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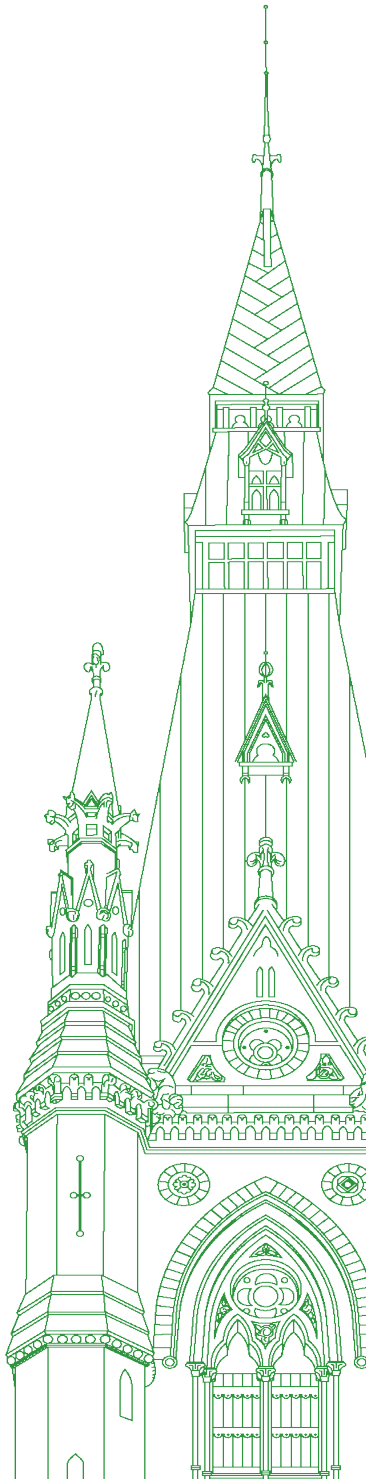

Chair: Mr. Robert Morrissey

Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities

Tuesday, October 29, 2024

● (1100)

[*English*]

The Chair (Mr. Robert Morrissey (Egmont, Lib.)): Committee members, we are actually on time this morning. It is 11 o'clock, and the clerk has advised me we have a quorum.

Those members appearing virtually have been sound tested, as well as the witnesses.

With that, I will call this meeting to order.

Welcome to meeting number 132 of the Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities.

Today's meeting is taking place in a hybrid format.

All witnesses, as I indicated, have been sound tested and are good to go.

I also want to remind participants to please wait until I recognize you by name before speaking. As well, you have the option to participate in the official language of your choice. In the room, use the interpretation on the headset, and please select the interpretation that you will need before the meeting. For those appearing virtually, to avoid disruptions, choose the official language that you wish to participate in.

In the room, please avoid touching the microphone boom as it can lead to sound disruptions, which are harmful to the interpreters. As well, I would remind all those in the room with devices to please turn any alarms or ringtones off, because, again, they can cause hearing issues for the interpreters.

With that, pursuant to Standing Order 108(2) and the motion adopted by the committee on Monday, June 3, 2024, the committee is continuing its study on the advancements in home building technologies.

I would like to welcome our witnesses who are with us this morning. For the first hour, we have Mr. Hans Jain, president, Atria Development Corporation, and Ms. Sabrina Fiorellino, chief executive officer, Fero International. In the room, we have Mr. Ian Arthur, president and chief executive officer, PrinterBuilder Consulting.

We will begin with Mr. Jain.

You have five minutes. I will remind you when your five minutes are gone to wrap up shortly afterwards.

Mr. Jain, you have five minutes for your opening statement.

Mr. Hans Jain (President, Atria Development Corporation): Thank you very much for the opportunity to appear in front of you, honourable members of the House of Commons subcommittee.

I am Hans Jain, president of Atria Development Corporation. My family has been in the building development and property management business for over 45 years. We're focused on building traditionally multi-family residential buildings.

We are a fully vertically integrated firm from land acquisition, planning, design and construction to property management and asset management. Our building design process is fairly vigorous. We look for structural efficiency, design efficiency, efficient floor plates and unit sizes, making the overall project more economical, but also allowing for better-designed units that feel better for the people who live in them, who call their apartments home.

We also try to capture cost savings both during the construction process and later on in the building operations, in how we run our building systems. As we're long-term holders of the asset, we're very focused on the quality of what we build and the efficiency long term.

As a company, we're also committed to advanced technologies to meet the challenges that we face transitioning into a low-carbon economy, by building more energy-efficient buildings, reducing the environmental impacts of our construction and creating healthy and accessible environments for residents. Atria has received the Rick Hansen Foundation gold standard award for accessibility across our building stock.

Atria was the first developer in Ontario to incorporate electrochromic glass in our windows. The glass will tint, depending on the amount of sunlight, reducing heat gain and glare, and eliminating the need for blinds. It reduces cooling loads up to 20%. This product is both energy efficient and also provides a better living experience. This was a substantial expense. Each piece of glass has both Internet and power. It can also be controlled by the tenant living in the apartment. This is something that we like to invest in.

Building on this experience, Atria is incorporating geothermal power for both heating and cooling in all our buildings, paired with a high efficiency Mitsubishi variable refrigerant flow HVAC system. It's called VRF.

Currently, we're building two towers in Scarborough Town Centre called the Town Centre Place. This will be the largest geothermal field in Ontario. We've completed that. There will be two towers of 30 and 40 storeys. This continues with everything from our appliances, the plumbing fixtures....

We also use SmartONE technology, which allows residents to control features such as temperature, lighting and security from their mobile app. Again, it's providing efficiency, and the technology also provides comfort and control with the individual homeowner.

We're also exploring ways to further reduce our carbon footprint in our building operations and also material use. We are in the process of doing one of the largest mass timber rental buildings located in Oshawa, Ontario. We'll be purchasing that mass building structure from Element5 located in St. Thomas, Ontario. The exterior panels will be state of the art, and they'll be manufactured off-site by UnitiWall, which is the latest technology for exterior wall panels. We think that's where there will be adaptive reuse of our project, but we're also adding nine storeys of mass timber structure.

● (1105)

For context, originally we had designed the structure in concrete and steel—traditionally—but given that the weight of concrete and steel is heavy, we could only get six storeys. With mass timber, which is lighter, we were able to move to nine storeys and add an additional 70 to 80 units to the project. It also will speed up the process and the timelines. I think that manufactured solutions with technology is something that needs to be focused on and adapted.

Just to let you know, with the strategy of adaptive reuse, where we take old buildings, we converted an 1896 YMCA into 136 rental units, and we completed another building from 1879 in Peterborough also. We have a practice where we take old buildings and convert them into residential units. We think that's another aspect of moving development along.

The Chair: Thank you, Mr. Jain. We've gone over the five minutes. You can continue with the points you want to raise in answers to questions, which I'm sure you will get.

We'll now move to Ms. Fiorellino.

Ms. Sabrina Fiorellino (Chief Executive Officer, Fero International): Thank you.

I would like to start by thanking this committee for giving me the opportunity to speak. It is an honour and a privilege for me to be here, and I commend the hard work you're collectively doing.

My name is Sabrina Fiorellino. I'm the CEO of Fero International Inc., a volumetric modular building company located in Stoney Creek, Ontario.

Fero operates a 300,000-square-foot manufacturing facility, the largest modular manufacturing plant under one roof in Canada. Fero delivers state-of-the-art volumetric modular infrastructure to the health care, educational, residential, industrial and commercial sectors. Europe and Asia have been using modular construction for over 50 years, and this technology has up to 80% market penetration in some countries. It is often under 3% across North America.

To build the modular industry in Canada, we need to begin by addressing three topics: procurement barriers, public perception barriers and speed barriers.

I'll start with procurement. Existing procurement practices are the single biggest barrier to the success of the industry. In Europe, at the inception of the modular industry, the government was the first to adapt the groundbreaking technology through the procurement of modular projects. The European modular sector is now booming, and the private sector has widely adopted its use. In Canada, there are very few modular construction projects procured by governments.

I was recently at a housing conference where a government official referenced the EV sector. They said that all levels of government work collaboratively to financially support the EV sector, because “Who would come here and spend tens of millions of dollars to build a factory with no support and no guarantee of orders?” Well, that's exactly what the modular industry has done. Our industry needs government to be more innovative in procurement so Canadian modular projects can answer current infrastructure challenges, such as housing. Doing so will greatly improve the timelines required to emerge from the crisis we currently face.

We recommend a modular-by-default procurement approach. Using this approach will send a signal to the market that governments are serious about seeing innovation and change. By creating a large pipeline of projects is created in all sectors, the housing sector will benefit in the long run and economies of scale for affordable housing will emerge.

In addition to modular-by-default, progressive procurement models that account for deposits, appropriate payment milestones, factory acceptance testing and more need to be considered. We believe these progressive procurement models make standardization of design less important, because they allow modular builders to be involved in the design process from the beginning. There are many architects and engineers who have over 30 years of experience. They are willing to work with those who are newer to the industry.

The need for industry support leads me to my next point: public perception. In Canada, there's a negative public perception that modular construction is inferior to traditional construction, a perception that does not exist in Europe or Asia. To educate the public, we believe governments need to send clear messages to Canadians regarding the benefits of modular, including speed, cost certainty, quality, sustainability and safety. One way to do this is governments being the initial adopters of the technology. This will have a domino effect. As more successful projects are delivered, more adoptions will occur in the marketplace, and secondary support industries will evolve in, for example, finance, insurance and surety. Additionally, Canada's modular construction industry should be considered an integral part of the mandates of economic development, job creation and trade across the country, in order to advance economic growth and innovation.

This brings me to my last point: speed. Speed is required to get us out of our current crisis. Modular can answer that call, but not alone. With productivity in the global construction industry declining as much as 8%, speed is even more critical. One of the biggest advantages of modular construction is speed, which inherently reduces costs, especially financing costs, in today's environment. With delays occurring outside of the control of modular manufacturers, the benefits of speed can be lost. These delays increase costs, which are ultimately passed on to the customer and in turn make housing unaffordable. In an environment where costs are already high, in part due to development charges and other fees, the need to keep costs down and maintain speed is critical.

One example of where speed has deteriorated is in codes and regulations. In Europe, where some manufacturers can produce a module every 37 minutes, the building codes are, for the most part, uniform. Canada has varying building codes federally and provincially, as well as additional conditions imposed by municipalities. As improvements are made to create greater consistency, we also need to determine how these standards are applied uniformly by inspection agencies. Other barriers to speed include zoning bylaw amendments, site plan approvals and building permits. These often take three years or more to obtain, and landowners incur additional carrying costs on lands. Overall red tape and complex legislation, such as transportation legislation, make it difficult to achieve any efficiencies in modular building.

● (1110)

It is only when modular is used to its full potential that we can take true advantage of this new technology, including AI and automation, and we realize all the benefits that modular construction can provide to create greater affordability.

Thank you.

The Chair: Thank you, Ms. Fiorellino.

I will now move to Mr. Arthur for five minutes.

Mr. Ian Arthur (President and Chief Executive Officer, PrinterBuilder Consulting): Good morning, everyone, and thank you for having me. I'd like to thank the committee for allowing me to appear and speak on the advancements in home building technologies.

My name is Ian Arthur, and I am the founder of nidus3D and PrinterBuilder Consulting. I oversaw the construction of Canada's first 3-D printed homes, as well as the first two- and three-storey printed structures in North America.

Our buildings are strong, resilient and beautiful, and built to net-zero ready standards. Our goal is to transform the build process and in doing so, dramatically increase the speed of delivery of affordable, beautiful homes. Using a first principles approach, we are stripping away unnecessary complexity and rethinking every aspect of the process of how we build homes.

This is because, while we need to look at every avenue possible to increase supply, at the heart of our housing crisis is a process issue. We will not be able to subsidize our way out of this crisis. We build homes with hundreds of materials, thousands of components and tens of thousands of process steps. Each step is performed by dozens of different labourers working for many different companies. Each part of this drives up costs, timelines and inefficiencies. The structure of the sector is fragmented and, by this very nature, conservative and resistant to change. It prevents a whole-of-building approach and resists the introduction of new methods and technologies. As a result, it is one of the least technologically disrupted sectors on the planet.

We are, though, beginning to have an opportunity to change this if we move decisively. Global demand for housing is spurring innovations that have the potential to meaningfully increase the supply of housing with rapid, repeatable processes. By using advanced automation and 3-D printing, we can cut through the complexity issues, reducing material requirements, labour costs and, most importantly, process steps.

I'm starting with 3-D printing, although honestly, I'm technology agnostic. I would use any tool that allows me to advance the speed and quality of home delivery. 3-D printing, though, is the first technology I've found that fundamentally begins to address this process complexity issue, and we must act soon. Canada is already behind in the development and implementation of new building technologies. We are lagging behind the U.S., Europe and Asia, and it gets worse every single day. We are slow to look at disruptive technologies, and we tend to have a wait-and-see attitude until it's proven elsewhere before attempting it here.

There is a near infinite amount of support for small-scale pilots in Canada. We love them. They're great headlines. They're fairly easy to pull off. What we are missing to meaningfully move the needle on housing supply is helping companies scale production to the level that will actually increase the supply of housing in Canada.

Exacerbating this issue is the political desire for solutions that fit into election cycles. The crisis is incredibly complex and has millions of moving parts. What we need from the government is consistent policy that extends from mandate to mandate and from party to party, and allows us to bring in new technologies that are complex, expensive and hard to deliver initially, although they have a huge amount of promise in the long run.

An example of this is a near singular focus on modular. While I believe it has a role to play in the future of housing, we need to not put all our eggs in one basket. We need to apply “best fit” technologies where they're best used. I think 3-D printing, modular and other forms of robotic, automated construction are all part of that solution.

I will briefly address two of the common points of resistance that are often brought forward when automation and 3-D printing are brought up, particularly in the realm of housing.

One is the potential loss of jobs commonly associated with automation. While automation construction will disrupt the sector, it will continue to grow as a key employment industry. The scarcity of skilled labour and the demand for housing underpin the need to aggressively recruit into this sector. The tools may change—we used to dig holes with shovels, and now we use excavators—and a 3-D printer is, honestly, just a bigger tool. It still needs incredibly smart, skilled operators to run it. I believe the jobs will change, and I believe the introduction of new building technologies is actually a wonderful opportunity to recruit new people into the skilled trades and convince a new generation of youth that this is a fantastic career path they can pursue.

The other point of resistance I will briefly address while I have time is this. Because I use concrete as my building material of choice—the embodied carbon of the material itself—I would urge the members to understand the need to separate the technology from the product that is actually being extruded.

● (1115)

We need to decarbonize the concrete sector. It's one of the worst polluters on the planet, and there are incredibly smart people working on this. I am working with companies from across Canada and around the world to deliver materials that are significantly lower in terms of embodied carbon, and there is a path to carbon neutrality. The process, though, of using 3-D printing to construct housing should and can be agnostic of the material that goes into it.

With that, I'll conclude my remarks, and I look forward to questions from the committee. Thank you very much.

● (1120)

The Chair: Thank you, Mr. Arthur.

We will begin with Mr. Aitchison for six minutes.

Mr. Scott Aitchison (Parry Sound—Muskoka, CPC): Thank you, Mr. Chair.

Thank you to all the witnesses.

That was great stuff and very interesting. We've heard a lot about the amazing new technologies. We've heard about 3-D printing. We've heard a lot about modular housing. I've had the opportunity myself to visit some of these factories, and they're amazing.

I'd like to start with Fero International, and Ms. Fiorellino. You spoke about the biggest delays. I couldn't agree more with you that we need to ramp up and scale up the development, which could really increase production in your facility, I'm sure. You specifically mentioned codes, regulations, zoning bylaws and the development approvals process.

I'm wondering if you could speak a bit more to the cost of the delays. You could build a lot more homes, but you don't have a place to put them. That's a big issue. How much could you reduce the cost of every unit, for example, if the development approvals process, which includes huge fees like development charges, was reduced? What are those costs? What's the impact on the cost of every unit?

Ms. Sabrina Fiorellino: If you take our square footage cost and then add development charges, fees and the cost of land, etc., our costs end up ultimately being less than a third of the overall cost. The longer the process draws out, the more the rest of the ancillary fees accumulate, and then it also slows down production in our plant.

I can give you an example, and we're probably not proud of this, but we built an outpatient clinic in western Canada. We finished the entire building at the request of the health authorities, and it sat in our plant with no building permit for months. Ultimately, the building permit issue got resolved. The building was delivered in five days, craned off the trucks in one day and operational very soon after that.

Delays naturally add costs and customers' incurring additional storage fees and additional fees for the general contractor who's waiting, and they're asking for standby fees. You can see how costs balloon in every instance, whether it's housing or health care or other infrastructure, when things slow down at the permitting level.

Mr. Scott Aitchison: Thank you for that.

Further to that, then, when you mentioned the code and regulations, I'm sure you're referring to the national building code and its implications for provincial codes. Is there any evidence that indicates that the national building code takes affordability into consideration?

Ms. Sabrina Fiorellino: It's probably not my area of expertise, but I think the streamlining of codes can assist with affordability. There is a lot of work being done, and I commend the work to make some of the codes more uniform from federal to provincial to municipal jurisdictions. What we are seeing, though, is that, when code changes occur, the bodies at the municipalities—the inspectors or the approving bodies at the municipalities—don't know how to implement the code changes. The issue is that the changes to make the codes more uniform are slowing down the process, because then they're not being implemented quickly enough. I think that needs to be considered when we're looking at codes overall.

Mr. Scott Aitchison: Time is money, right?

Ms. Sabrina Fiorellino: Absolutely.

Mr. Scott Aitchison: Okay, thanks for that.

Mr. Arthur, I'd like to move to you. You stated that we cannot subsidize our way out of what is effectively a process issue. I'm going to give you a minute to elaborate on that and what the issue with process is. I think the technology you're talking about is amazing. What's the issue with process, and what are the cost implications?

Mr. Ian Arthur: You have an incredibly complex process that is very hard to sequence and dozens upon dozens, like I said, of different types of labourers working for different companies who all have to show up on site. Anyone who's in the development industry knows the difficulties associated when one sub-trade doesn't show up for a day—they're a day late or they're behind on another job—and the ripple effects this has.

This translates as well to your previous question about municipal inspections and the role of the building code. If there's a delay in a building code inspector arriving on site, your site's effectively shut down until they arrive. That's not a particular knock against any individual inspector—they work very hard—but there is absolutely a need to standardize these processes in a way that we can have certainty on the quality of product we need to build to the highest standards and there aren't the slowdowns that are associated with that sequencing issue.

● (1125)

Mr. Scott Aitchison: So there is a cost related to the thickening of the process over the course of years. Is that what you're saying?

Mr. Ian Arthur: Extremely so, and in terms of not being able to subsidize our way out of this, it's just too big. Add up the total cost of the number of homes, and even if we cut the cost of production to a quarter of what it is right now, there isn't enough money in this country to build them.

Mr. Scott Aitchison: On top of the process issues and the delays that are caused by local government and the code issues, governments make a lot of money on housing too. I think you probably understand that better than most because you're in the business. Do you think that limiting the GST, for example, on the cost of homes is a smart move? Should we get government costs down on homes?

Mr. Ian Arthur: I'll say that's probably not my area of expertise, the effective sort of tax reductions that could stimulate housing production. Whether it's end use for consumers and reductions in property tax or GST, we have to pull every possible lever we can, and we can't—

Mr. Scott Aitchison: You just named a lot of taxes there.

Mr. Ian Arthur: I know I did.

Mr. Scott Aitchison: So reducing those wouldn't be a bad idea.

Mr. Ian Arthur: Anything we can do to make housing more affordable....

Mr. Scott Aitchison: Thanks very much.

The Chair: Mr. Coteau, you have the floor for six minutes.

Mr. Michael Coteau (Don Valley East, Lib.): Thank you very much, Mr. Chair, and thank you to all of our witnesses here today.

It's really exciting to hear about the different technologies and different approaches that people are taking. There's no question that this is a big challenge for us as Canadians, and the adoption of many different types of technologies will help in the long-term.

I'll start with Mr. Arthur. It's nice to see you. We served in the Ontario legislature together. It's nice that you're continuing to build Canada, literally. Thank you for the work you're doing.

You mentioned that there are other jurisdictions where there's been faster adoption of 3D printing. You mentioned the United States and parts of Europe. What does that difference look like? Can you talk a little bit about why there's a stark difference between what's happening here in Canada and in the United States, for example?

Mr. Ian Arthur: I think there are a couple of factors at play. We're doing work down in Florida right now, and there is definitely a little bit more of a gung-ho attitude down there. I'd say the only place that we've found sort of like that in Canada is probably Alberta, where there's a little more willingness to take on some risk, to try brand new things and prove it out.

I also think there's a better support ecosystem, and there's a group we're working with down in Florida right now that is working on accessing DARPA funding for a series of projects.

That sort of nimble and highly effective government agency for spurring innovation would be a wonderful thing to see here in Canada. Unfortunately, I don't think any of the institutions we have here are as effective as they are in the U.S. at bringing new technologies to market and then allowing them to scale.

I talked about the problem of an endless amount of pilots and not a lot of support for scaling, and I think that's a really big part of that. The support from government needs to be there for companies to build themselves out to where they do actually move the needle on housing supply.

Mr. Michael Coteau: I know you do a lot if you're working in the Kingston area. How long does it take? I know it depends on the size of home, but if you had the average structure, how long would it take you to build today?

Mr. Ian Arthur: The last building we printed was 2,600 square feet, a single storey. We printed it in four days. The first building we built took three months. We've had an 85% reduction in the speed of construction in two years, and that's continuing to accelerate. We'll be able to produce a 1,200 square foot bungalow in one to two days.

Mr. Michael Coteau: It's incredible.

If the permitting process and all the other interactions with government were removed, how long would it take from start to finish for a person to actually move into the house?

● (1130)

Mr. Ian Arthur: I'll give you our aspirational goal because we finish printing and then still have to have the rest of the trades come on site, but it's 60 days from breaking ground to move-in day—and that's realistic.

Mr. Michael Coteau: Wow. Is that for an 1,800 square foot home?

Mr. Ian Arthur: Yep.

Mr. Michael Coteau: Wow, okay.

Thank you very much for the work you're doing and for being here.

Mr. Jain, how are you?

Mr. Hans Jain: Good, thank you.

Mr. Michael Coteau: You're from my neck of the woods. Every time I drive to Ottawa, I go right past where I believe you're developing, at the Scarborough Town Centre. I've seen the land that's been kind of sectioned off. You haven't started developing yet, correct?

Mr. Hans Jain: We're excavating and shoring, and we've done the geothermal field for the two towers. We should have our cranes up shortly.

Mr. Michael Coteau: These are rental units. Is that correct?

Mr. Hans Jain: That's correct.

Mr. Michael Coteau: How many rental units will you actually develop in the area?

Mr. Hans Jain: Currently we're at just under 1,600 units in four towers.

Mr. Michael Coteau: Wow.

Mr. Hans Jain: The two towers will be 904 units.

Mr. Michael Coteau: You talked about geothermal; electrochromic windows, as I think you called them; and the VRF system.

With all of those systems, does it end up costing the actual end user more money, or eventually do you actually end up saving some money with these technologies? It sounds like it would reduce the cost of living through energy consumption. Is that correct?

Mr. Hans Jain: Yes. There's the initial expense of putting geothermal in and the VRF system, your envelope and looking through all that is available, but at the end of the day, the person living in your unit will see their energy bill and energy consumption go down.

It's really a long-term play, so we feel we're also part of it. We take in CMHC financing, and some of their goalposts are energy efficiency, accessibility and affordability. We've kind of moved in that direction and even taken it further. We also feel we hold the product long term, and you're seeing with financial institutions where this is important in financing. How is that building going to perform 10 years from now or 20 years from now? That's something that we take very seriously, our buildings performing well over time. There's comfort and also cost savings for our tenants.

Mr. Michael Coteau: Thank you very much.

The Chair: You're five seconds under.

Madame Chabot, go ahead for six minutes.

[*Translation*]

Ms. Louise Chabot (Thérèse-De Blainville, BQ): Thank you, Mr. Chair.

Thank you to the witnesses.

Our study is on advancements in home building technologies. I would note that we've already conducted a study on the impact of artificial intelligence technologies on the labour force in Canada.

Mr. Arthur, you talked about labour. If I understood you correctly, Canada is lagging behind in advancements in building technologies, which will have an impact on the labour force, but future developments will enable us to recruit new workers. However, the workers' representatives we heard from said that workers are also part of the solution and that training is an important element.

How do you think the current workforce will help bring about change in the construction sector?

[*English*]

Mr. Ian Arthur: I don't think that what I said and what you're saying are in opposition. I think the current skilled labour force needs to be a huge part of this, and we have to provide that training. There is a reality, though, that there is a mass number of retirements happening out of the skilled trades right now, and we are not training new skilled workers fast enough to replace the people who are leaving. If we don't convince a new generation to go into the skilled trades, the data says there will be a huge problem at the end of that road. That scarcity is going to continue to drive up the costs of housing for Canadians.

● (1135)

[*Translation*]

Ms. Louise Chabot: It seems like we're on the same page. That was an important thing for you to clarify. Sometimes, we see existing workers as disposable and we rely on a new generation of workers. You're right that there's a labour shortage in construction, but it doesn't affect all sectors. We still need workers in those trades. Based on what we've heard from some of the labour representatives, new workers are essential, but so are workers who are already on the job, because they can help develop new technologies and future advancements. Thank you. That's an important clarification.

I would now like to ask Ms. Fiorellino a question.

According to a press release that came out in February, you received a $3.5-million grant from the federal government. Is that correct?

If so, what were the details of that grant? Was it through a federal program? Was it your first grant? Is that kind of funding helpful to you?

[*English*]

Ms. Sabrina Fiorellino: Thank you for your question.

It was through the FedDev scale-up program for scaling the business. Before we received the grant, our company was only seven people. After receiving the grant, today we're at over 80 people. The grant was for increasing our workforce, buying equipment and training the workforce. It was very, very important and impactful for us to scale our business.

Just to clarify, it was actually an interest-free loan and not a grant.

[*Translation*]

Ms. Louise Chabot: If I understand correctly, your company does modular construction. There are lots of companies doing that in Quebec. I recently learned that 180 student housing units are going to be built in Montreal on land transferred by the city. So, yes, modular construction can make things better.

That said, aside from municipal permits, which are not under our jurisdiction, do federal programs create any barriers to the kind of innovation you're doing in this area, Ms. Fiorellino?

[*English*]

Ms. Sabrina Fiorellino: I think I'll refer back to my opening remarks. It's very, very expensive to build and maintain very large modular manufacturing plants. Without a pipeline of work from all levels of government, it becomes a challenge to operate these types of businesses long-term. I talked about the single biggest challenge for our colleagues in volumetric modular building companies, or at least the ones who I talk to regularly. That's the lack of backlog or the lack of procurement in modular.

It's not just housing. It's across all sectors—industrial; commercial; military procurement; the Department of Fisheries, for example; health care; remote communities; and anything you can think of. I think any type of procurement that can help build the industry and give them a pipeline of work would be extremely helpful to the industry as a whole.

The Chair: Thank you, Madame Chabot.

Madam Zarrillo, you have six minutes.

Ms. Bonita Zarrillo (Port Moody—Coquitlam, NDP): Thank you, Mr. Chair.

I have some questions for Witness Arthur.

Before that, I want to put this on notice:

> That, given that:
>
> (a) Flight attendants in Canada, the majority of whom are women, work for an average of 35 hours for free every month because airlines don't pay attendants for duties like assisting passengers with boarding, pre-flight safety checks, deplaning, and other delays. Resulting in flight attendants spending nearly a full workweek every month working for free, even though they are in uniform and taking responsibility for the safety and well-being of their passengers.
>
> (b) Canada's biggest airlines make millions of dollars each year on the backs of unpaid labour. Air Canada made $21.8 billion in profits last year, and its CEO's compensation was $12.4 million.
>
> (c) Every hour worked should be an hour paid, and if a flight attendant is at work, in uniform, performing work duties—they should be getting paid.
>
> In the opinion of the Committee, the government [should] support flight attendants by amending the Canadian Labour Code to ensure that all time spent carrying out pre-flight and post-flight duties, completing mandatory training, and otherwise spent at the workplace at the disposal of the employer, including during a flight delay regardless of if the delay was in the employer's control, is paid at a rate not less than the employee's regular rate of wages for their work and that the committee report this to the House.

That's been sent out in both official languages, and it's on notice, Mr. Chair.

I'll note there is a typo in the last paragraph, which my office will correct.

● (1140)

The Chair: Madam Zarrillo, that is for notice. It's non-debatable at the moment.

Ms. Bonita Zarrillo: That's right.

The Chair: You still have four minutes and 20 seconds.

Ms. Bonita Zarrillo: Thank you so much.

Mr. Arthur, I am so interested in this idea of research and development.

I know that Canada, as one of the OECD countries that gets measured, is number one in tertiary education. We have a lot of post-secondary-educated people—those who are educated past high school—in this country, but we are ranked number 26 out of 37 in business expenditures on R and D, and number 30 out of 36 in public funding investment in post-secondary. I think about some of the businesses in my riding, and the research and development done by private companies around robotics and quantum computing—all Canadian brain trust and Canadian IP. However, what I'm hearing over and over again is that Canada has an immature infrastructure to scale innovation.

I'm interested to hear how we can fix that.

Mr. Ian Arthur: I think that's absolutely true. There's a lot of data showing the exodus of mid-sized companies to larger markets, where there's a better opportunity to grow. We're looking at U.S. markets. There's a reason we're down in Florida. It's not just because it's cold up here in the winter and hard to build, and quite nice down there. It's because there is such huge demand and opportunity down there.

I think, partially, that we try to be a bit good at everything. I don't know if that's the right solution for a country of our size. I think we need to find the areas where we have expertise and competitive advantage, then fundamentally support the growth of companies operating inside those sectors.

Ms. Bonita Zarrillo: How does the federal government do that?

Mr. Ian Arthur: That's your job. Oh, oh!

Ms. Bonita Zarrillo: I know. It's a very hard question.

Do we need more R and D funding?

Mr. Ian Arthur: I don't know if we necessarily need more R and D funding coming from the public pocket.

I think what we need to do is create an ecosystem where companies are rewarded for feeding profits back into R and D, whether that's through tax incentives, regulation or however it is done. I think there is enough action and growth inside a lot of these companies, and they want to put their money back into R and D. You need to make sure that allowing them to do this is a priority for the federal government.

Ms. Bonita Zarrillo: Share what your challenges are in scaling up, since you mentioned it's been difficult to scale up.

Mr. Ian Arthur: We have a ton of people who want us to build a one-off home, and then we have a whole lot of other people who would like us to take on a 1,000-home development. It's been very difficult for us to find developers to work with the 20-home and 40-home scales, which are not development sizes that are particularly common in Canada. We have a lot of mass developers. Some of them have small, new tech wings that will occasionally support stuff, but it's been very difficult to find that.

If we're looking to potential government support.... It's about working with developers to do that kind of scale-up, where small start-ups like the ones I'm involved with can come in and get over the hump of that one-off project and on their way to doing those 500- and 1,000-home developments.

Ms. Bonita Zarrillo: This is my last question, because I don't have a lot of time. You talked about the concrete and the decarbonization of these kinds of building products.

I'm thinking about remote and rural communities in the north that are not able to take advantage of some of this stuff.

What are your thoughts on how we fight climate change and make sure that we have adequate housing for people in the north and rural communities?

● (1145)

Mr. Ian Arthur: The technology I use is decentralized by its very nature. We can pack materials into shipping containers and bring those almost anywhere. For remote and northern communities, there's huge potential in this. Stable, storable building materials can be there all year long and produced during the short building seasons that we have in those remote communities. There's incredible potential for this technology there.

The Chair: Thank you, Ms. Zarrillo.

Mrs. Gray, you have five minutes.

Mrs. Tracy Gray (Kelowna—Lake Country, CPC): Thank you, Mr. Chair.

Thank you to all of the witnesses for being here.

Just before I begin, I want to say that based on the motion that the NDP member, Ms. Zarrillo, put forward, I'm really glad to hear that she's supporting a Conservative bill from last June called the fairness for flight attendants act by MP Lianne Rood. Conservatives take action, so I was really glad to hear that the NDP member is supporting our Conservative legislation.

I'll now move on to questioning. My first questions are for Hans Jain. You wrote an op-ed for Toronto Star last year entitled “Creating of affordable rental properties requires better financing”. In it, you wrote that “Developers...are challenged by the low predictability of outcomes when applying under CMHC's funding initiatives”, and that the CMHC policies are “inconsistent with the norms of real estate financing.”

At a time when building starts are actually down, and innovation in home building is required, do you believe red tape and bureaucracy from the federal housing agency are making it harder for builders like you to build affordable homes?

Mr. Hans Jain: First of all, I would say that without CMHC financing, it would be very difficult in this market to build anything. On three of our projects, we have just under $300 million of CMHC financing in place.

It is challenging, because of the time it takes. I feel that recently the time for getting approval has improved. I think the staffing issues that were maybe challenges have improved.

I would say to you that building purpose-built rental...and meeting the accessibility, affordability and environmental point scores, you need to have a partner that is agile, that can be quick. It's challenging.

Sometimes you're not sure what the assessment of the loan amount that you are seeking.... That uncertainty has problems in your development timelines and horizons.

Mrs. Tracy Gray: Thank you.

Actually, we had heard from other witnesses at this committee as well saying something very similar where, for example, there are requirements above the standard building codes, as you've just mentioned. Also, with the timeline delays from CMHC, it's adding to their costs.

Would you agree that those two factors do add to your costs as well?

Mr. Hans Jain: They do.

I would just say that on the “above the building code" specifications, we are committed to that. We feel, on a personal note, that that is a good thing, but it does add significant costs.

By doing affordable...and other things, you're having to figure out the financial model that is not market... The advantage of CMHC is the lower interest rate and maybe the slightly higher loan-to-value amount on the mortgage. I'm in agreement with what you've said.

Mrs. Tracy Gray: Thank you.

We heard other testimony from witnesses who had come up with a dollar figure.

Do you have any idea per unit how much some of those extra costs might add per project?

Mr. Hans Jain: I'm sorry; I don't. It's millions of dollars. I mean, we're doing a geothermal field right now that would be $7 million or $8 million, and then there's our VRF system. Our mechanical is more.... We're doing, you know, accessibility. There are costs everywhere involved. Through the design process, it's more complicated, but timing is definitely the biggest issue, as well as the uncertainty of the loan amount. Those are things that affect....

● (1150)

Mrs. Tracy Gray: Thank you.

I'm down to my last 15 seconds here, so I just want to ask one more question.

The federal Liberal finance minister in June claimed that her capital gains tax hike would build more housing. Do you think that hiking the capital gains tax will build more housing?

Mr. Hans Jain: No.

Mrs. Tracy Gray: Thank you.

The Chair: Thank you, Mrs. Gray. You're 10 seconds early.

Mr. Collins, you have five minutes.

Mr. Chad Collins (Hamilton East—Stoney Creek, Lib.): Thanks, Mr. Chairman.

Welcome to all the witnesses.

I'll start with Ms. Fiorellino.

Ms. Fiorellino, I'd like to pick up where you left off with regard to the guarantee of orders and the commitment of all levels of government to invest in modular housing in order to drive innovation. I look at our rapid housing initiative, which was born out of the pandemic. You referenced procurement, and the procurement process for the RHI required that non-profits and municipalities build those units within a 12-month to 18-month time frame. Through three rounds of that program, I think we're up to almost 16,000 units, the majority of which are modular.

I see that almost as the only program in the country that's invested money into the modular industry through municipalities and non-profits. I can't think of another provincial program. Can you provide recommendations to us here at the committee that kind of speak to that issue in terms of a guarantee of orders, driving innovation, and driving the purchase of modular units through your business and others?

Ms. Sabrina Fiorellino: Absolutely.

The more procurement there is in general, even outside of housing, the better it is for the modular industry as a whole. When the rapid housing initiative came out, Fero was in its infancy, so we weren't able to bid on that. I think some of our other witnesses referenced the point that we don't need pilots but that we need big procurement projects to prime the pump. I mentioned that Fero has 300,000 square feet of manufacturing space. We can build hundreds of thousands of square feet of infrastructure, year over year. When every level of government looks at procurement, they look at it from a modular-by-default lens. My recommendation is to say “Why not modular?” versus “Why modular?”.

We have a lot of builders across the country, especially some of our larger infrastructure builders, that are full for the next five years and have no more capacity to build. We need to look at alternatives. You mentioned something about scale and technology. You can only really look at the real benefits of the technology at full scale. We have automation equipment. We use AI in our processes. However, if we're not operating our plant at full capacity, we don't also get the full benefit of that, which is more speed and, obviously, more affordability.

I would argue that today we have more of an affordability crisis in housing than a supply crisis. We can build; we just can't build at a cost that's feasible for people to buy. The more work we get, the more we can drive costs down.

Mr. Chad Collins: Thanks for that answer.

I'll follow that up with the market penetration issue that you raised. I'll point to the housing accelerator fund that sort of created some healthy tension with municipalities to change the way they do business from a planning perspective. That program has driven many municipalities to adopt secondary dwelling unit policies that allow a unit in the backyard. I would see that as an opportunity for the modular sector to sell to the average individual.

You've mentioned the challenges that exist related to governments making investments in modular. How do we bridge the gap with the average person who sees that their municipality has allowed secondary dwellings in the rear yard, who wants to purchase a modular unit, but who isn't sure about how to go about that? How do we assist the industry, your business and others with growing the business and expanding the market penetration issue that you referenced in your opening?

● (1155)

Ms. Sabrina Fiorellino: Again, I'll go back to my opening remarks. There is a public perception issue as it relates to modular and some other new building technologies. I think there are a number of things that can be done. I talked about the government being first adopters of the technology. This is what happened in Europe, and then the public came along. There's also an ability to provide incentives for homeowners to choose modular or new technologies over more traditional methods.

One of the topics that came up was decarbonization and our targets for 2050. Modular is specifically designed for deconstruction, so I think it's one of the only building technologies that can get to a net-positive place over traditional methods.

I think we need to look at the incentives and promoting modular so the average person considers it as an alternative to traditional methods.

The Chair: Thank you, Mr. Collins. That's right on time.

[*Translation*]

Ms. Chabot, you have the floor for two and a half minutes.

Ms. Louise Chabot: Thank you, Mr. Chair.

Mr. Arthur, the committee heard another witness say that Canada is lagging behind Europe and other countries in terms of innovation in construction. How can we do better and emulate other countries to encourage the emergence of new technologies in the field?

[*English*]

Mr. Ian Arthur: Yes, for sure. I'll pick up on the point of the last witness about priming the pipeline. Actually, this goes back to MP Zarrillo's question as well.

If you want to put a multiplier on government funding, provide it to companies doing innovation that are actively seeking private sector investment and you will have a 5 times, 6 times or 10 times multiplier on that investment very quickly, because the surety of work the government can provide to these companies is incredibly meaningful for security for private sector investment. If we look to Europe and the example of how they embraced modular housing technology and advanced it, which gave the private sector confidence to go in and follow in that space, I think it's incredibly important. I think we can do the same with multiple technologies here.

[*Translation*]

Ms. Louise Chabot: How will adopting that strategy through supports and subsidies help us achieve our goal of building affordable housing? Affordability is one thing that's in demand.

[*English*]

Mr. Ian Arthur: Pick the companies well that you're providing support to. Make sure they have a feasible path to production, scaling, meaningfully providing housing, increasing supply or lowering the cost of production.

[*Translation*]

The Chair: You have 30 seconds left, Ms. Chabot.

Ms. Louise Chabot: So it's the theory of supply and demand, never mind that there's more demand for social or affordable housing. Is that right?

[*English*]

Mr. Ian Arthur: It is, and this is where we run into the process problem, which is where I started my comments. We're trying to solve a problem with mechanisms that, honestly, are 100 years old.

[*Translation*]

The Chair: Thank you, Ms. Chabot.

[*English*]

We'll go to Madam Zarrillo for two and a half minutes to conclude this first hour.

Ms. Bonita Zarrillo: Thank you, Mr. Chair.

I have a question for Witness Fiorellino about the scaling and the scaling-up. How can the federal government create an environment where companies like yours can scale up and be sure to be fully optimized?

Ms. Sabrina Fiorellino: Thank you for your question.

I think the interest-free loan program that FedDev issued is very helpful. Like our previous witness said, we had to provide private sector funding alongside government funding, so there was 60% more private sector funding with a plan, metrics and testing to ensure that we are meeting the plan; otherwise, funding could be scaled back. That was very important.

Also, having orders.... I go back to priming the pump again. It's not just about scaling the plant. We can build big, beautiful plants and hire a lot of employees, but without work, none of it matters. Therefore, our targets for funding also related to how many orders we could put through the plant or the scaling of revenue in addition to the scaling of the labour force.

● (1200)

Ms. Bonita Zarrillo: I have a question on that. Has your organization, or anyone in the industry you've spoken with, ever been approached by the federal government to talk about innovation around how the government could invest in or make or buy these kinds of housing units?

Ms. Sabrina Fiorellino: We've spoken to all levels of government—I commend the work of all levels of government—about a number of things. Are robotics, automation and AI helpful? Would funds for that be helpful? How can we change procurement to ensure that the modular industry has a fair shot at different types of procurement?

I've had conversations with a lot of different government officials across all levels, and I am grateful for those.

Ms. Bonita Zarrillo: Perhaps I could ask both you and Mr. Arthur about trade shows. Does Canada host any innovation trade shows around home building? Where do you go, across the globe, to trade shows?

Ms. Sabrina Fiorellino: We go to a number of different conferences. We obviously serve a lot of different end sectors, so a lot of them are private conferences. We attend, for example, the Canadian Healthcare Engineering Society conferences, where engineers who service the health care industry attend. We have attended DiscoveryX, which is hosted by the Ontario Centre of Innovation. We have attended the World Business Forum in New York on leadership. We attend the Modular Building Institute conference that has a Canadian chapter, usually hosted in the U.S., that has modular building companies across North America and who globally attend.

There are lots of different trade shows, less put on by government, I would say, and more by the private sector.

The Chair: Thank you, Madam Zarrillo. We're well over.

Ms. Bonita Zarrillo: Mr. Chair, I wonder if Mr. Arthur could submit something in writing.

The Chair: If you could submit in writing the trade shows that you attend, Mr. Arthur, that would be good. That would go to the committee clerk.

With that, witnesses, thank you for your testimony on this important study that the committee is doing. You can leave at your leisure.

We'll suspend for a few minutes while we transition to the next hour with two witnesses.

● (1200)

_____(Pause)_____

● (1205)

The Chair: Members, we will resume with the second hour of today's meeting.

Joining us for this hour are two witnesses. Both are present in the room. We have Ms. Carol Phillips, architect partner with Moriyama Teshima Architects; and Mr. David Moses, principal engineer with Moses Structural Engineers Inc. They will each have five minutes.

We'll begin with you, Ms. Phillips, for five minutes, please.

Ms. Carol Phillips (Architect, Partner, Moriyama Teshima Architects): Thank you, Mr. Chairman.

Honourable committee members, thank you for this opportunity.

My name is Carol Phillips. I'm a partner at Moriyama Teshima Architects. Our work centres on designs that celebrate community identity, embrace sustainability and create pride in our built environment.

For the past seven years of my 30-year career, I have been embedded in realizing large-scale projects that prioritize mass timber construction and net-zero carbon emissions and leverage the potential of prefabricated building components.

These include a 10-storey college at Toronto's waterfront and a commercial headquarters building on a ravine, and these have led to an 11-storey rental housing project proposed on top of an abandoned federal post office and modular elementary school projects, among others.

Of these many advanced technologies, I would like to particularly focus on mass timber and how it can play a role as Canada addresses its housing shortage while also supporting our environmental, economic and social goals.

Mass timber is an engineered wood product that offers a structural alternative to, and can work in concert with, concrete and steel. It is manufactured by laminating standard lumber pieces into massive beams, columns and floor and wall panels.

First emerging in Europe in the 1990s, the technology has been in use there pervasively for 25 years. It is durable, lightweight and, crucially, it stores carbon rather than emitting it, making it an effective way to reduce the environmental footprint of new buildings.

Canada already has a growing capacity to produce mass timber using locally sourced wood from provinces like British Columbia, Alberta, Quebec and Ontario, positioning us to be a global leader as demand grows and embodied carbon reduction in our materials is required.

This industry is uniquely suited to Canada, which is 40% forests, and where 90% of our forests are on Crown lands, managed and regulated provincially and by territorial governments. These forests, as the fires demonstrate, need management while industry needs supply. There is an opportunity, then, for a mutually sustainable human-nature relationship.

In mass timber buildings, architects and engineers work collaboratively with builders and manufacturers, leveraging the potential of digital technologies for direct communication between design and fabrication software to produce building components that literally click together.

Mass timber is factory produced and accurate within a millimetre of tolerance. Its lightness makes it an ideal candidate to intensify by adding to existing buildings, and for quality control, its kit-of-parts approach allows for rapid deployment and risk reduction. It's a natural for the six- to 18-storey residential building scale, which is the missing part of many urban centres and one that suits many growing communities. It's beautiful and renewable, and, just as our trees are not the same across Canada, timber construction allows for the possibility of a regional expression in our diverse nation.

To unlock mass timber's full potential, we need to address some things.

One is procurement practices in public buildings. The design, bid and build approach doesn't support the flexibility needed for mass timber projects. Embracing collaborative methods, such as construction management, streamlines project delivery.

The second is inter-ministerial coordination. Greater collaboration across federal, provincial and even municipal levels could drive timber adoption. A national, multi-level task force could align policies and lead to the necessary standardization that is required to truly scale the industry.

Next is building codes. Shifting from prescriptive to performance-based building codes would allow mass timber to be used more freely.

The final thing is incentives. To innovate is to do something that you or others have not done before. Governmentally shared incentives, such as tax credits, paid premiums for prototypical projects or grants, could accelerate industry innovation by funding manufacturing or growing professional skills.

Mass timber construction is also about fostering a safer, more inclusive and resilient construction industry. Prefabrication leads to safer work environments; opens more accessible job opportunities, including for women; and creates pathways for engagement with indigenous communities and sustainable forestry and manufacturing. It is faster and quieter, which means it has less impact on communities while addressing the housing shortage.

● (1210)

Finally, mass timber's benefits resonate with a broad spectrum of priorities, providing a pathway to meet climate and environmental goals while supporting Canadian-made industrial solutions that strengthen our economy. It is aligned with job creation, worker safety and social equity, and it is a Canadian solution that is rooted in leadership, notably in Quebec and from coast to coast.

Thank you.

The Chair: Thank you, Ms. Phillips.

Mr. Moses, you have five minutes.

Mr. David Moses (Principal Engineer, Moses Structural Engineers Incorporated): Good afternoon, Mr. Chair.

I'm David Moses, principal and founder of Moses Structural Engineers in Toronto.

As structural engineers, our role is to support architects and builders during design and construction. Our company's focus has been to bring new products and technologies into the market that can provide alternatives to traditional methods of construction in many types of buildings, including single-family homes, apartments and condominiums.

Over the years, we have had the privilege of working with government and industry partners to develop guidelines and training programs for architects, builders and even other engineers. We have a demonstrated commitment to the next generation of designers and builders with our cross-Canada student design competition called TimberFever that we've run for 10 years now, which is aimed at breaking down barriers between the design consultants and the people who build our buildings.

I have two points to make today. My first is that it does take a long time in our industry to make changes, especially when it comes to new technologies and getting them into the market. Testing and approvals are required to limit the risk to public safety and also to limit the potential for liability for damages if the technology does not work. Building codes and testing approvals provide us with the reassurance we need, since buildings must work the first time they are built.

As a regulated profession, engineers have a duty to hold public welfare paramount, so we prefer known and approved products and systems; however, the building standards do allow engineers to design novel systems, provided that we can demonstrate that they perform safely and meet the foundations of the building code. To echo my friend Ms. Phillips, mass timber is a very good example to prove that point, although there are others.

I worked on the first cross-laminated mass timber building in Canada, which was built for the 2010 winter Olympics in Vancouver. This was before there were any Canadian manufacturers of the product, so the product came from Europe. We worked closely with European engineers, reviewing their methods of analysis and reviewing the research that they had done for many years, but the regulatory approvals in Canada didn't come until 2020, 10 years after that first building was completed. Regulatory changes are slow and incremental.

In 2012, a joint Canada-U.S. standard was released for CLT, cross-laminated timber. In 2013, a Canadian design guide was created. In 2016, a CSA standard was released. Finally, in 2020, 10 years later, the national building code adopted the changes that included cross-laminated timber.

Ten years seems to be the cycle that we are seeing. However, even though that code may take a while, many buildings were built in that period thanks to the government investments in commercial and academic research in that time as well as the efforts of many companies like our own who were willing to put their time and money into research and development. Once the building code does change, of course, the doors open for many others to adopt these new ideas with less cost and less risk.

My second point is that strategic investments by government do work. For example, easy access to research and development funding for manufacturers and consultants does have a direct impact on getting the products to market before the codes change. Demonstration projects do make a difference when the funding comes in a timely manner, because those demonstration projects become inspiration for others, and they become a living example that other people can visit, touch and see for themselves.

In addition, interim government policies between code cycles can also speed the adoption of new ideas and new technologies into the market much faster than the codes can.

I believe we can also improve speed by starting to pay the engineers who are members of these standards committees who volunteer their time on a part-time basis to get them to focus on the matter at hand and bring these changes much faster.

Another area that we could consider as well would be to fund design assist activities where suppliers can get their products in front of the decision-makers early on in the design process.

Finally, although not in my direct area of concern but a broader concern that we heard here just a few minutes ago is for modular building construction where perhaps we could consider creating a government pool of funding that would guarantee cash flow for modular factories during the construction cycle to help ride the ebbs and flows within their industry and not lose the precious investments in those facilities.

● (1215)

I'll leave it there and I look forward to your questions.

The Chair: Thank you, Mr. Moses.

We'll begin with Mr. Aitchison for six minutes.

Mr. Scott Aitchison: Thank you Mr. Chair and thank you to both witnesses.

I was going to say, very quickly, Ms. Phillips, that I'm familiar with some of your projects and they're beautiful. It's a treat to meet somebody who's designed something like that.

I'm sorry, Mr. Moses. I'm not familiar with your projects, but I'm sure they're beautiful as well.

I want to focus on the challenges that we face approving new technologies. You've both spoken about this. I'm a big fan of mass timber. In my previous life, I spent a lot of time with the forestry industry that supports this kind of mass timber stuff. I love it; I think it's great.

Kevin Lee was here speaking very specifically about housing and the challenges related to the Canadian Construction Materials Centre and how slow it is to approve new technologies.

I'll ask you both if you can briefly speak to this.

What specific reforms do you think could be introduced to the Canadian Construction Materials Centre to reduce the time and cost required for new technologies to be recognized as acceptable code solutions while maintaining safety and quality standards?

I'll start with you, Ms. Phillips, if you could give me your top two things that you'd change.

Ms. Carol Phillips: I mentioned in my opening statement that in the building code, one thing that could be focused on is performance-based codes rather than prescriptive codes.

For instance, at a certain scale of building, you fall into either combustible or non-combustible construction, which immediately kind of precludes you from considering mass timber. You have to climb a bit of a hill to actually prove that you are as good if not safer than concrete, whereas, if you were able to just demonstrate from the beginning the safety criteria, the fire resistance, the durability and the concerns of the building code, which is the concern that's at the heart—the performance criteria—then that actually shifts the conversation. It does not actually delay the process in having to prove something that you are not, but rather prove what you are.

I think that is actually a fundamental shift in how we evaluate buildings.

● (1220)

Mr. Scott Aitchison: I'd just like to jump in very quickly. You made that point.

Can you give me an example where you've had to prove, based on the combustibility of a building, the efficacy of mass timber once and then had to do it again and again?

Ms. Carol Phillips: Certainly.

Mr. Scott Aitchison: Once you've proven it, it should be proven, I would assume.

Ms. Carol Phillips: For instance, for the 10-storey building in Waterfront Toronto, David actually participated in that because the City of Toronto required our client, George Brown College, to hire a second set of structural engineers and a second set of building code engineers to validate our team's design.

Mr. Scott Aitchison: It's a peer review process.

Ms. Carol Phillips: It's a peer review process and it was made very clear to us that the findings of that process would not be transferable. It was unique to the building solution and could not be then transferred to another project.

Mr. Scott Aitchison: Professional engineers and architects must find that insulting. Either you're a professional or you're not, I would think. Being peer reviewed by other professionals seems overdone.

Ms. Carol Phillips: I don't think so. It's a very friendly and collaborative space. We're all in the space of innovating, so we share openly. We share our discoveries and our failures very openly with each other. We have to. We want each other's buildings to be successful. Although we are in a competitive industry, we don't keep our cards that close to our chest. We actually really want everything to succeed because it's better for the industry.

It's not to your question, but a separate point that David mentioned is the investment that private industry puts in. We have been sharing knowledge and educating others significantly, out of our own pockets, in order to actually share that knowledge. The lack of transferability case to case is actually something that impedes some of the uptake.

Mr. Scott Aitchison: Thanks.

Mr. Moses.

Mr. David Moses: If I could add to some of that, the peer review process is very valuable. I believe it actually assists the municipalities because they don't have to have that know-how in house. They can rely on an external source with expertise. In a sense, we become another gatekeeper for the regulatory authorities in this sense.

To your question specifically on CCMC, which is more of a products approvals agency, we do see that definitely as a barrier to entry into our market because it is a very slow and costly process.

I don't have the answer for you on that, but we do know that companies coming in from other countries will typically go to the U.S. first and do their approvals there because it's such a bigger market. Then we can do a lighter version of that with CCMC in Canada because all that investment in research and testing has been completed, so it's just more of a review.

Mr. Scott Aitchison: We don't have a lot of time—about a minute—but I would like to focus specifically on the peer review process. Professionals design something, professionals review it, and all of a sudden it's not good enough for the regulatory authorities.

Can you recommend a process whereby if something's been peer-reviewed by multiple professionals, that should be enough for the regulatory authorities?

Mr. David Moses: When the peer review happens, it's because it is a unique or novel system that is not in the building code currently, so nobody has seen it at that point, in which case it's quite important and valid to have a peer review undertaken. But it is possible, and we've seen this in Quebec where, when the first 13-storey mass timber building was built, they did actually create a guide that if you repeated that same building, you could follow those instructions and you wouldn't need to go through that process again. So it is possible.

Mr. Scott Aitchison: It is possible, but not always done.

Mr. David Moses: Correct.

Ms. Carol Phillips: I would just add that there is an example of that in the States right now about coming up with transferable code examples that are cross-jurisdictional.

Mr. Scott Aitchison: Thank you.

The Chair: Thank you, Mr. Aitchison.

We now go to Mr. Van Bynen, for six minutes.

Mr. Tony Van Bynen (Newmarket—Aurora, Lib.): Thank you, Mr. Chair.

Mr. Chair, before I begin my questions, I'd like to put forward a motion that I provided notice for on October 22.

Canadians 65 years of age and older currently represent 19% of our population, and by 2043 it's estimated they will be around 25% of the population. That represents an increase from approximately eight million seniors to 11 million seniors.

The major demographic shift is always causing, and continues to cause, further strain on Canada's social and health services, which seniors especially rely on as they age. Further, according to CMHC, seniors are increasingly living in their existing homes longer as they age, ultimately contributing to the rise of naturally occurring retirement communities, and I believe the rise of naturally occurring retirement communities, or NORCs as they are known, provide an opportunity for the government to adapt, innovate, and support care delivery systems for seniors that both meet seniors' needs and enable extended aging in place and help provide early indicators that result in health care cost savings for governments.

Now, as an example of the potential savings involved in adapting programs to service NORCs, I'll reference a case study of a NORC-based home care model piloted in Waterloo, Ontario.

The NORC Innovation Centre estimates there is a 44% productivity gain for personal support workers. In Ontario, if they were to move to a NORC-based home care model and achieved half of the productivity gains of the Waterloo pilot, the organization indicates that it would translate into 755,000 hours or $26.7 million in PSW services for Ontario home care systems annually, which would allow for more clients to be served within the budget constraints.

With that in mind, I would like to move the following motion:

> Considering that Naturally Occurring Retirement Communities (NORCs) allow seniors to age well at home and with dignity, the committee agrees to undertake a comprehensive study on NORCs. The study will examine the benefits to seniors' health and social well-being and pay particular attention to the cost-savings for care delivery; the study will further examine how the government can help address the existing Canadian research gap with regard to NORCs and their impact; support existing NORCs; adapt and/or develop programs and strategies to support care delivery to NORCs; and that the committee invite to testify leading subject matter experts; that the committee hold a minimum of three meetings; and that the committee reports its findings and recommendations to the House; and that pursuant to Standing Order 109, the committee request that the government table a comprehensive response to the report.

● (1225)

The Chair: Thank you, Mr. Van Bynen.

The motion had the required timeline, but I do not believe you want to pursue debate on this at this time. You moved it, but if we do not want to debate it at this time, it would require a motion to adjourn debate on your motion so we can return to the witnesses.

Mr. Tony Van Bynen: My preference, Mr. Chair, would be that we deal with this very expeditiously and move on and speak to the witnesses.

The Chair: Yes, but you did move it, so it's subject to debate, which takes precedence over the witness, unless there's a motion to adjourn debate on this motion so we can return to the witness.

Ms. Gray, you had your hand up.

Mrs. Tracy Gray: Thank you, Mr. Chair.

I know that this was put on notice, and I would like to move an amendment to this motion.

Basically, when we saw this go on notice, we had to look up what this was. It's very niche, and I think that's probably the whole purpose of it. However, we'd like to broaden it a little more, while also including this as the priority. We can circulate the amendment.

I'd like to move the following amendment, that we add after "Considering that", the wording “retirement housing options for seniors, including” in the first sentence, and then at the end of that first sentence that we would add the words “including how they compare to other options.”

I'll read what the first sentence would look like. It's not to remove any of what you have. It would read:

> Considering that retirement housing options for seniors, including Naturally Occurring Retirement Communities (NORCs), allow seniors to age well at home and with dignity, the committee agrees to undertake a comprehensive study on NORCs, including how they compare to other options.

I think it's a very reasonable request, and I would hope that we could easily move forward with that, as it would actually encompass looking at how these fit in on the bigger retirement options.

Mr. Chair, we've circulated the amendment.

● (1230)

The Chair: Thank you, Ms. Gray.

We have an amendment to Mr. Van Bynen's motion.

On the amendment, we have Madame Chabot.

[*Translation*]

Ms. Louise Chabot: Can I speak to that, Mr. Chair?

[*English*]

The Chair: Yes...on the amendment.

[*Translation*]

Ms. Louise Chabot: Yes, I understand that we are now debating the amendment. I don't necessarily oppose the amendment, but I must say, with all due respect, that I am against Mr. Van Bynen's motion.

This is indeed a very specific topic. I don't see how such a study would enrich or support our committee's work. Let me explain.

Naturally occurring retirement communities are a very specific formula that exist in very specific places. For my part, I can talk about seniors living in residences, regardless of the type of housing involved. The term is different in Quebec. Regardless, all these issues really fall under provincial jurisdiction.

Studies have been done on those communities and on the benefits of keeping people at home as long as possible in terms of health care.

Honestly, with all due respect, I don't know where such a study would get us.

Yes, an amendment to the motion has been moved, but I disagree with the substance of the matter.

[*English*]

The Chair: Is there any further discussion on the amendment by Ms. Gray to the main motion?

Seeing none, Madam Clerk, please proceed with a recorded vote on the amendment.

(Amendment agreed to: yeas 9; nays 1)

(Motion as amended agreed to: yeas 9; nays 1)

The Chair: Mr. Cormier, the vote has concluded. The main motion has been adopted as amended.

We return to questioning.

[*Translation*]

Ms. Chabot, you have the floor for six minutes.

Ms. Louise Chabot: Thank you, Mr. Chair.

Thank you to the witnesses.

We are coming to the end of this study, which gave us a chance to hear your testimony over the course of four meetings. I'm going to ask you a question and give you both the rest of my time to answer it in turn.

What would you like the committee to take away from your testimony today when it writes its report? What main point would you like us to include in our report on this study?

I'll start with you, Ms. Phillips.

● (1235)

[*English*]

Ms. Carol Phillips: Probably the most important thing that I actually had an opportunity to say here today is about intergovernmental alignment, having some form of task force that helps us understand where different levels of government can actually help to scale the adoption of these innovative technologies. We certainly concentrated today on mass timber, but I think that if there were the possibility of some form of task force, limited in time, that could actually look at some of the initiatives at various levels of government—and, perhaps, specifically around the housing issue—we could see where there are unintentional impediments put up between the different tiers of government that are actually creating hurdles. If there's something that I could possibly recommend it is this: Look at a multi-tier task force to actually look at allowing, with respect to housing, the uptake of these prefabricated systems. That's one thing.

The second thing, if I may say, has to do with recognizing the upfront investment by private industry, including the professionals, who are actually self-educating at this point, trying to scale our knowledge in this continually evolving area. The self-education is, really, coming at our own cost.

[*Translation*]

Ms. Louise Chabot: Mr. Moses, go ahead.

[*English*]

Mr. David Moses: I think there are some really good things that are happening right now in the availability of funding for parts of the sector. I know that the consultants rely heavily on the SR and ED—the scientific research and experimental development program—to help with the self-education that's happening. Without that, the process would be much slower.

I think that, if we were just talking about funding and not a study, demonstration funding makes a big difference for developers who are considering using a new technology because it helps take the edge off the risk, knowing that there's going to be some buffer that might offset the incremental cost for them. Currently, demonstration funding is occasional. It's not reliable, and if there were just a permanent pool of money available to allow for these innovations to take place—and, obviously, through a vetting process and with certain criteria—having that would make it more permanent and predictable. Right now, when these funding programs happen, they happen for just a very short period of time, but the life cycle of a building, from the time that somebody thinks of the building until it's completed, is years. The current programs, if they happen to be timed correctly for that project, they'll get it, and that's just too much of a risk for most building developers to consider.

[*Translation*]

Ms. Louise Chabot: Thank you.

Ms. Phillips, you represent an architectural firm, but you talked a lot about mass timber buildings. Wood is a very important natural resource in Quebec, and we have seen wonderful buildings made of wood and steel.

You talked about the employment opportunities in those sectors. To what extent are you relying on the employability of workers to contribute to the advancement of your work?

[*English*]

Ms. Carol Phillips: I'm sorry; I lost a bit of the interpretation, but I think the question had to do with roles and job opportunities throughout the industry.

Certainly, I'm an architect, but the way we are working now in these innovative fields is that we have to work more like an ecology. We have to work with the tradespeople, we have to work with the skilled trades and we have to work with the builders. We don't necessarily, in a way, see ourselves as just providing the professional services; we actually are part of a much bigger network of individuals who understand the technology.

Within our practice alone, certainly the skills of being able to use the evaluation software, such as LCA and LCCA—life-cycle analysis and life-cycle cost analysis—helps us speak to our clients and helps them make decisions when it comes to choosing the right materials for their process. Streamlining the process and getting the design right in the first place involves us working directly with engineers, builders and the skilled trades to understand where our designs might have limitations for manufacturing. This has directly to do with understanding how we all work together.

Certainly, as others have said, there is a major lack in the skilled trades right now. With automation, with robotics and with more software-driven manufacturing methodologies, there is room for everyone, including those who don't necessarily have the physical attributes to actually work in the trades in the way that they used to.

Thank you.

● (1240)

The Chair: Thank you, Madame Chabot.

Ms. Zarrillo, go ahead for six minutes.

Ms. Bonita Zarrillo: Thank you.

My questions are for Carol Phillips, and I'm open to giving you the full six minutes.

You talked about an abandoned post office that you worked on, and I want to hear more about this. I want to hear about the learnings and the pros and cons, as the government is looking at federal lands, and there is an abandoned post office in Port Moody that is on the initial list of properties to look at for the government.

Can you share your wisdom and your learning so that the government can think about how they can get this done quickly?

Ms. Carol Phillips: I would say that perhaps the most sustainable building is the building that already exists. If we can adaptively reuse some of our assets and improve upon them, expand them and change their function, that is probably the most direct approach to achieving our most sustainable approaches in buildings.

While of course we want to innovate and build new, and our standards have obviously changed, when we have quality construction that already exists, if we can adaptively reuse that construction, that is one of the most important things that we should be looking at first, rather than demolishing and filling our landfills with more debris.

In the case of the project that I'm involved in right now, this is a federal post office that has good bones. It has a steel structure. Because of the use of timber, we are able to add to it without improving upon the foundations. There's a little bit of strategic work that needs to be done to reinforce some of those foundations, but it is actually quite limited. The lightness of timber allows us to actually build on top.

I think this has huge potential. Certainly, I am from Toronto and I can look down main streets that have two-storey buildings and I have to wonder whether or not those can take another two or four storeys on top of them to intensify our city, so that we have more of a six- or eight-storey fabric all through our main streets rather than having two storeys and then 40 storeys. I think that there is what I call a missing middle and the project that I'm working on right now has that potential.

I also think that when we take away our built heritage, we take away the history of those communities. We take away the fabric that was there that gave those communities identity. When we have heritage buildings that actually help to give identity to a community, but because we can't find a way to reuse them we end up taking them down, we erase something of our history.

Certainly, in this day there are parts of our history that we really need to relook at, but I don't think that a post office is necessarily one of those areas that we need to completely rethink. If it gives character and if it gives history of the people who worked and lived in those communities—there are stories embedded in that community—it gives identity and a sense of pride to communities if you can continue to keep that built heritage and continue to grow upon it while providing needs for others.

We have learned that by using innovative technologies, such as not only mass timber, but also prefabricated wall panels, we are able to come in close to heritage buildings and be able to actually adaptively reuse them. We have quality control that is built off-site and then just simply craned into place.

One of the projects that I'm working on in Toronto is a 225,000-square-foot building. Its entire structure was erected by seven people and one crane at a rate of about 10,000 square feet a week. That doesn't mean that's reducing jobs because those jobs have just moved to safer environments. They're now in the factory. They're not out in the weather and in the wind. You're actually producing things in controlled environments. It speaks to quality and safety, and then a much cleaner and easier erection of the structure. It doesn't plug up the city and it doesn't act—

I'm done. Thank you.

● (1245)

Ms. Bonita Zarrillo: I'm trying to slyly look over there because I want to ask another question.

Thank you so much for that.

As a sociologist—and I was a city councillor—I always ask what the social side of it is.

I cannot find any research that talks about the social impacts and the determinants of health in these large towers over 30, 35, 40 and 50 storeys. If you have some research around this that you could share with this committee, I'd very much appreciate it.

Ms. Carol Phillips: We can certainly refer to a number of studies.

David, you may know a little bit more about that.

There are a number of studies—some that originate in Finland and others that are in Japan—that speak to a phenomenon called biophilia where we, as human beings, actually have positive responses to natural materials. It lowers our stress levels.

There is a study that I've heard of—I don't know the source; perhaps you can find it. It was done by the Department of Defense in the U.S. This is a very interesting study because they were looking at stress reduction specifically in the military personnel, which is a huge issue. They were looking at mass timber and natural materials in your everyday environment and how it actually helps to reduce levels of stress in your daily occupancy.

These are studies that perhaps I can help to source. Definitely there are studies out there that speak to wellness, which actually contribute to that.

Ms. Bonita Zarrillo: Thank you so much.

Witness Moses, I just wanted to follow-up on the easy access to R and D funding. Something I think about a lot is what kind of environment we are creating in Canada. You mentioned the demonstration projects in just funding. What can the federal government do in that space to drive innovation?

Mr. David Moses: Currently, one demonstration project that does come to mind is funded through NRCan. That is federal government funding. I would definitely look at piggybacking on that because I think they've done a really great job of administering their program right now and being very critical of the projects that are coming through.

I believe it's been oversubscribed, so there is demand for it. I think that would be a good starting point.

The Chair: Thank you, MP Zarrillo.

MP Falk, you have five minutes, please.

Mrs. Rosemarie Falk (Battlefords—Lloydminster, CPC): Thank you very much, Chair. I'd like to thank both of the witnesses for being here.

I just want to quickly ask a question off the top regarding the building code. I know there have been conversations already in this meeting about the building code, and we've actually heard throughout the duration of this study at different meetings that the code needs to be quicker to adapt to innovations and be an acceptable building code solution and that, in some cases, the gap is resulting in costly over-engineering because the code isn't adapting quickly enough.

I'm just wondering what government can do to ensure that affordability and cost-effectiveness are factored into the building code.

Ms. Carol Phillips: I think this issue of adopting proofs is an important one. To be quite straightforward about it, oftentimes, in order to achieve fire ratings, etc., there is no other way to do this but to simply add more and more material to something. You take a combustible item and wrap it in something that is non-combustible, so you're building something twice. There is kind of this over-engineering, but it's also about just trying to understand how we can get that adopted into the national building code and perhaps allowing municipalities to reference the national building code and not just the provincial building code when they're working on buildings.

I think education for building departments is a huge part that can be done. I think governments can support building engineers who examine these projects to understand what they are actually...taking them on tours to show them the performance.

Then in terms of affordability—and this doesn't have to do with the codes and regulations; it has to do with the insurance for these buildings—I think the insurance companies need to understand that these buildings are safe and not apply the kinds of premiums they are applying to the projects. We need affordability for clients to be able to consider these building methodologies without being punitive to them.

David, did you have anything to add?

● (1250)

Mr. David Moses: For me, the struggles I see with our clients are more on the development side, the zoning, the local bylaw and dealing with that. Then, it's a trickle down from the national building code into each of the provinces or territories and their usage of the code and the local authority that has to then sign-off and issue that building permit.

If there's slowness or sluggishness in that process, I believe that is where it's going to come from. I think the mechanisms are probably in the code as we speak. We've already mentioned a few of these things today, like the alternative solutions or other approaches, but documenting that and making it accessible to everybody....

In the early days of adopting new ideas, once we found a building official who was willing to buy into our idea, we would get them to talk to their peer in another jurisdiction when we tried to build in that jurisdiction. That peer-to-peer discussion made the difference, as opposed to top-down.

Mrs. Rosemarie Falk: Mr. Moses, you have the mic here. Just picking up on some of your earlier comments about the way government funding programs are structured and how that limits access to them, can you comment more on how the federal government can encourage investments in innovative building solutions through its programming? Do you have specific examples of how the current structure or program practices discourage innovative home building?

Mr. David Moses: We get a lot of companies coming to us with a new idea. They're ready to ramp up, so maybe they have to struggle to get their funding to ramp up internally. But even when they get to that point, they need to get in front of a potential client. The way the process is set up currently, if I'm a developer and I want to build something, I will go to what I know, something that I've used every time and been successful with, so I'm not going to change my ways.

But if I can get in front of that person at the beginning, when they're making that first choice, then we can design the building around what's available from a factory and say, okay, this is their limitation, this is what they can produce. We're going to lay out our building in such a manner or we're going to look for how the zoning could affect the potential use of that product. That takes time and money. That's what we call "design assist". It's an early phase of design before you even get into the full design, where you contemplate what the options are. But there are costs to it, and they are additional costs, so people don't want to do it.

I think that might be a way to look at it. Let's look at some options. Let's bring some potential players to the table and and see what could happen there. What do these options look like?

The Chair: Thank you, Mr. Falk.

Mr. Coteau, you have five minutes.

Mr. Michael Coteau: Thank you very much, Mr. Chair.

Thank you for being here today.

We've heard a lot of different testimony on mass timber and its value, including from other witnesses. It's something that I support. I agree with all of the points that are being made. But when I did research, there are some critics out there who say that the weather can have an impact—natural elements, insects, termites, water, fire. Maybe you can take a moment, if you feel comfortable, dispelling or debunking some of those criticisms that get applied to mass timber. How valuable is this and how resilient is the resource when we're building structures today?

Either person can respond.

Mr. David Moses: I can start.

We talk about mass timber; it's something we've specialized in, but we see a lot of other products in steel and concrete that are coming forward that are really providing good solutions as well. And now we're looking at combining them all and making these hybrid structures.

If we want to talk specifically about timber, I think we have dispelled a lot of these myths. If you want to talk about fire, we have excellent fire engineering that happens now, which just didn't exist before. But we have existing over a hundred-year-old buildings. One of my office buildings we're in is just over 100 years old, and it's all timber. It's nail-laminated timber, which has worked just fine all of these years, but we went away from it. Now it's a renaissance and we're coming back to it. But when they built those, they didn't have the same technologies we do now. We talk about encapsulation. We have active fire sprinkler systems and other technologies. That part of it, I'm comfortable with. That's where a lot of the research and energy has gone into developing it.

As for the other items, yes, we are always concerned about moisture during construction, but that's also countered by our surrounding the building and closing it in it rains during construction. Let's close it in faster. These prefabricated systems actually address that because the buildings go together so much faster.

And I'm sorry, were there other—

● (1255)

Mr. Michael Coteau: No, that's fine.

I think it would be good for that to be in the record of the report, because it's important that it has come a long way over the last few decades, to become such a resilient resource.

Ms. Phillips, you talked about its being a Canadian solution, which I think is a great thing. Every province and territory having their own approach to it and uniqueness, I think, is also a good thing.

You talked a little bit about setting up this committee. Every province and territory, as you know, has different codes and different standards. We've heard from witnesses who talked about how even procurement approval for design, permitting processes and codes are all over the place in the country.

The committee that you mentioned, this task force, would it be made up of different members throughout all of the provinces and territories, different municipalities, the federal government? How do you envision its being organized?

Ms. Carol Phillips: Thank you for the question.

I think it could happen at a couple of levels.

In a province, if you look at the tiers of government.... I can give you an example. For instance, if you pick a sector, right now, we're looking at a kit-of-parts elementary school. The provincial standards for space allotments that dictate how much space per child is given to a school don't speak directly to exactly what David was talking about—the economically viable manufacturing dimensions. It comes down to numbers and space. You are precluding technology being advanced, because you're embedding inefficiencies in that. You've given a certain kind of dimension to a room that just doesn't work with the manufacturing in an economic way. If you can get those conversations happening with the manufacturers, you could also get the provincial regulations speaking to the municipal, and understand the federal initiatives, as well.

I think it could work within a province, but there needs to be interprovincial dialogue to help the different industries across the country. There are new factories coming up now in New Brunswick and Nova Scotia, and there is certainly an embedded, robust industry in Quebec and a robust industry in British Columbia. How do we bridge right across...? Is ask this because the forest bridges right across the country. There is potential in that economic engine, and it's renewable.

Mr. Michael Coteau: Thank you so much.

The Chair: Thank you.

We have less than two minutes. Is it the will of the committee to adjourn?

Some hon. members: Agreed.

The Chair: Okay. It's the will of the committee to adjourn. The committee will meet again on Thursday.

With that, I want to thank the witnesses.

Thank you, Ms. Phillips and Mr. Moses, for your testimony before the committee today. I really liked your testimony on old buildings. We seem to have a notion in Canada that it's no good unless we tear down and build totally new.

The committee is adjourned.