Green Building & Indigenous Business:
Preliminary Insights

Natural Resources Canada

Ressources naturelles Canada

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Introduction

This report summarizes findings from interviews with Indigenous businesses, building owners, and industry experts. The goal of these interviews was to explore the opportunities and challenges faced by Indigenous-led entities in relation to green buildings, net-zero building standards, green building incentives, carbon transition plans, and deep retrofits. The insights gathered will inform a two-part resource development initiative led by the Canada Green Building Council (CAGBC), ensuring that Indigenous voices and perspectives are meaningfully included.

The resulting resources include a series of playbooks tailored to building owners across various asset classes and a guide for industry practitioners, particularly those in the early stages of transition planning.

This report expands on a webinar co-hosted by Canadian Council for Indigenous Business (CCIB) and CAGBC on March 31, 2025. The webinar highlighted how green building and retrofitting can open new business opportunities by improving efficiency and sustainability and providing access to incentives and grants, all framed in terms of their benefits to communities and the environment.

While the guide and playbooks underscore the importance of these topics for a general audience, insights from CCIB's webinar and interviews complement these resources by offering specific context around Indigenous communities.

This work feeds into CAGBC's broader capacity-building efforts under the Transition Planning Project, funded by Natural Resources Canada's Codes Acceleration Fund.

Brief Methodology

This report used a qualitative approach, drawing on seven in-depth interviews to explore green building topics in Indigenous contexts. Given the limited prior research on the role of Indigenous businesses in green building, this is an emerging area for CCIB.

The small sample size reflects the exploratory nature of the study, which was designed to identify key issues and refine methods for locating CCIB members and Indigenous firms in this space.

Participants were recruited through a webinar on Green Building Initiatives and Indigenous Businesses and through a referral program. Interviews took place between May 14 and May 28, 2025, with one referral interview on July 17, 2025. Each session lasted approximately 45 minutes and followed a semi-structured guide (see Appendix B), which allowed for natural, wide-ranging conversations.

All interviews were recorded, and transcripts were analyzed with a coding matrix to identify key themes and insights. Participants' names and organizations have been de-identified to maintain confidentiality and anonymity in reporting. In the spirit of reciprocity, participants were offered an honorarium for their time and expertise.

Participant Information:

- **Types of Organizations:**
  - → Social enterprise addressing food insecurity in northern and Indigenous communities through sustainable agriculture.
  - → Design-build firm focused on affordable homes using modular construction.
  - → Early start-up that aims to recycle and refurbish mobile homes and resells parts.
  - → Civil and environmental engineering firm with expertise in remote and challenging environments.
  - → Cleantech company developing sustainable building materials.
  - → National engineering firm specializing in structural and building systems design and restoration.
  - → General contractor; insights relevant to community-owned businesses and local suppliers.

- **Roles of Participants:**
  - → Co-founder and CEO with a science and engineering background spanning manufacturing, agritech, and lighting.
  - → Co-founder and Indigenous liaison.
  - → Aspiring entrepreneur.
  - → Founder and Principal with civil engineering and economics background, specializing in power systems and infrastructure.
  - → Founder and Project Manager with experience in federal program administration, community engagement, and social work, focused on sustainable construction solutions.

- → Managing Principal and Board Member leading decarbonization efforts through building science and structural practices, with experience engaging Indigenous community members.

- → Retired Community Elder with 40 years in construction, including building homes on First Nations reserves and in northern communities.

- **Geographic Representation**

  - → Central Canada: 4 participants from Ontario.

  - → West Coast: 2 participants from British Columbia.

  - → Atlantic Provinces: 1 participant from Nova Scotia.

  - → Prairie Provinces or Northern Territories: No participants.

- **CCIB Membership Representation**

  - → Certified Indigenous Business Member: 4

  - → Non-Indigenous Business Member: 1

  - → Non-Member: 2

- **Participant Experience with Green Building Practices**

  - → 0-5 years: 3

 - → 6-10 years: 3

  - → 11+ years: 1

Participant Knowledge & Engagement with Green Building

This section summarizes participants' familiarity with green building practices, sources of learning including webinar participation and other training opportunities, and considerations unique to Indigenous contexts that influence engagement and capacity building. See Appendix C for detailed insights on knowledge, engagement, and Indigenous contexts in green building drawn from interviews.

Theme	Summary of Insights	Interview Question(s)
Familiarity with Green Building	Most participants had industry experience and were familiar with green building concepts; some had limited experience and relied on external expertise; beginners sought free resources and expressed willingness to integrate principles.	Q1: Role & relation to green building Q2: Familiarity with green building practices
Webinar Participation & Training	Two participants attended the CCIB-CAGBC webinar and found it valuable; highlighted how differences in environments, business readiness, and sustainability practices across Canada affect adoption.	Q3: Attendance at 2025 webinar
Alternative Learning	Formal education seen as most practical for regulations and certifications, but costly; others use YouTube, industry magazines, social media, conferences, trade shows, and microcredentials; continuous upskilling emphasized, e.g., Leadership in Energy and Environmental Design (LEED).	Q4: Valuable sources of learning

Theme	Summary of Insights	Interview Question(s)
Government Underfunding & Infrastructure Gaps	Indigenous communities face severe housing crises due to historical underfunding; COVID-19 exposed health risks; vulnerable populations, such as Elders, add complexity; relocation disrupts cultural ties; funding far below infrastructure needs.	Q8: Anything important not covered in Indigenous contexts
Economic Pressures	Rising costs from population growth on reserves, supply chain disruptions, inflation, and labour competition strain infrastructure budgets.	Q8
Climate Inequity	Climate change intensifies infrastructure stress; Indigenous communities disproportionately affected despite low emissions; prioritizing Indigenous voices and funding is essential for resilience and cost reduction.	Q8
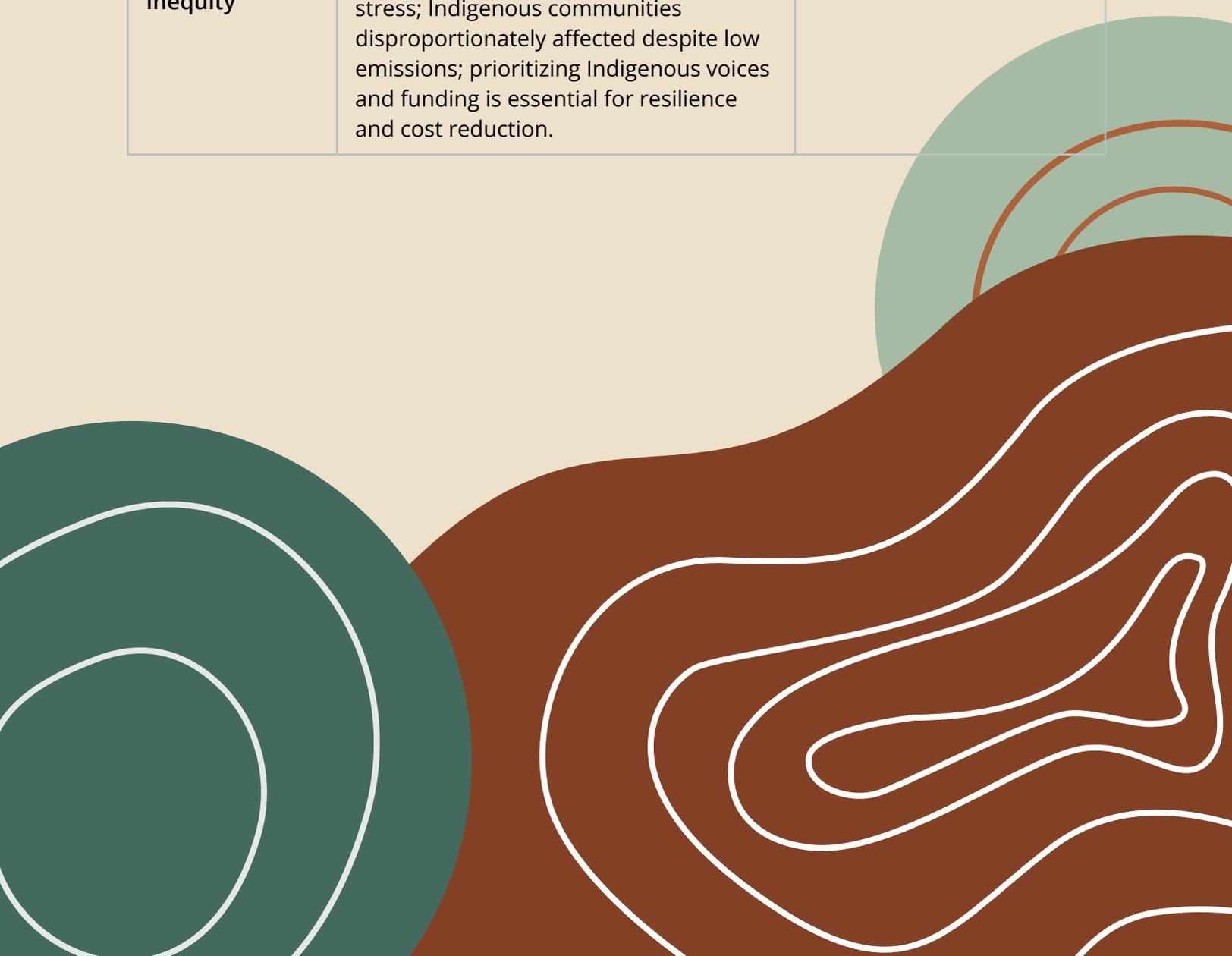
Challenges & Strategies

This section brings together two sets of insights shared by participants:

- Challenges they face when trying to adopt green building practices, and

- Strategies they believe can help overcome these challenges.

The table below roughly matches each challenge with one or more practical solutions, directly reflecting participant feedback to ensure relevance and real-world applicability. These insights are further elaborated in the following sections, supported by quotes from participants.

Challenge	Matched Strategy / Solution
Financial barriers & access to capital	Support small business innovation (early client commitments, pilots, flexible funding)
Demanding time constraints / competing priorities	Begin small with authentic practices; curated learning sources
Navigating regulatory frameworks (municipal, provincial, federal)	Collaborate with Indigenous practitioners; leverage First Nations infrastructure Institute and Indigenous-led governance
Regulatory conflict (green standards vs. local codes)	Include Indigenous design advisors; designate code/policy integrator; relationship-based scoping
Failure to account for regional context	Relationship-building with place-based partners (Rights holders & stakeholders); on-site engagement; Indigenous-led design
Limited access to materials / resources in remote regions	Relationship-building with local partners; simplify systems; passive design
Shortage of skilled labour	Simplify systems; passive design; build local capacity through Indigenous partnerships
Limited access to formal education & costly upskilling	Incremental learning; case studies; public education; recognize informal learning and skills in applications
Over-reliance on Western engineering solutions	Indigenous-led design; passive/biophilic strategies; integrated scope
Weather-related disruptions	Climate-responsive tools; geographic information system (GIS); Traditional Ecological Knowledge integration; resilient materials
Designing housing that adapts to a changing climate	Public education; modular housing examples; Indigenous-led planning

Challenges

- **Financial barriers.** One of the biggest challenges participants mentioned was access to capital. High costs were a common concern for three participants. For one early-stage business, securing funding was noted as a major hurdle to be addressed before focusing on operational efficiencies.

One participant noted that green practices have been an economic driver for some of the projects they have worked on, suggesting that sustainability can be more affordable for building owners in the long run. However, this perspective does not overlook the significant barriers to entry faced by Indigenous businesses and building owners who may lack the financing or capital needed to realize those long-term savings.

- **Demanding Time Constraints.** Most entrepreneurs and small business owners simply lack the time to implement sustainability policies, as these can be time-consuming to analyze and execute. For one participant, this was a significant barrier to adopting green building practices and digitization.

Participants described feeling stretched thin — constantly putting out fires, managing every part of their businesses, and juggling multiple roles at once, from finances to operations to human resources. While these pressures are common challenges for entrepreneurs, adding layers of sustainability and technology increases the complexity of running a business. Any diversion from core operations represents an opportunity cost, as it shifts attention to areas with potentially lower return on investment of time and resources.

This challenge was echoed in several comments about competing business priorities, although not enough detail was provided to elaborate further. These competing priorities affected not only participants' motivations to pursue green solutions but also influenced their clients' decisions around upfront cost, timelines, risk, and overall value.

- **Navigating regulatory frameworks.** Federal, provincial, and municipal policies posed a challenge to two participants. Difficulties in obtaining the correct permits hindered their ability to move forward with building projects.

Notably, the overlapping responsibilities of the federal and provincial governments in delivering public services and infrastructure to Indigenous Peoples often create practical challenges in identifying where to seek programs and support. The following is meant to provide brief awareness of the jurisdictional issues and complexities around Indigenous communities.

The federal government holds primary authority over matters affecting Indigenous Peoples and their homelands through Section 91(24) of the Constitution Act, 1867, and the Indian Act, which governs First Nations reserve lands and legal status. Provinces generally have jurisdiction over many essential services, including governance, taxation, land management, water supply, road construction and maintenance.[1]

In practice, however, although these services technically fall under provincial jurisdiction, they are often administered locally by the band office on reserve.

Established in 2023 through an amendment to the First Nations Fiscal Management Act, the First Nations Infrastructure Institute (FNII) is an Indigenous-led organization that supports communities in planning, procuring, owning, and managing infrastructure. FNII offers free assistance through a team of engineers, project managers, and financial experts, promoting best practices and standards.[2]

Indigenous Nations operating under self-government agreements and modern treaties, such as those on the west coast of Canada and Nunavut, differ further still, as they exercise their own governance powers and establish their own policies for essential services.

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[1] Library of Parliament, *Understanding Federal Jurisdiction and First Nations*, Publication No. 2019-51-E, last modified November 29, 2019, https://lop.parl.ca/sites/PublicWebsite/default/en_CA/ResearchPublications/201951E.

[2] First Nations Infrastructure Institute, "Home," https://fnii.ca/.

- **Regulatory conflict.** One participant noted a key challenge: "There is conflict between green building standards and local building codes," pointing to overlapping regulations that can be difficult to navigate.

Even when certain design choices are technically permitted by building codes, as one participant suggested, they may not align with the intent of better building goals. Having someone on the project team who understands these complexities is essential to authentically implementing green practices rather than just checking boxes.

These should consider not only codes and policies, but also input and guidance from local experts who understand environmental and regional issues that project teams may overlook, as well as issues that could affect the long-term success of the builds.

"In my opinion, you need someone on the project team who understands the mechanics of all these overlapping codes and policies — what you can do, what you can't, and even whether you should do something. It's not just about compliance; it's about the level of authenticity you bring to achieving a designation."

- **Failure to account for regional context.** Another participant, whose business works with northern communities, described an unsuccessful approach as "unrealistic project builds, where place isn't a consideration." For example, starting a build without ensuring materials are available locally.

"If there isn't a Home Depot just down the road, forget about it — how are you supposed to find the products and materials to maintain anything, let alone get the equipment you need into the community?"

Similarly, a participant who has evaluated housing on First Nations reserves added that some homes have been built on poorly drained land, where the risk of mould is high. Yet, the building materials used often lack mould resistance and perform poorly in such conditions. These environmental factors were not considered during design, leading to more frequent maintenance needs and a shorter overall lifespan for the buildings.

"Early land surveys placed houses in areas that were essentially marshland. So now, homes have to be built one to two feet off the ground just to deal with the conditions. Even then, basements are flooding, moisture is setting in, mould is forming, and the houses are barely lasting five years."

- **Limited access to materials and resources in remote regions.** Participants working primarily in remote and Indigenous communities often faced difficulties in obtaining the necessary materials and resources to carry out their projects. Limited local supply chains and long transportation times were common barriers.

> *"When it comes to this kind of work, the biggest challenge is really the same as in many other projects: it's access. Getting into the places where the work needs to be done can be difficult. A lot of these locations are remote — some are fly-in communities with very old infrastructure. The biggest issue is during the winter road season, when there's only so much throughput available."*

- **Shortage of skilled labour.** Several participants highlighted a shortage of skilled labour in rural and remote areas, making it difficult to complete projects efficiently and to the desired standard. Even basic trades such as electrical, plumbing, and general contracting are in short supply, along with the necessary resources and materials. In one example, the participant had to bring in workers from major hubs like Winnipeg or Thunder Bay and pay a premium just to retain them for a limited period.

This shortage also affects their ability to build ongoing relationships with contractors who can maintain their buildings and systems. Without continuity, it becomes harder for workers to understand their infrastructure well enough to perform additional work without having to relearn or familiarize new vendors each time.

As noted in *A Way Forward - Part I: Establishing Equity in Education & Employment for Indigenous Peoples*, co-authored with the Ontario Chamber of Commerce (OCC), community-based skills and experience should be valued and considered alongside Western educational credentials. Carpentry skills and labour are often gained through hands-on experience rather than formal schooling.[3]

- **Limited access to formal education.** In 2021, just under half (49%) of Indigenous people of core working age had completed a post-secondary credential, compared to 68 per cent of non-Indigenous people. Completion rates vary across groups: 45 per cent for First Nations, 56 per cent for Métis, and 33 per cent for Inuit. This gap is partly due to chronic underfunding of education in Indigenous communities, which limits access to high-quality, culturally relevant education and often requires students to leave their communities for educational and employment opportunities.[4]

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[3] CCIB & OCC, *A Way Forward: Ontario's Path Towards Economic Reconciliation, Equity and Inclusive Growth*, 2025, retrieved from https://www.ccib.ca/a-way-forward-part-1-2-2-2/.

[4] Melvin, Alexandria, *Postsecondary educational attainment and labour market outcomes among Indigenous peoples in Canada*, findings from the 2021 Census. Insights on Canadian Society, Statistics Canada Catalogue no. 75-006-X, last modified October 27, 2023, retrieved from https://www150.statcan.gc.ca/n1/pub/75-006-x/2023001/article/00012-eng.htm.

The importance of equitable access to education is highlighted by the fact that, although Indigenous adults have a lower overall employment rate than the non-Indigenous population (61% vs. 74%), this gap narrows among those with a bachelor's degree (49% vs. 56%).

Participants emphasized that attending conferences, taking courses, earning credits, and continuously upskilling are necessary to gain and maintain green building designations and expertise. However, as noted earlier, while formal education is highly valued, cost may be a significant barrier for late-career entrepreneurs. Among Indigenous firms with employees, access to skilled labour is often either limited or in high demand and unavailable. As mentioned above, one possible solution would be to re-evaluate the hiring criteria and provide on-the-job training.

- **Over-reliance on engineering solutions.** One participant noted that hiring multiple engineers to address green building challenges can be an ineffective approach if not paired with a clear, integrated strategy. They emphasized that better building goals, along with Indigenous values and cultural considerations, need to be clearly defined in the project scope, long before the team breaks ground. Without this foundation, technical solutions may miss the mark or fail to serve the community's long-term needs.

- **Weather-related disruptions.** Shorter ice road seasons, flash flooding, and the increasing risk of wildfires in some regions were cited as significant challenges. These weather conditions often delay construction timelines, heighten operational risks, and expose design flaws and maintenance issues.

"One thing I was talking about is fires — and more importantly, the fact that this building material is fire-resistant. It's about making that connection to our communities, which are constantly, or nearly constantly, living in fear during forest fire season and facing evacuations. The hope and goal is that when you leave your community, even if the landscape changes, your home will still be there."

Strategies

- **Beginning the green journey with small, impactful practices.** Several participants recommended starting small with incremental, green changes and gradually integrating them into daily life. For example, one participant described using compact solar panels propped against their garage to power only electrical tools. They emphasized that authenticity is key, as genuine efforts, even if modest, are more impactful than superficial or so-called "green washing" initiatives.

Initial actions can include following green designers and organizations on social media platforms, such as LinkedIn and Instagram, and reading periodicals like Engineering Dimensions Magazine, a quarterly publication by Professional Engineers Ontario, or Sustainable Architecture & Building Magazine (SABMag).

- **Need for public education and outreach.** Some participants expressed concern that local communities may not yet be ready to embrace more sustainable housing alternatives, such as tiny homes or modular concepts. Indigenous businesses in the housing sector require marketing support to promote the benefits of these options and to explain the costs associated with eco-friendly design features. This outreach can encourage customers to consider various sustainable construction and upgrade options, ultimately generating the capital these firms need to expand their product offerings, enter new markets, and enhance their designs.

- One participant noted that customers may initially hesitate at the upfront costs of retrofitting until they understand the long-term savings and performance improvements that green building practices provide. As with the introduction of prefab homes, education is essential to help customers become familiar with green building initiatives and their benefits.

- **Virtual collaboration across distant communities.** With reliable internet access, participants noted the potential for remote collaboration, enabling experts to work with remote and northern communities on building projects, share knowledge, and build capacity without the need for costly long-distance travel. As one participant put it, when working on permits or applications for green building initiatives, "You know, from a desk, right — it doesn't really matter where you're doing your work from."

Although this may seem like a good strategy to reduce time and travel costs, it has been noted elsewhere that the lack of on-site engagement can pose challenges for relationship-building and lead to decisions based on assumptions that do not reflect the realities of the region or territory.
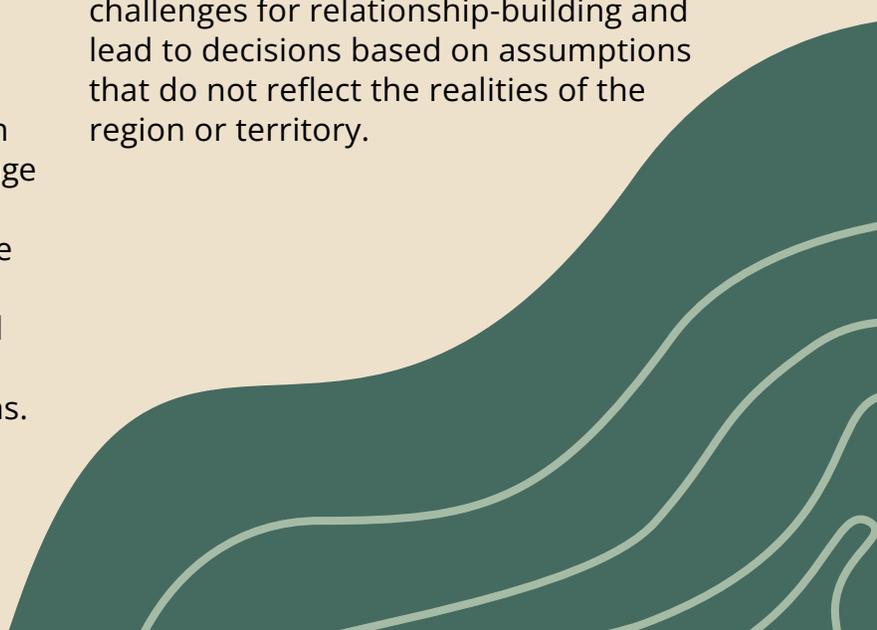
- **Collaborating with Indigenous practitioners.** One clear suggestion from several participants was to encourage and support Indigenous-owned and operated architecture and engineering firms, often grounded in "Indigenous principles, sustainable living, and integrated energy goals," and to engage them whenever possible in construction and retrofit projects.

This consideration is especially important when incorporating Indigenous cultural elements into architecture and design, as it requires meaningful Indigenous participation:

"If you're aiming to implement Indigenous culture, it needs to be led by an Indigenous person."

Participants mentioned non-Indigenous builders involved in projects serving Indigenous clients or end-users, whether in inclusive public spaces or community infrastructure, and stressed the importance of involving Indigenous Peoples in shaping and guiding the design. At a minimum, projects should have an Indigenous design advisor; however, they can also fully incorporate Indigenous participation across all aspects of the supply chain. This principle is summed up in the phrase:

"Nothing about us, without us."

- **Budget for Indigenous inclusion.** According to some participants, the best approach is to ensure there is a dedicated budget for Indigenous inclusion. Integrating Indigenous artwork, designs, traditional place names, and ceremonies into shared spaces can promote cultural revitalization by acknowledging deep connections to land, language, and tradition, but only when done "in a good way." A reasonable budget that compensates local artists, Elders, and Knowledge Keepers recognizes their time and contributions, rather than undervaluing their role in the project. It is essential that this knowledge is respected and valued at a level comparable to the rates of non-Indigenous engineering firms and professional consultants.

- **Snapshot of Indigenous Representation in Architecture and Engineering.** Indigenous Peoples are significantly underrepresented in engineering and architectural professions relative to their share of the overall population. In 2021, there were approximately 1.8 million Indigenous people in Canada, accounting for five per cent of the population. However, Indigenous professionals make up less than one per cent in each of these fields.

According to an Engineers Canada analysis of 2016 census data, there are approximately 3,105 Indigenous engineers in Canada, representing just 0.73 per cent of all engineers. Reporting from the Indigenous Task Force of the Royal Architectural Institute of Canada further reveals that only 20 qualified Indigenous architects are currently practicing in Canada, which represents approximately 0.20 per cent of the country's total number of architects.[5][6]

For additional resources and to connect with Indigenous practitioners, consider the following organizations:

- → Engineers Canada's Indigenous Advisory Committee

- → The Truth and Reconciliation Working Group of the Ontario Association of Architects

- → Indigenous Task Force and Indigenous Member Directory of the Royal Architectural Institute of Canada

- → The RAIC International Indigenous Architecture and Design Symposium, last held in 2022.

- **Sharing procurement opportunities and finding services.** CCIB's membership directory is a valuable resource for identifying Indigenous consultants and suppliers across a range of specialties.

  - *CCIB's Certified Indigenous Business (CIB) program certifies businesses that are at least 51 per cent owned and controlled by Indigenous individuals. CIBs also have access to RFPs and RFIs issued by corporate buyers and can respond directly through the Supply Change™ Indigenous procurement program and marketplace.*

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[5] Engineers Canada, *Indigenous Engineering in Canada*, 2019, https://engineerscanada.ca/indigenous-engineering-in-canada.

[6] Royal Architectural Institute of Canada, *Indigenous Task Force*, last modified September 2023, https://raic.org/raic/indigenous-task-force.

The following directory is compiled from CCIB's membership list as of April 2025, filtered by CIB status and the primary industry category of Architecture/Engineering:

Architecture Firms	Location
ARKI Design Group	Toronto, Canada
David T Fortin Architect Inc.	Sudbury, Ontario
Formline Architecture and Urbanism Inc.	West Vancouver, British Columbia
Grounded Architecture Inc.	Longbow Lake, Ontario
Mookii Architecture LP	Fort William First Nation, Ontario
Ray Gosselin Architect Limited	Regina, Saskatchewan
Smoke Architecture Inc.	Hamilton, Ontario
SpruceLab Inc.	Toronto, Ontario
Tawaw Architecture Collective	Phoenix, Arizona (U.S.)

Engineering Firms	Location
ASI-Asset Strategy Inc.	Regina, Saskatchewan
Advantage Engineering Ltd.	Canwood, Saskatchewan
Ashini Consultants	Chicoutimi, Quebec
Bawating Building Science	Stratford, Ontario
DJA Engineering Services Inc.	Calgary, Alberta
ELMT6 Solutions Inc.	Georgetown, Ontario
EME Utility Engineering LP	Vaughan, Ontario
Islandview Engineering Ltd.	Summerside, Prince Edward Island
Oshkaabewis Engineering and Consulting	Collingwood, Ontario
Resource Management International Inc.	Lashburn, Saskatchewan
SAABE Inc.	Nipigon, Ontario
Saulteaux Consulting and Engineering	Fort Frances, Ontario
SeNa Constructors Inc.	Fort McMurray, Alberta
Warrior Engineering	Nipigon, Ontario

- **Identifying strengths and opportunities through relationship-building.** In terms of managing limited access to resources and materials, participants strongly emphasized the importance of building relationships with Indigenous communities to understand and leverage their strengths. This approach helps avoid unrealistic projects where construction begins but materials, tools, or skilled labour are unavailable. By collaborating with communities to identify feasible projects that are grounded in place-based knowledge, firms are better positioned to carry out builds within their communities. This should involve engaging with communities early to ensure their needs and wants are reflected in the design and execution of the projects.

One participant with extensive experience in traditional log home construction recalled visiting an Indigenous community in Northern Ontario. Surrounded by timber forests, they were struck by the abundance and accessibility of natural resources, which were ideal for constructing durable, long-lasting log homes. This insight was made possible by meeting with community leaders on their land and gaining an understanding of their unique relationship with it. Although the log homes were never built, being on the ground in the community allowed the participant to observe building conditions, available and nearby resources, and the overall environment, providing insight into what was and was not practical.

- **Simplifying building systems.** A participant working with rural communities developed a strategy to streamline building systems, such as integrating plumbing and water management, so that building owners don't need to rely on multiple engineers for maintenance and repairs. This approach reduces complexity and long-term costs, especially in remote areas with limited access to technical support.

Where maintenance resources may be limited, some participants referred to passive engineering technologies that reduce energy use by leveraging natural systems (e.g., sunlight, airflow). This also dovetails with participant interest in biophilic design, which emphasizes the use of natural light, views of nature, and the integration of Indigenous Knowledge Systems into design.

> *"For example, how a structure is built for air control or how windows are designed — this is where Indigenous principles emphasize the natural flow of energy."*

The participant suggested utilizing passive engineering and technology to harness the "natural energy flow" of building design. To them, natural energy flows should be the goal to avoid relying on skilled labour to keep complex systems running.

- **Researching international examples and case studies.** Participants emphasized the value of drawing on international examples and market intelligence to inform local practices. Sweden, in particular, was highlighted as a leader in adopting green building methods and materials. The country was also said to maintain a database tracking carbon emissions from various types of construction waste, which could serve as a useful resource for Indigenous building owners and community planners. It was suggested that access to this kind of data has contributed to the growing trend towards fully or partially modular residential construction.

- **Supporting small business innovation.** One participant sought to address funding challenges by securing early client commitments to support prototype development. This approach not only provides upfront capital but also validates market demand. More broadly, it highlights the importance of empowering small businesses to innovate, particularly in emerging sectors such as prefabricated housing, through targeted support, including advanced purchasing, pilot partnerships, and flexible funding models that acknowledge the distinct challenges of early-stage innovation.

"Here's the thing — everyone wants a modular home. But very few are actually willing to take that next step. I think part of the challenge is that people — whether at the national, provincial, or even local level — aren't fully aware of what modular housing really is, or the benefits it offers. We're still in that early adopter phase."

- **Climate-responsive tools.** In response to growing wildfire threats in northern regions, another participant implemented geographic information systems tools as part of their green transition strategy. With wildfire season returning earlier and more frequently due to climate change, these tools help assess risk and inform more resilient building practices.

This approach can complement Indigenous Traditional Ecological Knowledge in fire management, including cultural burning practices, community-based forest stewardship, and a holistic understanding of ecosystems.
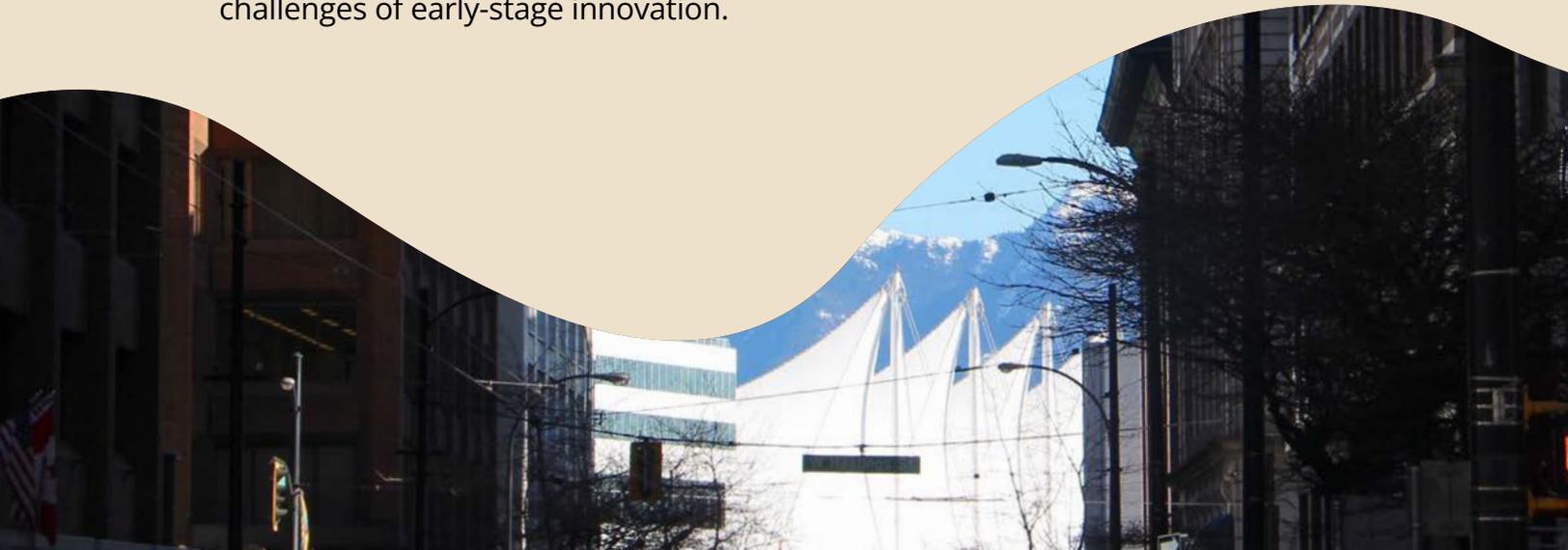
Recommendations for Practitioners & Industry Groups

The following strategies and solutions go beyond the challenges identified by participants in engagement and capacity-building in green building for Indigenous businesses. They represent unique recommendations for practitioners and industry groups. Below is a set of quick-hit insights, followed by longer narrative responses.

1. "Nothing about us without us": Indigenous-led participation

Industry practitioners should prioritize meaningful Indigenous leadership and participation across design and delivery. Begin with cultural sensitivity and end with connection: engage communities early to understand local contexts, and involve community representatives in commissioning so they can ask questions about maintenance, longevity, and everyday use.

> *"We all feel embarrassed to ask questions when we don't know what we don't know — but that's exactly why we're here. We should encourage curiosity and create space for learning."*

Recentering Indigenous-led approaches to sustainability means going back to the land, employing youth, supporting multigenerational housing, and addressing social needs without judgment. As participants noted, Indigenous Peoples have lived as stewards with minimal carbon footprints; Indigenous oral traditions and teachings already embody green ways of living.

> *"If we were simply given the opportunity to be on equal footing, we would be green."*

This framing also recognizes the emotional reality of housing: precarious or substandard conditions, as well as climate anxiety, affect well-being. Standing in solidarity for human rights (e.g., housing, clean water) and self-determination helps restore Traditional Knowledge and governance systems that are critical for environmental stewardship and for addressing deep-seated colonial impacts.

2. Dedicated budgets for cultural inclusion

Projects should dedicate appropriate budgets to compensate Indigenous design advisors, local artists, Elders, and Knowledge Keepers at parity with professional consultants. This ensures cultural elements (artwork, traditional place names, ceremonies) are integrated "in a good way," acknowledging time, expertise, and relational work.

3. Cultural integration standards (certification choices)

Explore how WELL (health, comfort) and LEED (environmental performance including key aspects of health and comfort) can work together to support holistic, healthy, and culturally responsive buildings. Many Indigenous buildings are multi-purpose and multigenerational; an integrated certification strategy can reflect social, cultural, and environmental values while simplifying processes for smaller or remote projects.

> *"I would suggest reviewing the WELL and LEED building standards to understand how they stack up against one another, and to figure out what you're going to suggest that will get you the most outcome — the standard that Indigenous people could follow, whether in part or in whole."*

4. Capacity pathways (tools, maintenance, and evidence)

a. Clear, accessible guide

Develop a step-by-step transition guide that keeps technical language to a minimum: where to start, how to find expertise, and how to inventory assets. Keep guide orientations, such as workshops, short, practical, and engaging so people new to this work have a clear entry point and understand the value of continued learning.

b. Retrofit toolkit

Co-develop a companion retrofit toolkit with practical projects and regionally grounded examples to support rural and northern communities in leading sustainability initiatives.

c. Attention to maintenance

Sustainable buildings require ongoing maintenance and simple occupant practices. Good design, like passive orientation and level, square foundations, reduces energy use and supports durability with lower maintenance needs. Understanding these basics builds owner confidence and pride and helps homes last their full intended lifecycle.

d. European modular models (adapted locally)

Look to European modular practices and to transparent carbon/waste tracking as evidence bases. When planning modular builds or retrofits, prioritize Indigenous modular firms in Canada, fit solutions to regional logistics and materials, and support Indigenous suppliers to strengthen capacity.

Case Studies

Squamish Nation / Sḵwx̱wú7mesh Úxwumixw – Sen̓áḵw

- **Overview**
  - → A landmark Indigenous-led urban development project on Sḵwx̱wú7mesh/Squamish land in Vancouver, providing revenue and housing for the Squamish First Nation, made possible by a historic land repatriation.

- **Specs**
  - → 11 residential towers on 4.2 hectares at Kits Point.
  - → Over 6,000 rental units, including 1,200 affordable homes.
  - → Construction began in 2022; first units expected by end of 2025.
  - → Sustainability features: Net-zero carbon design, district energy systems utilizing waste heat, and landscaped green spaces. Transit-oriented and car-light design emphasizes walkability and cycling.

- **Impact**
  - → Represents economic and cultural reconciliation: land reclaimed after historic dispossession.
  - → Canada's largest net-zero residential project.
  - → Design reflects Squamish cultural values, language, and history.
  - → Creates hundreds of jobs and entrepreneurial opportunities for Squamish Nation members.

- **Governance**
  - → Managed by Nch'ḵay̓ Development Corporation, Squamish Nation's economic development arm.
  - → In 2019, a majority of Squamish Nation members voted in favour of the development.
  - → Supported by MST Development Corporation (Musqueam, Squamish, Tsleil-Waututh) for large-scale projects across shared territories.

- **Funding**

  → $1.4 billion Canadian Mortgage and Housing Corporation (CMHC) loan (largest in Canadian history).

  → Additional investment from OPTrust (Canadian pension fund), holding 50% stake in early phases.

  → Squamish Nation retains 50% stake initially and will fully own the project after completion.

- **Partnerships**

  → Collaboration between Nch'ḵaỷ Development Corporation and OPTrust, one of Canada's largest pension funds, under the partnership name Nch'ḵaỷ West.

  → Seṅáḵw Cultural Advisory Panel, formed in 2024, brings together knowledge holders, artists, and staff to ensure cultural identity is reflected in design decisions.

  → Partnered with Creative Energy under the Creative Energy Seṅáḵw Limited Partnership (CESLP) to deliver sustainable heating and cooling by capturing waste heat from Metro Vancouver's sewer system.

- **For more details on the project highlights, see footnotes.[7][8]**

[7] Jason McBride, "The Most Ambitious Indigenous-Led Development in Canadian History," Maclean's, March 27, 2023, https://macleans.ca/society/senakw-vancouver/.

[8] OPTrust, "Project," Seṅáḵw, 2025, retrieved from https://senakw.com/project.

Smoke Architecture – Centennial College A Block

- **Overview**

  → Canada's first zero-carbon, mass timber higher-ed building, embedding Indigenous design principles.

- **Specs**

  → Six-story building, 130,000 sq. ft., plus 15,000 sq. ft. renovation.

  → Houses administrative offices, collaborative spaces, food services, and School of Engineering Technology.

  → Sustainability Features: LEED Gold certification, mass timber structure, high-performance windows, efficient envelope, all-electric HVAC, solar panels.

- **Impact**

  → Advances Centennial College's Truth & Reconciliation commitments and Indigenous Strategic Framework.

  → Embeds Indigenous principles (Two-Eyed Seeing, Anishinaabe and Haudenosaunee teachings).

  → Includes spaces for smudging, flexible classrooms, labs, and a circular outdoor classroom.

  → Highlights relationship between Indigeneity, sustainability, and inclusivity.

  → Winner of Canadian Interiors Best of Canada Award (2024) and OAA Design Excellence Award (2024).

- **Governance**

  → Led by Centennial College under its Indigenous Framework and sustainability goals.

  → Indigenous Working Group guided cultural integration throughout design.

- **Funding**

  → Approx. $120 million budget, funded through Centennial College's Strategic Campus Plan (part of $330 million in capital investments).

- **Partnerships**

  → Design-Build consortium: Smoke Architecture (Indigenous-led), DIALOG (architectural firm), EllisDon (construction).

  → Close engagement with Indigenous Knowledge carriers and faculty.

- **For more details on the project highlights, see footnotes.** [9] [10]

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[9] SABMag, "Centennial College A-Building Expansion," Sustainable Architecture & Building Magazine, https://sabmagazine.com/centennial-college-a-building-expansion/.

[10] Smoke Architecture, "Centennial College A Block," Education, retrieved from https://www.smokearchitecture.com/education#/centennial-college/.

Conclusion

The following discussion and analysis reflect the overall activities undertaken, further exploring their connection to current green building initiatives and offering ways to challenge our baseline assumptions about sustainability through participant insights.

- **Skepticism around definitions.** Several participants questioned the term 'sustainability' as it is commonly used within mainstream environmental science, noting that it is often framed through a colonial lens. They pointed out that this approach tends to offer reactive solutions to climate impacts and frequently overlooks traditional teachings and oral traditions, even though Indigenous Peoples have lived on the land since time immemorial as stewards of all aspects of the environment, with virtually no carbon footprint. Participants felt the term prioritizes Western scientific methods over Indigenous Knowledge Systems, which have supported ecological balance long before 'sustainability' became a widely used concept.

Three broad takeaways emerged from these findings:

- **Integrate Indigenous values from the start.** Design and policy frameworks should embed Indigenous perspectives from the outset, not as optional add-ons. Indigenous Peoples have long practiced environmental stewardship based on deep relationships with the land, predating Western scientific models. Yet they are often only supplementary in the development of environmental strategies.

- **Support community-led approaches.** Green building initiatives for Indigenous communities work best when led by, or co-developed with, representatives from those communities. Interviews showed that communities with similar geographic and regulatory contexts share common challenges and maintain strong ties to land and place. Sustainability frameworks should address local realities and provide guidance at the community level, grounded in the lived experiences of members and citizens.

- **Reframe sustainability through land and place-based relationships.** Recognizing Indigenous relationships with the land can change how we define and measure sustainability. Some participants expressed skepticism about the term 'sustainability,' saying it often reinforces colonial assumptions. In contrast, Indigenous perspectives on sustainability emphasize reciprocity with the land, long-term thinking like the seven-generations principle, and holistic views where all living things are connected. These ideas expand the current definitions and open the door to new ways of framing issues and finding solutions.

Forward-Looking Opportunities ●●●●●●●

The following opportunities for ongoing research and advocacy are not deliverables under CCIB or CAGBC's current funding from NRCan's Codes Acceleration Fund and are therefore outside the scope of this project. They are proposed as potential options for future research, partnership development, or subsequent phases. These items could also be pursued by other national Indigenous economic organizations interested in promoting Indigenous business in green building, either independently or in collaboration with CCIB.

1. Develop a Scalable Outreach and Education Model for Indigenous Businesses

The first proposed option is to create a model for sharing practical knowledge on green building practices, policies, and codes — such as those outlined in the two-part resource — with Indigenous businesses and building owners. This plan would place a strong focus on encouraging engagement and feedback, making sure that sessions are not just informational but also responsive to participants' needs and priorities.

The outreach model would consist of a seminar series, delivered either virtually or in person, targeting Indigenous entrepreneurs and business owners involved in:

- community-owned or non-profit housing.

- for-profit firms engaged in construction, manufacturing, or supply chains related to the green transition.

It would also be open to non-Indigenous companies that regularly work in or near Indigenous communities, recognizing the importance of inclusive dialogue and collaboration.

Recruitment should focus on urban centres like Toronto, Vancouver, and Montreal, while also considering the specific challenges faced by businesses in northern, rural, and remote Indigenous communities. Sessions could be promoted with a catchline that emphasizes current incentives and the growing interest in net-zero transition planning.

To extend the reach and impact of these sessions, recordings could be hosted on a centralized platform, such as CCIB's Tools for Indigenous Business (TIB) microsite, making them freely available to members and broader audiences. This model could also include various interactive and knowledge-sharing elements, such as:

- A panel discussion with Indigenous practitioners involved in green building, aimed at encouraging dialogue and gathering input for future resources.

- Walkthroughs of CAGBC guides and playbooks to support knowledge transfer.

- A 20-30-minute presentation led by a consultant with Indigenous building science expertise, providing tailored insights into how the guide applies within Indigenous contexts.

- Engagement with Indigenous Advisory Committees from industry associations (e.g., RAIC) and Indigenous-led organizations such as Indigenous Clean Energy (ICE) to foster cross-sector collaboration.

- Contributions from Indigenous scholars and activists in housing and environmental fields, bringing critical academic and systems-thinking perspectives into the conversation.

2. Launch a Research and Resource Development Program for Indigenous-Led Sustainability

The second proposed option aims to deepen understanding of Indigenous approaches to sustainability and green building by creating tailored resources that reflect Indigenous values, priorities, and lived experiences.

This program would use a mix of qualitative research methods to help develop practical tools, guides, and training materials designed for Indigenous audiences, including:

- Roundtables

- Case Studies

- Subject Matter Expert Engagement

One approach could involve convening a roundtable of Indigenous business leaders, designers, and builders to define sustainable approaches to green building and retrofitting, and to identify barriers and opportunities specific to Indigenous contexts.

Insights from this roundtable could be captured in a 'What We Heard' report, which also outlines preliminary design and policy frameworks.

Additionally, the program could develop case studies of Indigenous-led or co-developed projects that incorporate traditional principles or worldviews and demonstrate Indigenous participation throughout the supply chain. These case studies would help illustrate what makes certain projects distinct in terms of cultural integration and Indigenous leadership.

To support this effort, an Indigenous building science expert might be hired to prepare a brief recommendations document (2-3 pages) outlining what an Indigenous-focused guide or resource could include. This consultant could also advise on future resource development and training formats, ensuring that materials are technically sound from a regulatory and building-code perspective, as well as culturally grounded.

3. Establish a Green Building Innovation Hub

The third option proposes establishing a dedicated innovation hub to advance Indigenous perspectives in green building and sustainability. This hub could provide thought leadership for government and corporate stakeholders by aligning Indigenous business innovation with public policy and sustainability goals.

The hub would serve as a working group focused on supporting Indigenous businesses in the green transition, advocating for inclusive policies and standards, and facilitating partnerships with academic, industry, and government partners. It would also be responsible for developing practical tools and resources, such as funding guides, policy briefs, and supplier directories.

To foster collaboration and showcase Indigenous-led solutions, the hub could host annual forums or "Innovation Labs" that provide a safe space for Indigenous innovators to brainstorm about Indigenous intellectual property, Traditional Knowledge, and Cultural Expressions. These events would also serve as a platform for networking, learning, and co-creation.

Finally, feedback gathered from webinars, panels, and other engagement activities would be used to inform future programming and resource development, contingent on available funding.

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Appendices

Appendix A: Participant Outreach Materials

Subject Line: CCIB Invitation: One-on-One Interview on Green Building Initiatives and Indigenous Businesses

Dear [Recipient's Name],

We are pleased to invite you to participate in a one-on-one interview led by Canadian Council for Indigenous Business (CCIB). This conversation will explore the opportunities and challenges that Indigenous businesses face in applying sustainable building practices to new construction and retrofit projects.

You are receiving this invitation because you are an Indigenous business or building owner, or you attended our 2025 webinar on green buildings and retrofits. We believe your insights will be invaluable to this next phase of the project. In the spirit of reciprocity and recognizing your time and expertise, we will provide an honorarium as a token of our appreciation.

Interview Details

- Length: Approximately 45 minutes (depending on responses)
- Platform: Microsoft Teams
- Scheduling: Please use the link below to book a time that works for you. We are happy to accommodate your schedule.
- Bookings Link: [No Longer Active]

Why Participate?

- Share your perspectives on green building, zero-carbon building standards, green building incentives, carbon transition plans, and deep retrofits.
- Contribute to developing a guide and playbook for green transition planning tailored to building owners.
- Ensure Indigenous voices are included in the broader conversation on inclusive and sustainable development.

Data Use and Confidentiality

Your responses will be reported in aggregate, and neither your name nor your organization will be identified. Please note that the interview will be recorded for notetaking purposes only. All recordings and data will be securely stored and protected, and access will be limited to the research team.

This project is sponsored by Natural Resources Canada's Codes Acceleration Fund.

Please respond by Wednesday, May 21.

Thank you again for your time and consideration. We look forward to hearing from you!

Best regards,
CCIB Research Team

Appendix B: Semi-Structured Interview Questionnaire

Green Building Initiatives and Indigenous Businesses
ONE-ON-ONE INTERVIEW GUIDE
Last updated: May 12, 2025

Name:

Organization:

Category:

Date:

Interviewer:

Interview Introduction Script

Hello, my name is [Interviewer's Name], and I'm conducting this interview on behalf of Canadian Council for Indigenous Business in partnership with the Canada Green Building Council.

As you may know, we are speaking with Indigenous businesses and building owners to better understand the opportunities and challenges related to green buildings, net-zero building standards, green building incentives, carbon transition plans, and deep retrofits. Insights from these conversations will help inform the development of a guide and playbooks designed to support broader participation in sustainable building practices, with particular attention to the experiences and perspectives of Indigenous communities.

We really appreciate your time today. The interview will take approximately 45 minutes, depending on your responses.

Before we begin, I want to assure you that your responses will be kept confidential. They will be reported in aggregate, and neither your name nor your organization will be identified in any reporting.

We are conducting about five interviews in total, and your input will be combined with others to help shape the final report.

With your permission, I would like to record this interview. The recording is for notetaking purposes only, will not be shared, and will be securely stored. It will be deleted once the final report is submitted.

May I have your permission to record this interview?

☐ Yes

☐ No

Do you have any questions before we begin?
- RESPONSE:

Interviewee's Experience and Expertise
1. **To begin, could you tell me a bit about your role and your organization? How do green building practices—like net-zero building standards, green building incentives, and carbon transition plans—relate to the work you do?**
   - RESPONSE:

2. **How familiar are you with green building practices, such as retrofits, net-zero standards, or carbon transition planning?**

    - PROMPT: Would you say you're just starting out, have some experience, or are quite knowledgeable?
    - PROMPT: How many years of relevant industry experience do you have?

        → Coding Instructions (Post-Collection):

    ☐ 0–5 years
    ☐ 6–10 years
    ☐ 11–15 years
    ☐ 16–25 years
    ☐ 26+ years

    - RESPONSE:

For participants of our 2025 webinar…

3. **Did you attend the 2025 webinar on green buildings and retrofits?**

    - PROMPT (IF YES): What knowledge or insights did you gain from the session?
    - PROMPT (IF NO): Have you accessed other resources or training on this topic?
    - RESPONSE:

4. **What have been the most valuable sources of learning for you in this space? (e.g., webinars, peer networks, consultants, government programs)**

    - PROMPT: What would you recommend to others looking to build their knowledge or capacity?
    - RESPONSE:

5. **If you have worked with net-zero building standards, green building incentives, or carbon transition plans, what challenges have you encountered?**

    - OPTIONAL – PROVIDE IF ASKED:

        → Common Challenges:

    ☐ High capital costs
    ☐ Limited availability of skilled labor
    ☐ Shortage of experienced consultants
    ☐ Complexity in understanding available incentives
    ☐ Unmotivated or uninformed clients
    ☐ Unclear scope of work
    ☐ Limited understanding of energy/carbon benefits
    ☐ Technical or engineering challenges
    ☐ Lack of internal expertise or team engagement
    ☐ Difficulty assessing return on investment (ROI)
    ☐ Competing priorities within projects
    ☐ Insufficient access to building performance data
    ☐ Lack of supportive industry tools and resources

    - RESPONSE:

6. **How did you or your organization address those challenges?**

   - PROMPT: What strategies or supports were helpful?
   - PROMPT: Were there any approaches that didn't work as well?
   - PROMPT: Could you share a specific example?
   - RESPONSE:

7. **What advice or recommendations would you offer to the Canada Green Building Council as they develop a guide and playbooks to support green building practices?**

   - RESPONSE:

8. **Is there anything important we haven't covered when it comes to net-zero building standards, green building incentives, and carbon transition plans in Indigenous contexts?**

   - RESPONSE:

9. **Thank you so much for your time and insights. Is there anyone else you think we should speak with who could offer valuable perspectives on this topic?**

   - PROMPT: If comfortable, please share their name, title, organization, and contact information.
   - RESPONSE:

MIIGWECH/THANK YOU AND END CALL.

Appendix C: Expanded Insights on Knowledge & Engagement with Green Building

- **Familiarity with green building practices.** In general, most participants had several years of industry experience, were familiar with the term 'green building,' and demonstrated both a strong passion for sustainability and a deep understanding of the lived experiences and realities of Indigenous communities.

A few participants had limited experience with green building initiatives and relied on academic communities, consultants, or business partners for technical expertise. Some were just starting out and actively seeking free educational resources, expressing a willingness to integrate green building principles into their homes and businesses where possible.

- **Webinar participation and related training.** Two participants attended the joint CCIB-CAGBC webinar and found it valuable. One industry expert expressed optimism that these topics were being discussed by a business association with an engaged, interested audience. The discussion reinforced the vastness and diversity of the country, highlighting that sustainability is at different stages and influenced by varying conditions across Canada. The webinar underscored the importance of understanding clients' needs, both geographically and in terms of their operational maturity.

In addition to the CAGBC partnership, CCIB facilitates a lunch-and-learn series with Certified Indigenous Businesses on supply chain topics such as navigating building codes and regulations for the construction industry. Luke Antonio, owner of PLA, prepared a presentation on a recently launched mobile application designed to simplify access to regulatory data and reduce barriers to navigating the built environment.[11]

- **Alternative learning resources.** For those who did not attend the webinar or had previously sought green building education and training, a variety of other learning opportunities were suggested. The most practical option was formal education at a college or university, particularly for understanding regulations. This approach also helps identify potential conflicts between green building practices and building codes. Additionally, it provides a deeper understanding of various certifications, including their strengths, tensions, and alignments.

> *"The university education is the most practical, in terms of regulation."*

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[11] BuildCode. (2025). Transforming Complex Challenges Into Intelligent, Scalable Solutions. Retrieved from https://www.buildcode.io

However, for another participant, the cost of returning to school to pursue a course in sustainable building can be prohibitively expensive, especially for a small business owner. Instead, they spent hundreds of hours watching YouTube videos on testing techniques for sustainable building materials.

Similar comments were made about using industry magazines and following industry leaders on social media platforms like LinkedIn or Facebook in lieu of continuing education. This participant emphasized the importance of proven methods, including international best practices, and referenced comparable climates, such as those in the Scandinavian countries, while also noting the need to adapt these practices to local building codes and regulations in Canada.

Of course, formal education was not the only practical approach to increasing knowledge of green building practices; several participants also referenced conferences, trade shows, and other flexible learning options, such as online and microcredential courses. The key takeaway was the importance of continuous upskilling, with one participant noting that designations like LEED require regular updates to maintain credentials and keep pace with evolving technology.

"It's not something you can just learn once and be done. It doesn't work that way in green building just because of how rapidly everything is changing."

Others had not yet accessed resources or training, as they were primarily focused on strengthening their businesses and securing financing to ensure long-term viability. One participant shared that they were mentored by a more experienced business owner within their industry of interest. Another preferred learning method is consulting peer groups. One participant closely follows national Indigenous economic organizations for free programming and has taken advantage of opportunities offered by CCIB, including webinars and other business supports. They expressed interest in seeing how the green building initiative evolves.

- **Government underfunding and infrastructure gaps.** It was broadly acknowledged that Indigenous communities, especially in remote areas, face a growing housing crisis, marked by overcrowding, poor living conditions, mould and moisture issues, structural deficiencies, and unmet repair needs. Historical underfunding of Indigenous communities for buildings and maintenance has resulted in many assets not reaching their intended design life, leading to higher capital costs for replacement and major repairs.

The COVID-19 pandemic further exposed the health risks associated with inadequate housing and highlighted the lack of emergency preparedness and infrastructure to respond effectively. Communities must also increasingly address the wide-ranging needs of vulnerable members, including those with mental health challenges, disabilities, youth, and Elders, which affect nearly every area of daily life. Relocation due to housing shortages or limited access to social services can be highly disruptive, severing cultural ties and support systems. Both the Assembly of First Nations and Indigenous Services Canada have reported that the scale of current and future infrastructure demands far exceeds available funding.[12]

- **Overall economic conditions.** Adding to the challenge, community infrastructure and service delivery costs are expected to rise due to population growth on First Nations reserves, supply chain disruptions, inflation, and labour competition. These economic pressures compound the difficulty of maintaining and improving infrastructure in remote and underserved areas.[13]

- **Climate inequity.** Climate change continues to put additional stress on infrastructure, underscoring the urgent need to build resilience and improve emergency preparedness across communities. More frequent and severe weather events driven by climate change amplify these challenges, particularly for First Nations reserves and northern communities.

Participants expressed a clear awareness that although Indigenous communities are not major contributors to human-induced climate change, they will be disproportionately affected by its acceleration and intensification. Most agreed that prioritizing Indigenous voices and funding in green building initiatives is essential to building adaptive capacity, reducing long-term costs, and strengthening climate resilience.

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[12] Assembly of First Nations, *Closing the Infrastructure Gap by 2030: A Collaborative and ComprehensiveCost Estimate Identifying the Infrastructure Investment Needs of First Nations in Canada*, March 2023, https://afn.bynder.com/m/367574a3a5cb5abe/original/1-AFN-Closing-the-Infrastructure-Gap-by-2030-National-Cost-Estimate-English-report-1.pdf.

[13] Indigenous Services Canada, *Understanding the Infrastructure Gap Between Indigenous and Non-Indigenous Communities*, last modified 2024, https://www.isc.gc.ca/eng/1722515985383/1722516130449#a7.2.

Appendix D: Case Study: Lessons from an Elder's Experience in Community Building

This case study draws on reflections of an Elder with decades of experience in housing and infrastructure projects in Indigenous communities. Their perspective highlights the evolution of building practices, the need for culturally safe design, and the structural barriers that shape projects, while offering a hopeful path rooted in intergenerational skills, mentorship, and pride in home.

- **Evolution of building techniques and materials.** Over their tenure, the Elder witnessed the transition from timber logs to insulated concrete forms (ICF), the adoption of R40 and higher insulation in place of older fiberglass, the shift from oil-fired heaters to electric heating, and the use of more sealed building envelopes with top-of-the-line windows and sliding doors.

This progression illustrates how Indigenous communities have adapted to modern building standards while balancing cost and access, and why flexible funding and technical support are essential to keep pace with innovations. The Elder worked diligently within the community to share their extensive knowledge with young people and local workforces, always striving to meet high-quality standards.

- **Cultural safety and accessibility.** The Elder's business also focused on housing modifications and culturally safe housing models for Elders and individuals with mobility challenges. This included the construction of wheelchair ramps and heated floors, which is particularly beneficial for Elders to keep their feet warm. These examples underscore the importance of inclusive design and culturally safe housing, which are principles that should be embedded in green building strategies.

- **Infrastructure and planning challenges.** The Elder also touched on the importance of space in community planning, noting the need to develop new housing in accordance with local land requirements and the natural landscape. They emphasized the costs of extending roads, infrastructure, and water services to new areas. This points to the need to plan land use and realistically estimate both initial and future infrastructure costs early in the project.

In addition to subdivision extensions being built to accommodate new families, road construction is essential for connecting these areas to highways, enabling residents to travel outside the community for work, shopping, or appointments.

- **Funding delays and retrofits.** In the Elder's experience, housing funding was often delayed, resulting in construction setbacks. Funding also had to be redirected to retrofitting older homes, which required improved basements, upgrades to oil-burning furnaces when oil was more affordable, and new insulation. Such delays highlight systemic funding challenges that lead to reactive retrofits rather than proactive planning, an issue that industry and policymakers must address.

- **Housing as a human right.** "Everyone needs a home," said the Elder, pointing to housing as a fundamental need connected to many major health and social outcomes. This statement aligns with the broader framing of housing as a human right and its link to health equity.

- **Skills, employment, and intergenerational knowledge.** The Elder learned carpentry from their father and grandfather, who passed these skills down from generation to generation. Their father built the family home from the ground up in the 1960s, and the Elder later completed electrical wiring, plumbing, and other improvements themselves. At that time, large portions of the community would come together to raise the framing and help construct a house, working efficiently through a collective effort that strengthened relationships and built shared capacity.

Today, in addition to these skills becoming increasingly rare, the community faces inconsistent year-round employment. Young people often move to cities due to limited housing space and the need for stable work, while those who stay may experience overcrowding and join long waitlists for new builds. The Elder themselves left to work for a large contractor, contributing to major infrastructure projects, including bridges and a Walmart Supercentre, and eventually became a lead carpenter managing their own crews.

The Elder took great pride in the quality of their workmanship and emphasized the importance of instilling a sense of pride of ownership and daily stewardship — basic care, upkeep, and maintenance, such as keeping windows open at night and closed during the day to naturally cool the home in summer.

Over their career, the Elder provided on-the-job training and mentorship to both men and women, including partnering with local women-owned businesses involved in home-building contracts. They taught everything from essential life skills and work ethic (like punctuality,organization, safety, reliability, and efficiency) to specialized techniques such as building log homes. The Elder remained committed to lifelong learning themselves, taking courses with an international building team in Ottawa during the 1990s to strengthen their skills in efficient log-home construction.

This strengths-based approach has guided the Elder throughout their journey — from learning log building alongside their great-uncle, to working with First Nations-owned contractors, to collaborating with Chiefs and Councils on community housing. By drawing on intergenerational knowledge, community cooperation, and hands-on mentorship, these core strengths have supported stable employment, helped close the skills gap, and aligned with green building practices. In these practices, community-led construction, durable craftsmanship, and culturally rooted home stewardship contribute to long-term sustainability.