successful innovation in creating more sustainable construction materials. This product has no reduction in structural performance, illustrating a successful sustainability practice in material innovation.
4. **Circular Economy and Recycling:** The City of Richmond's "Circular City Strategy" is an example of a high-level approach towards maximizing resource value and minimizing waste. The strategy's focus on principles like maximizing ecosystem services and managing consumer materials points to successful overarching sustainability practices.
5. **Energy Efficiency and Decarbonization:** HTEC's are working on building hydrogen fueling stations and production facilities, focusing on low-carbon intensity hydrogen. This is part of decarbonizing the transportation sector, indicating successful sustainability practices in energy infrastructure.

6. Sustainable Building Design: Examples include retrofitting existing buildings for new uses, such as converting office towers to residential spaces, emphasizing the sustainability benefits of repurposing, and extending the life of existing structures.
7. Educational and Awareness Initiatives: The discussion on barriers to sustainability notes the importance of education and special knowledge in identifying sustainable options. Successful sustainability practices likely involve enhancing understanding and skills across the industry to recognize and implement sustainable possibilities effectively.
8. Incentives for Sustainability: Some financial incentives and policy adjustments promoting sustainability are in place, such as BC Hydro incentives for greener construction practices and innovative funding models supporting sustainable development.

These examples suggest that while challenges remain, there are numerous areas where sustainability practices are being successfully implemented, driven by innovation, regulation, and a growing awareness of the importance of sustainable development within the construction industry.

The different perspectives on implementing sustainable solutions:

Owner Perspective

The Owner's perspective is that key obstacles to sustainability include the perceived and actual higher costs associated with adopting sustainable practices, which can deter owners due to concerns about upfront capital investment and uncertain returns. A notable lack of education and awareness about sustainable options' long-term benefits and potential cost savings further impedes progress. Owners' hesitation is compounded by risk aversion, with fears over the reliability, performance, and market acceptance of innovative sustainable technologies as significant deterrents.

Regulatory and policy uncertainties present additional barriers, as navigating the complex landscape of sustainability regulations can be daunting without clear, consistent guidelines. This challenge is intertwined with a broader cultural and behavioural resistance to change, where traditional practices are preferred, and sustainability benefits are met with skepticism. Economic and social factors often precede environmental sustainability,

especially when budget constraints, project timelines, and stakeholder expectations push environment sustainability to the background. The practical difficulties of weaving sustainable practices into every stage of a project—from design through to operation—pose yet another hurdle, exacerbated by a lack of incentives to motivate owners towards sustainability.

These barriers necessitate a comprehensive strategy to foster sustainable practices among construction owners. This includes ramping up education on the benefits of sustainability, bolstering regulatory support to provide clear guidelines and standards, offering financial incentives to offset the costs of sustainable practices, and encouraging a cultural shift that values long-term environmental, social, and economic benefits as much, if not more than, immediate economic gains.

General Contractor's Perspective

Contractors in the construction industry face several barriers when implementing sustainable solutions, each reflecting the operational and systemic complexities inherent to the sector. A primary obstacle is cost and budget constraints, with the perceived high upfront costs associated with sustainable materials and practices often proving difficult to justify, especially in competitive bidding scenarios where cost minimization is paramount. This challenge is exacerbated by existing specifications and standards that may not support or incentivize sustainability, making it hard for contractors to meet sustainability goals when faced with rigid project requirements.

A lack of knowledge and training on sustainable construction further complicates matters, highlighting a gap in understanding around new materials, technologies, and methods necessary for sustainable building practices. Cultural resistance to change within the industry also plays a significant role, with a preference for traditional, time-tested techniques and materials over innovative, sustainable alternatives. Regulatory and policy barriers, including permitting delays and unclear sustainability standards, hinder the adoption of green practices, while concerns over greenwashing create skepticism about the environmental benefits of certain sustainable options.

Supply chain issues present another hurdle: limited availability of sustainable materials due to scarcity or logistical challenges can make these products harder to source. Risk aversion

is common among contractors wary of new, unproven materials and technologies, limiting their willingness to invest in sustainable solutions. This is compounded by the need to align with client and market demands, which often prioritize traditional cost, time, and quality metrics over sustainability, relegating sustainable practices to a secondary concern. The lack of targeted economic incentives for contractors to adopt sustainable practices further discourages investment in sustainable solutions.

Overcoming these barriers necessitates a comprehensive approach that includes revising industry standards to support sustainability better, enhancing education and training for contractors on sustainable practices, offering incentives for sustainable construction, and fostering a cultural shift that values environmental considerations as highly as traditional construction metrics.

Consultant's Perspective

Consultants in the construction industry encounter several significant barriers when attempting to implement sustainable solutions arising from institutional, market, and practical challenges. A prevalent issue is the need for more knowledge and awareness about sustainable practices among key stakeholders, such as clients and contractors, which can impede the adoption of sustainable solutions. Additionally, a deep-rooted resistance to change within the industry, favouring traditional methods and materials due to their historical reliability, presents a substantial hurdle for consultants advocating for innovative, sustainable practices.

Economic constraints within projects often limit the feasibility of implementing sustainable solutions, with higher perceived costs of sustainable practices as a deterrent. The regulatory and policy landscape further complicates matters, as existing frameworks may not adequately support or incentivize the shift towards sustainability. Consultants also face difficulties in engaging clients on sustainability matters, especially when clients prioritize immediate cost savings over sustainable practices' long-term environmental, social and financial benefits.

Market demands for sustainability must be more consistent across sectors and regions, challenging consultants to standardize sustainable practices across projects. The complexity of sustainable solutions and the difficulty in quantifying their benefits in a way

that resonates with clients and stakeholders add to the challenge, making it hard to justify sustainable practices based on traditional economic metrics. Effective implementation of these solutions requires close collaboration and communication among all project parties, which can be hindered by conventional project delivery models and the challenges of facilitating cooperation to the necessary extent.

Furthermore, consultants must continually update and adapt to evolving sustainability standards, integrating them into project designs and recommendations, a task made difficult by frequent changes and a lack of universal recognition. Design codes are not keeping up with the fast-paced changes in industry, hindering adoption new technologies and practices.

Overcoming these barriers necessitates a comprehensive strategy that encompasses enhancing education and awareness about sustainable practices, developing supportive regulatory policies and incentives, and fostering collaboration among all stakeholders involved in construction projects. Additionally, creating effective tools and methodologies to communicate the benefits of sustainable practices clearly and compellingly is crucial for advancing sustainability in the construction industry.

Suggested Solutions to overcoming the obstacles in the Construction Industry's Sustainability Journey:

The solutions offered across different construction industry segments—targeting owners, contractors, and consultants—share common themes aimed at overcoming barriers to sustainability:

- **Education and Awareness:** To overcome knowledge gaps and resistance to change, increased education and awareness about the benefits of sustainability across all stakeholder groups, including the long-term economic and environmental advantages, should be emphasized.
- **Regulatory Support and Incentives:** Advocating for clearer, more supportive regulatory frameworks and policies that encourage or mandate sustainable practices. This includes financial incentives, tax breaks, and grants to offset the sometimes higher initial costs of sustainable technologies and materials.

- Collaborative Efforts and Stakeholder Engagement: Promoting collaboration and communication among all parties involved in construction projects, from owners and contractors to consultants and policymakers, to ensure that sustainability goals are integrated from the design phase and throughout the project lifecycle.
- Innovative Financing and Economic Strategies: Exploring innovative financing models and economic strategies that make sustainable options more attractive and feasible. This could include sustainability loans and bonds, highlighting the long-term cost savings of sustainable solutions such as use of energy-efficient designs and materials.
- Quantifying Benefits and Redefining Success Metrics: Developing methodologies to quantify the benefits of sustainable practices more effectively and redefining project success to include sustainability outcomes. This approach aims to make the case for sustainability more compelling by demonstrating its value in tangible terms.
- Leveraging Technology and Innovation: Utilizing technology and innovation to improve the efficiency and effectiveness of sustainable practices, such as using data analytics, sustainable materials, and green construction techniques.
- Policy Advocacy and Leadership: Taking a leadership role in advocating for sustainability within the construction industry, including participating in policy development, engaging with sustainability organizations, and showcasing successful projects as models for sustainable construction.
- Streamlining Supply Chains for Sustainable Materials: Improving the supply chain for sustainable materials to make them more accessible and cost-effective for projects. This includes supporting local production and developing partnerships with suppliers of sustainable products.
- Risk Sharing Mechanisms: Implementing risk-sharing mechanisms to encourage the adoption of innovative and sustainable technologies and materials, thereby mitigating the perceived risks associated with new sustainable practices.
- Updating and Adapting Standards: Ensuring that consultants and other stakeholders stay up to date with the latest sustainability standards and certifications, integrating these into project designs and recommendations to meet evolving sustainability goals.

Participant Quotes:

"You've got to walk the talk and show that it can be done."

"How do you quantify improvements?"

"Buildings are ahead in sustainable improvements compared to infrastructure."

"There are no firm guidelines for data sharing. From a policy perspective, there should be a push to promote this data sharing and digitization."

"We need to collect the right type of data. Building permit submissions need raw data from Lifecycle Cost Assessments."

"The "low cost is King" mindset needs to be changed."

"Alignment on standards across municipalities."

"Specification development and education. It is understanding risk amongst parties."

"Lobbying and improving awareness around the challenges faced across the board. Forcing organizations to comply rather than encourage."

"How do we work together earlier in the design phase? Regulation? BC Building Code upgrades?"

Conclusion

Overall, the discussion underscored a critical consensus within the industry on the necessity of integrating sustainability into the built environment and construction practices. The discussion called for a concerted effort from all stakeholders—owners, contractors, consultants, manufacturers, and regulators—to overcome existing challenges and work towards more sustainable and resilient construction methodologies.

Sustainability within the construction industry is defined and discussed as a multifaceted challenge influenced by various factors. There is recognition of resistance to change and a lack of knowledge regarding sustainable practices, for example the perception that



recycled products may not offer the same quality as virgin materials. However, there is also an acknowledgment that incorporating sustainable practices can lead to cost savings, especially using recycled products.

Policy changes, such as carbon reduction requirements and embodied carbon regulations, are significant drivers for sustainability initiatives, although implementation and enforcement remain challenging. Early integration of sustainability considerations, particularly during the tender phase, is emphasized to overcome the persistent focus on the lowest cost.

Transparency regarding the environmental impact of materials and data sharing throughout the construction process is essential for tracking sustainability improvements and ensuring accountability. Lack of education is highlighted as a barrier to implementing sustainable solutions for various stakeholders, including owners, contractors, and consultants, alongside resistance to change and a focus on short-term costs over long-term benefits.

Embracing innovation and technology is crucial for facilitating sustainability efforts, including digitizing data, improving tracking mechanisms, and integrating sustainable practices into design and procurement processes. Collaborative efforts among stakeholders, including owners, contractors, consultants, policymakers, and industry organizations, are deemed necessary for setting standards and incentivizing and enforcing sustainable practices.

Overall, achieving sustainability goals within the construction industry requires a cultural shift from focusing solely on construction cost towards a more balanced approach that considers long-term environmental, social, and economic impacts and benefits.

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