



concrete building for life.



Message from the President and CEO



Dear Board Members and Colleagues,

As usual in December, I am pleased to report to you on the work we have done together over the past twelve months and highlight some of our notable achievements. While we were hoping that 2021 would be a post-pandemic year, it turned out to be another year of pandemic, with successive waves of COVID-19 hitting our country and the rest of the world. The Cement Association of Canada (CAC) continued to work relentlessly through these hard times to serve its members and Allies. We were pleased to welcome a new plant to our membership this year, the McInnis cement plant located in Port-Daniel, Quebec, as the newest member of the Votorantim Cimentos Nort America, St Mary's cement family. We also welcomed a new Chair in April – Marie Glenn, VP North Region, Ash Grove Cement Company - who will serve until February 2023.

The COVID-19 pandemic continued to challenge both governments and civil society in 2021. The fact that health and safety issues impact (and are driven by) three levels of government meant that every area in Canada was subject to different public policy responses to helping stop the spread of the virus. What was truly unprecedented was the amount of intervention that governments made, with far-reaching consequences on how consumers and the economy responded to the pandemic.

In hindsight, it was clear that governments truly recognized the benefits of cement and concrete products. Learning from the experience of the previous year, we successfully



Simon Ouellet (Production Manager) McInnis Cement Plant in Port-Daniel-Gascons, QC and CAC CEC

intervened with provincial governments across the country to make sure that cement and concrete operations remained fully operational to support the economic recovery and the much-needed infrastructure projects undertaken across Canada. CAC's continued advocacy throughout the pandemic has been to ensure that any legislation, regulations and specifications allowed the cement/concrete industry to thrive and grow, as well as promoting investment and funding through all levels of government; this advocacy will continue into 2022 and beyond where it will be critical for funds to flow in a timely basis for technology enhancement to allow our cement production to remain competitive.

What no one predicted was that the combination of low interest rates and teleworking resulted in a robust demand for housing, with month-over-month new starts at their highest levels in years. Certain other forms of non-residential construction, investments in infrastructure such as transit, kept construction activity and cement/concrete volumes at elevated levels that added to some tightness to the supply chain. Our industry ramped up production to meet the sharp increase in demand. It took a lot of coordination between the cement and concrete industry and customers working together to address the needs and keeping construction going.

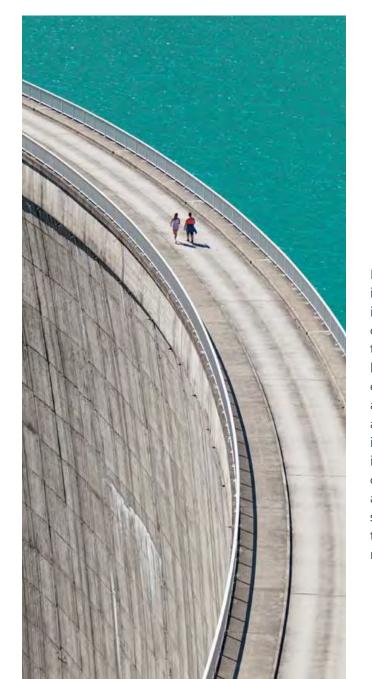
Construction activity slowed down into the fourth quarter of the year, with new housing starts and most non-residential construction declining – but still above pre-pandemic levels. Labour distortions brought on by massive government assistance programs, along with a number of people unwilling to work in COVID-environments and labour shortages in the trades created major challenges across Canada.

The economy as a whole continues to recover from the pandemic, employment levels are close to where they were in March 2020, but supply side concerns may affect the growth for our products for some time. The length of the fourth wave means that the country is not through the end of the pandemic, and economic forecasters are generally adjusting downward global outlooks. Here in Canada, the 'black-swan' event that developed the conditions which boosted construction are now tailing off, with indicators of building investment continuing to slow into the winter. Governments made some big promises last year for assisting the construction sector and while they never seem to fully 'get the cash out the door' there should be strong public sector investments continuing into next year. For our industry's part, we will continue to advocate for government funding for grey infrastructure investment to ensure the recovery is strong for our sector.



Internally, we took the time to step back, reflect on these changing times, and reassess our priorities. This led to the renewal of our strategic plan, which was approved by the Board of Directors in November. Our 2022-2024 Strategic Plan is organized around four strategic pillars: Industry competitiveness; Roadmap to Net zero concrete; Codes, Standards and Specifications; and Health and Safety. It is also supported by the essential foundational pillars of Communications, People and Governance.

CAC's Strategic Plan recognizes the need for building stronger and more collaborative relations with our Allies and other stakeholders like architects, engineers and the ENGO communities. The cement and concrete industry continued to work hand in hand through numerous forms of engagement in 2021, whether through "Concrete Wins" advocacy in Ontario and Alberta or the numerous committees and task groups working with the federal government on the industry's roadmap to net zero concrete. These collaborations are set to continue aggressively, particularly in early 2022, as the CAC zero carbon roadmap gets further developed and a communications rollout plan is implemented. The industry will also come together to map out research and development needs that are becoming more apparent and will provide us with the science and data to communicate effectively with our stakeholders.



In addition, we have undertaken major changes in our communications and marketing strategy in 2021. While we have continuously enhanced our communications strategy in recent years, this is the first time in a decade that the CAC's brand platform, visual identity and digital presence have undergone a more fundamental audit and evolution. This will increase the relevance and appeal of our story to our communities of interest. Our new communications strategy is inspired by a clear mission, vision and refreshed corporate strategic plan which are designed to address the interests of our members, concrete sector allies and stakeholders in the context of the current policy and public affairs environments in which we operate.

"On November 15th, President Biden signed the Bipartisan Infrastructure Deal into law. The CAC and its Members launched an aggressive advocacy campaign to ensure that exports of Canadian cement could still cross the border. Their efforts were successful: an exemption was secured with respect to cement and aggregates imported into the U.S. from Canada."

- Michael McSweeney President and CEO



CAC and Government of Canada announce partnership to advance global leadership in low-carbon concrete production (MAY 2021)

One of this year's achievements that brings me the most pride and satisfaction is our partnership with the Government of Canada's department of Innovation, Science and Economic Development (ISED) to support the development and implementation of a Roadmap to Net-Zero-Carbon Concrete. The partnership aims to provide the Canadian cement and concrete industry with the funding, technologies, tools and policy needed to achieve net-zero carbon concrete by 2050, all designed to position Canadian cement and concrete manufacturers as global leaders in the fight against climate change. I can proudly say that no other industrial sector is putting forward such a positive and proactive message. This is a "first of kind" agreement showcasing the cement and concrete industry's proactive and solutions-oriented leadership on climate change with a plan to reduce 15 megatonnes of GHGs by 2030. While governments and industry have targets for net zero by 2050, it is important that we have a plan that sets targets for 2025 and 2030; this is a reasonable time period where actions we take today will contribute to the Federal Government's goal of a reduction in GHGs of 40-45% by 2030.

It also builds on what our industry is doing at the global level. In October, both the GCCA and the PCA released their Roadmap to Net-zero concrete. We congratulate our U.S. colleagues in particular for this important achievement, especially noting they operate in a country where climate change discussions and policy remains highly polarized.



Thomas Guillot, Managing Director, Global Cement and Concrete Association (GCCA)



YEAR END REPORT 2021

We saw a few government changes across Canada in 2021. The 44th Canadian general election was held on September 20, 2021, which re-elected an almost identical Liberal minority government. We do not anticipate another election at least for another year to 18 months as the Liberal policy agenda will most likely be supported by the NPD. We expect Prime Minister Trudeau to move aggressively forward with implementing plans for GHG reductions for 2030, with the oil & gas industry clearly their first target. While the appointment of former environmental activist Steven Guilbeault to Minister of Environment and Climate Change raised some eyebrows in corporate Canada, the shuffle of Jonathan Wilkinson to NRCan showed that the climate file will continue to be led through the Prime Minister's office. The CAC is in a fortunate position having worked closely with Minister Guilbeault over the past decade when he was leading the Quebec-based ENGO Equiterre, and we have built a solid relationship with Minister Wilkinson over the past 5 years. The re-appointment of François-Philippe Champagne at ISED ensures continuity on major files like the CAC/ISED partnership. The CAC and the Federal Government's agendas align particularly well with infrastructure funding and climate issues being a key focus for both and the progress made to date with engagement of the federal government will continue into the future.

At the provincial level, a newly elected government in Nova Scotia has remained true to continuing with the capital spending plans of its predecessor so far, with significant investments in that province set to roll out in the next several years. The rest of Atlantic Canada have benefitted from the housing boom and economic prospects coming out of the pandemic are brighter than expected. In Manitoba, the new Premier also renewed the pledge to stimulate the economy with investments in new schools and health facilities. and Saskatchewan's Premier Scott Moe looks to benefit from the recovery of oil and gas prices, again with investments in infrastructure. This has certainly helped Alberta's economic outlook, and optimism not seen in a long time has kept construction there on a good trajectory. Premier Jason Kenney's



popularity has taken a huge hit from his actions through the pandemic, his leadership is being challenged by the left, right and centre and it will be the political comeback story of 2022 if he can hang onto the leadership. In BC, Premier Horgan's recent cancer scare has some wondering if he will remain NDP

leader and Premier, but the Liberal leadership race isn't drawing much attention and in any event the BC economy is the best in the country, along with very positive construction activity across most sectors. Of course, we hope and pray for Premier Horgan's complete recovery from his cancer.



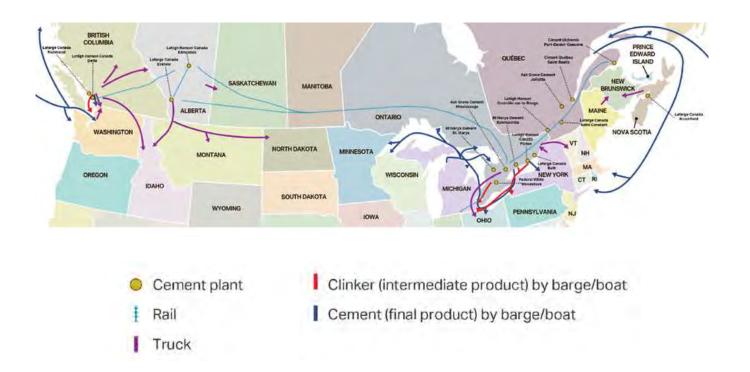


CAC CEO and Hon. Caroline Mulroney, Ontario Minister of Transportation

The next Ontario general election will be held on or before June 2, 2022. It is clear from all parties that they are well into campaign mode. Premier Doug Ford remains a controversial figure and his personal popularity has taken a hit through his various changes in public health measures during the pandemic, but he still is polling better than the Liberals and NDP. We expect that Premier Ford will be campaigning as the leader who will 'build' Ontario and continue to make it a province for investment - announcements on continued funding for transportation infrastructure like the Bradford bypass and Highway 413 and investments in healthcare and long-term care facilities are the most recent examples. In Quebec, the next general election is scheduled to take place on or before October 3, 2022. François Legault's Coalition Avenir Québec (CAQ) party maintains a healthy lead in the polls and his personal popularity through the pandemic has been remarkably resilient. Quebec is also a province which has public investments in infrastructure at the core of its pandemic economic recovery plans. I often remind the team that the CAC's primary role is that of a 'lobby organization' and not a think tank, and as you will see in the renewed strategic plan the CAC plans to keep advocacy efforts at the forefront of its activities and will redouble our advocacy efforts with all three levels of government, architects, engineers and ENGOs with an active presence across Canada in 2022.



Cement and Clinker Primary Trade Flows



Government policies south of the border can also impact the Canadian cement and concrete industry. With the election of the Biden government came renewed threats from the administration to Buy America/Buy American policies. President Biden doubled down on Trump's policy of ensuring that manufactured products were made in the U.S. for federal procurement. For most of the year there was the threat that Canadian exports of cement and aggregates might be prohibited. The CAC and its Members launched an aggressive advocacy campaign to key U.S. lawmakers and the administration to ensure that the 35-40% exports of Canadian cement could still cross the border. For our part in Canada, we were successful in having Canada's Ambassador to the U.S and the Minister of International trade use the Canadian cement industry as an example of unintended consequences with

their meetings with key congressional elected officials. On November 15th, President Biden signed the Bipartisan Infrastructure Deal into law, the Infrastructure Investment and Jobs Act. The Act contains numerous provisions that expand the use of Buy America provisions to cover construction materials. The CAC and Members efforts were successful and the cement industry was able to secure an exemption with respect to cement and aggregates imported in to the U.S. from Canada. More specifically, the term "construction materials" shall not include cement and cementitious materials, aggregates such as stone, sand or gravel, or aggregate binding agents or additives. While we will continue to monitor this Act over the next year, we do not expect the Buy America expansion included in it to impact Canadian imports.







AMERICA NEEDS CANADIAN CEMENT

Did you know Canadian cement helps the American economy?

CANADIAN CEMENT MEETS AMERICA'S NEEDS

- The U.S. benefits from Canadian cement to support American made concrete. Canada's cement supply is reliable, made at union plants to the highest quality, and supports the competitiveness of U.S. cement and concrete manufacturers.
- The U.S. has maintained a beneficial tariff-free trade relationship with Canadian cement, ensuring the raw building material needed to make concrete is available for American projects at reduced shipping costs.
- The "just-in-time" delivery component of Canadian cement shipment to the U.S. ensures American construction projects are completed with less down time and disruption, saving American customers time and money throughout the entire construction process.

CANADIAN CEMENT HAS A LOWER CLIMATE IMPACT

- Using Canadian cement reduces GHG emissions. That's because cement and clinker (the unground raw cement product) are part of the integrated Canada-U.S. market, designed to maximize manufacturing logistics and address regional demand on both sides of the border.
- From a climate perspective, Canada is America's best source for the cement imports it needs, thanks to shorter shipping routes enabled by its geographic proximity to the U.S. and the potential to supply lower carbon Portland-Limestone Cement.

CANADA IS A SUPPLIER THE U.S. CAN TRUST

- Integrated U.S./Canada cement supply chains help ensure America will have the key supplies required to keep building a strong economy.
 Canadian suppliers provide 35% of the 16 million tonnes of cement imported to the U.S. annually.
- The alternatives to Canada are either Eastern Europe or Asia bringing the possibility of higher shipping costs, delays – or both – to critical U.S. infrastructure projects.





As in previous years, we continued our tireless work on the development and amendments of codes, standards and specifications, which are at the foundation of our work. If we cannot influence the development of codes, standards and specifications that the federal, provincial and municipal governments use, then we lose part of the battle before it even begins. The CAC places a huge emphasis on the participation in codes and standards committees by CAC staff, Members and Allies. Our presence on these committees allows us to question the initiatives put forward by others, especially the wood industry which tries to insert changes to allow for higher and higher timber buildings with little data or science that has been peer reviewed. It also allows us an early opportunity to explain and promote the benefits of concrete and in the new era of climate change, sustainability and resilience.



CAC CEO with Jim Watson, Mayor of the city of Ottawa



We also continued to dedicate time and effort towards a "three-screen approach" to infrastructure funding and to promote this approach to federal, provincial and municipal governments. This three-screen approach is designed to ensure that government-funded infrastructure projects will be built once, built right and built to last. Simply put, the approach advocates for applying three screens - lifecycle costing, lifecycle greenhouse gas emissions and a "best available technology" - during the infrastructure decision-making and procurement process.

As you can see, we have many achievements to celebrate and be proud of. However, we need to redouble our efforts to protect our social license to operate, create a culture of concrete across the country and enhance the visibility and credibility of the cement and concrete industry. Think of it simply: if we don't tell our story, who will? Canada needs new thinking on how to build low-carbon buildings and infrastructure while also ensuring these investments bring greater resilience to extreme weather that climate change is already wreaking havoc in communities across Canada. The floods, fires, heat waves and other climate driven disasters experienced in Canada through 2021, including the most recent devastating "atmospheric river" event that has crippled British Columbia, is rapidly increasing the public's sense of urgency around climate change and pushing governments to take bolder action.

In my role as President, my priority is to ensure that our members' financial contribution to the CAC is fully optimized. We need to understand their priorities, economic pressures and how we can add shareholder value for their investors and adapt accordingly. COVID-19 continued to play a significant role in the way we operated during 2021. Our budget, expenditures and cash flow are closely monitored even while cement sales remained strong throughout 2021. As a result of these better results, government financial support dwindled after Q1 2021. But the CAC is ending 2021 in a strong financial position that will allow us to deploy our resources strategically in 2022 which will allow us to support big initiatives such as the roll out of our Roadmap to Net Zero, a doubling of our research budget and the reengagement with key stakeholders.



I am blessed to be surrounded by a committed and talented team at the CAC, who works tirelessly for our Members. This year we saw a few staff changes. Our Director of Communications Lyse Teasdale retired after more than 10 years with the Association and I want to reiterate my gratefulness to her for everything she has done for us over these years. While we are saddened by her departure, we were blessed with the opportunity to hire Geneviève Breton as our new Chief of Corporate Communications. She has a proven track of success both in the political and bureaucratic spheres and she brings a lot of energy to our team. We also hired our first-ever Digital Manager – Derrick Simpson – who comes with recent experience in the construction sector. We also said goodbye to Shane Mulligan from our Western Region,

who left the CAC after five years, but our sector will continue to benefit from his wealth of knowledge and expertise as he accepted new responsibilities with Lehigh Hanson. To replace Shane in Alberta, we recently hired Glen Furtado who joins us with over 20 years of experience in the consulting engineering business, as well as experience working with governments at the municipal and provincial level. His experience combined with his master's in civil engineering will allow the CAC to continue to serve its western Members. The prospect and challenges grow for our industry in 2022, but I know we will continue to provide the services that our Members and Allies value and expect from us, seizing the opportunities and tackling the challenges that lay ahead of us.

Thank you for your support, collaboration and work and best wishes for a Happy, Healthy and Prosperous New Year in 2022!

Michael McSweeney

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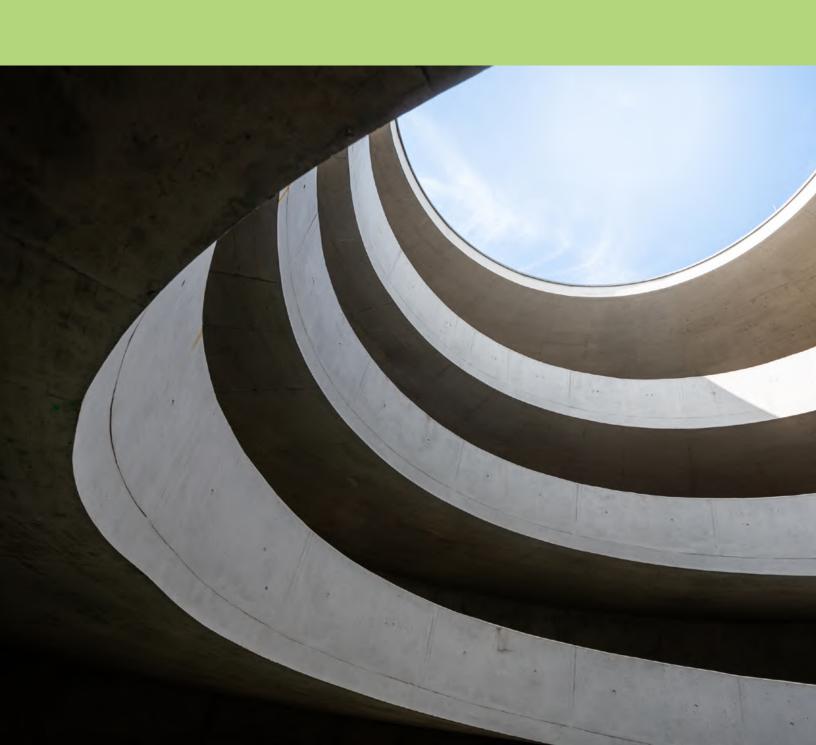
President and CEO, Cement Association of Canada



CAC Team at a dinner following a strategic planning session



National Highlights



Industry Affairs

CAC staff continued to participate in air quality policy development in 2021. We are involved in several aspects of the national Air Quality Management System (AQMS), in particular as it relates to the development of ambient air quality standards, which provides us with an opportunity to ensure our sector's competitiveness is always top of mind as new standards are designed and implemented. Following a pause from the federal and provincial governments in 2020 because of other priorities related to the COVID-19 pandemic, work on air quality issues slowly resumed in 2021. Revised ambient air quality standards were issued in November in Alberta and British Columbia for SO2 and NOX. Work to revise and update the Canadian Ambient Air Quality Standard (CAAQS) for particulate matter (PM 2.5) has also been initiated in December. The CAC will work with other industry sectors as part of this exercise which is coordinated by the Canadian Council of Ministers of the Environment (CCME). The CAC continued to provide support to Members to make sure that regulatory obligations under the federal Multi-sector Air Pollutants Regulations (MSAPR) were well understood and liaison with government officials was facilitated by CAC officials as needed.



Cement manufacturing facilities continue to report their releases to the environment through the National Pollutant Inventory Release (NPRI) administered by ECCC. A CAC representative sits on the NPRI multi-stake-holder Work Group, which provides advice to the federal government on the implementation of the NPRI program. A new reporting platform is being developed and should be ready for the 2021 reporting cycle.

We continued in 2021 to monitor other national and international policy and regulatory initiatives that could have an impact on cement manufacturing activities. This included the analysis of the proposed changes to the Canadian Environmental Protection Act (CEPA), as well as activities on specific substances under the Chemicals Management Plan (CMP). The introduction by the Minister of Transport of the new Ballast Water Regulations in June was also flagged to CAC members operating ships in the Great Lakes. On the international front, we kept following the implementation of the Minamata Convention on Mercury to make sure that any potential impact on our sector would be identified at the planning stage and could be prevented. No such impact has been identified to date.



Video call with Alexandre Boulé, Advisor to the Minister of Foreign Affairs



Sustainability and ENGO Strategy

ENGOs

Amidst the ongoing COVID-19 pandemic, maintaining relationships with ENGOs continued to be a challenge throughout 2021. Cancelled fundraisers limited opportunities to be physically present in the environmental community. Despite these challenges, the CAC benefited from our past investments and credibility with key ENGO influencers through constructive and focused engagements on shared political and policy priorities.



Most notably, the CAC worked closely with Clean Energy Canada, among Canada's premier environmental think tanks, to significantly advance the "Buy Clean" and procurement agenda with the federal government. Some of

this advocacy, which included virtual meetings with key Federal Ministers' offices, helped lay the groundwork for our first-of-kind collaboration with Minister Champagne and the department of Innovation, Science and Economic Development (ISED). Procurement - specifically our industry's interest in moving codes and standards and related procurement policies toward a performance-based model, as opposed to a prescriptive-based model - is a major theme of that agreement and its workplan. The Pembina Institute, another leading Canadian ENGO, has also begun to see the importance of performance-based low-carbon procurement to decarbonizing our sector and meeting Canada's climate targets. As such, they have reached out to the CAC as advocates and thought leaders in this space, inviting our team to engage with them to help guide their work.

The CAC strengthened its relationship with Pembina and Pollution Probe in 2021, engaging them on a variety of projects related to our sector's transition to lower-carbon alternative fuels.

This included support to help secure regulatory changes to Ontario's low-carbon fuels regulations. This relationship will continue into 2022 when Pollution Probe will help develop best practice guidelines on the development and management of community liaison committees. This is vital work now that we have secured changes to regulations in Alberta and Ontario to use zero carbon or low carbon fuels. Where once our fuels came by rail or barges, they now may come by truck, which may raise the ire of local communities.

More broadly, the CAC continues to be valued as a climate change leader and was invited to sit as an advisor to a number of initiatives helping to direct ENGO engagement with governments on the future of climate policy federally and provincially. These included, in particular, initiatives focused on industrial decarbonization policies related to carbon pricing, investment supports as well as specific technologies such as hydrogen and CCUS.



Federal Government

2021 was, relatively speaking, a quieter year in terms of major federal regulatory initiatives on climate change. COVID may have played a role in this, but so did the fact that the most difficult regulatory decisions on climate change are now largely behind us. Carbon pricing, once politically contentious, has now more or less stabilized and government has moved on to a spending-focused climate agenda that aims to link COVID economic recovery with Canada's transition to a low-carbon economy. This is generally a positive opportunity for the cement and concrete sector, which offers both significant carbon reduction opportunities but also a key solution to upgrading Canada's infrastructure.



CAC consultations with the Hon. Chrystia Freeland, Deputy Prime Minister and Minister of Finance

We observe a sense of urgency in the population that is opening the door to more focused progress on areas that the CAC has been advocating for years – low-carbon fuels, low carbon cements, performance-based procurement as well as capital supports to accelerate the adoption of these and other critical technologies like CCUS. In 2021, we made tremendous progress in advancing work on these and other priorities.

However, as Canada and the world continue to wake up to the reality that climate change is already here, already threatening our communities and our economy, we must also be prepared to guard against reactionary policies. For example, as the federal government raises the price of carbon from \$40/tonne today to \$170/tonne by 2030, the CAC and its members will need to double down on past efforts to secure competitiveness protections similar to (and likely more robust than) those already in place. While there are some positive signs that government is considering a broader suite of competitiveness tools, including Border Carbon

Adjustments and investment supports such as the Net-Zero Accelerator Fund, there is also mounting pressure within and outside government to extract deeper reductions from the industrial sector irrespective of the potential competitiveness impacts. Of course, there is also the looming threat of false "silver bullet solutions" such as mass-timber buildings, that threaten both our sector's competitiveness as well as Canada's real progress on emissions reductions. This is why it is so critical that the CAC continue its aggressive (and successful) pursuit of a "seat at the table" with government and key influencers across the country... because "if you're not at the table, you're on the menu."



"We estimate that with government as a proactive and collaborative policy and funding partner, the cement and concrete industry could deliver some 15 megatonnes of GHG emissions reductions (cumulatively) by 2030 and 4 megatonnes annually thereafter."

- Michael McSweeney, President and CEO



CAC President and CEO

ISED Partnership

When the government released its updated climate plan (A Healthy Economy and Health Environment Plan) in late 2020, it was clear that its climate strategy was changing focus. With carbon pricing, the clean fuel standard and related policies now secure, the Government of Canada was turning its focus to a new climate based industrial policy lens. Federal economic departments and agencies were finally being tasked with more direct accountability for developing policy, investment and regulatory strategies to support and accelerate the decarbonization of heavy industry. We were very pleased that the cement lobbying efforts were recognized and that our industry was noted several times in the Healthy Environment and Healthy Economy Plan as a target sector with challenging but significant decarbonization potential.



Hon. François-Philippe Champagne, Minister of Innovation, Science and Industry of Canada

In turn, the CAC launched a re-focused and concerted government relations strategy to replicate the strong relationships we've established with the ministers, their staff and senior civil servants in the climate change and infrastructure focused departments, to the economic ministries that would be leading and funding the second wave of government action on climate change. Key departments included Finance Canada, Innovation, Science and Economic



Marie Glenn, CAC Chair & VP Ash Grove Cement

Development (ISED), Treasury Board Secretariat, Public Services and Procurement Canada (PSPC) and Natural Resources Canada who collectively would be administering funding and directing policy development on critical files for our sector, including the \$8 billion Net-Zero Accelerator Fund, the National CCUS and Hydrogen strategies and funding programs, as well as the Investment Tax Credit initiative for CCUS, among others.





The gist of our strategy was to showcase the cement and concrete's willingness to lead on climate change and to educate the government on the scale of emissions reductions our sector could contribute to Canada's targets. We estimate that with government as a proactive and collaborative policy and funding partner, the cement and concrete industry could deliver some 15 megatonnes of GHG emissions reductions (cumulatively) by 2030 and 4 megatonnes annually thereafter.

No other industrial sector is putting forward such a positive and proactive message. Government recognized the opportunity of our advocacy efforts and moved quickly to secure stronger collaboration with our industry and concrete allies. On May 31, 2021, the Honourable François-Philippe Champagne (Minister of ISED), along with CAC Chair, Marie Glenn and CAC President and CEO Michael McSweeney, formally announced an official partnership between the Government of Canada and Canada's cement sector to support the developmentand implementation of a 'Roadmap to Net-Zero-Carbon Concrete.' The partnership commits government to the goal of providing the Canadian cement and concrete industry with the technologies, tools and policies needed to achieve net-zero carbon concrete by 2050 and to position Canadian cement and concrete manufacturers as global leaders in the fight against climate change.



The partnership aims to provide the Canadian cement and concrete industry with the technologies, tools and policy needed to achieve net-zero carbon co crete by 2050 including by:



Identifying and investing in R&D and "lighthouse" decarbonization projects;



Promoting
migration toward
performance based
low-carbon
procurement policies
and specifications;



Supporting
domestic and global
market development
for low-carbon
cement and
concrete solutions;



Drivinginnovation through
a nimbler Codes
and Standards
process.

This is a "first of a kind" agreement showcasing the cement and concrete industry's proactive and solutions-oriented leadership on climate change. It is anticipated that our work with government will establish the template for other sectors on industrial climate policy. Thought leaders and influencers outside of government understand this and are eager to support us toward a successful outcome. The success of this agreement will have ongoing benefits to our relationships within government as well as with ENGOs and other influencers in the fight against climate change.

Working groups have been identified to implement various aspects of the partnership and they began their work in November. It is expected that ISED will announce a "government roadmap for Net-zero concrete" supporting our net-zero journey in coordination with the release of our Industry's Roadmap to Net-zero Concrete in Q1 2022. This will be a marquee achievement in 2022 validating cement and concrete as essential materials in the fight against climate change.



Low-Carbon Concrete Procurement

In late 2020, the Government of Canada announced an updated and more ambitious Greening of Government Strategy, which committed to adopting many of the procurement approaches the CAC has been advocating for many years, including greater reliance on lifecycle-based approaches to procurement. In 2021, we seized this opportunity to work even more closely with National Research Council (NRC) and Treasury Board of Canada Secretariat (TBS) to advance this file. Our goal was to convince them to use the cement and concrete sector as the first material to negotiate low-carbon requirements in support of TBS's desire to drive innovation in low-carbon design through performance-based procurement policy.



Hon. Jean-Yves Duclos, President of the Treasury Board

Cultural inertia at the working level within the public procurement decision chain is a major barrier to squaring the circle between government's ambition on climate change versus the actual execution of low-carbon solutions.

Ironically, TBS has found that its internal efforts within government to modernize procurement policy encounter the same resistance from engineers and specifiers that the CAC has encountered when promoting Portland Limestone Cement (PLC) and other lower carbon cements. While frustrating, this process has helped government understand what the CAC has been highlighting for years – that cultural inertia at the working level within the public procurement decision chain is a major barrier to squaring the circle between government's ambition on climate change versus the actual execution of low-carbon solutions, including "no brainers" like lower carbon cements.





Despite challenges, TBS is working with the CAC to lock in basic criteria to ensure a minimum of low-carbon disclosure and performance from concrete used in federal projects. New requirements are expected to come into effect mid-2022 that will move our industry closer to full lower carbon cement adoption and mandate/support public procurement decision makers to adopt lifecycle tools and low-carbon metrics into their decisions. Work will also continue under the various ISED committees, and through external efforts on "Buy Clean" with ENGO partners, to move beyond minimum requirements toward more flexible performance-based frameworks that will create greater incentives for existing and emerging lower carbon cement and concrete innovations.

Another notable achievement related to our work on this file was securing \$200,000 in funding to accelerate deeper environmental transparency and reporting (i.e. EPDs and related tools) for cement and ready-mix concrete (with more likely to come in 2022 for pre-cast, masonry and block). No other sector has been able to secure this support, a testament (according to government officials!) of our sector's proactive, collaborative, and credible leadership.

While we are deeply excited about the progress we've made this year, there is much left to do to modernize low-carbon procurement and specifications for concrete. This will be a priority focus in 2022 where we hope to leverage our shared vision with governments to develop and deploy meaningful technical, procedural and cultural change toward performance-based codes, standards, policies and practices at all levels of government as well as in the private sector.

Carbon Capture Utilization and Storage (CCUS)

The federal government has signaled that it sees CCUS technologies as critical to Canada and the world's decarbonization goals. Canada currently has an advantage in CCUS as home to one of the largest operating CCUS facilities in the world and to an outsized number of innovative CCUS technology companies. As the GCCA Roadmap to Net-zero Concrete confirms, CCUS will play a critical role in making net-zero concrete a reality, likely accounting for upwards of 35% of CO2 reductions from our sector by 2050.



At the same time, CCUS is seen as an "unproven and expensive distraction" by some ENGOs who understand CCUS only as a tool to dangerously extend the lives of fossil fuel assets in Canada and around the world. For this reason, it is critical that we boldly articulate the necessity and value of CCUS technologies to our sector while guiding and supporting governments in their pursuit of accelerating the deployment of CCUS in sectors outside of oil and gas.



For example, the CAC was invited to a small private consultation with the Deputy Prime Minister and Minister of Finance, Chrystia Freeland, on the design of the ITC. Likewise, the CAC was invited to sit as a member of the Government's CCUS Thought Leaders Group to advise on the development of Canada's CCUS Policy and Funding strategy. The CAC also sits as an invited member of a variety of external advisories, such as the Forum for the Future. Collectively, we hope these efforts will position the cement and concrete sector as central players in the successful deployment of CCUS technologies with the potential for significant GHG reductions. Most importantly, we hope and expect these efforts will attract the necessary capital funding support to existing and forthcoming CCUS projects in our sector.



Industry Net-zero Roadmap

The CAC and its members and allies have been fortunate to have helped support the global commitment to Net-zero. In Q3 this year, we launched our own process to build on the tremendous work of our GCCA and PCA colleagues and develop our own Canada specific Net-zero Roadmap. We are very pleased with and grateful for the level of enthusiasm and engagement from the whole cement and concrete value chain in our process and would like to thank our members, our allied concrete associations as well as independent concrete producers from various regions of Canada for their efforts and support.



Marketing Communications

A Year of Transition

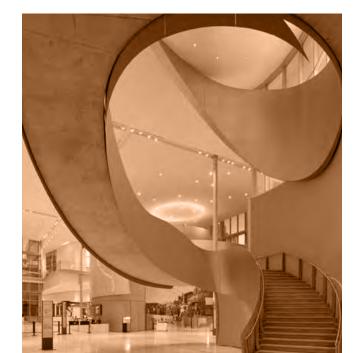
This past year has been one of major transition for the CAC's marketing communications, as we revitalized our communications strategy to optimize its impact, continued to promote concrete as a sustainable building material, amplified the industry's leadership in addressing climate change and assembled a new communications team in anticipation of Lyse Teasdale's retirement.

Revitalizing our communications foundation

While we have continuously enhanced our communications strategy in recent years, this is the first time in a decade that the CAC's brand platform, visual identity and digital presence have undergone a more fundamental audit and evolution. Our new foundation will increase the relevance and appeal of our story to our communities of interest, which is all the more important as we prepare to launch the Canada's cement and concrete net-zero industry roadmap in early 2022.

Our new communications strategy is inspired by a clear mission, vision and refreshed corporate strategic plan which are designed to address the interests of our members, concrete sector allies and stakeholders in the context of the current policy and public affairs environments in which we operate.

It will allow us to reach a new level of excellence in positioning the Canadian cement and concrete industry as innovative leaders; concrete products as sustainable, durable and local; and the CAC as a thoughtful partner and credible resource — a transformational agent of change.





Industry Stakeholders Perception Study

Our communications strategy was informed by feedback from our members as well as the findings from an independent qualitative study of stakeholders in the influencers, architectural and transportation specifications communities. The study sought their views on concrete, the industry and its carbon emission reduction objective. The findings showed that stakeholders are supportive of the industry's goal of achieving net-zero concrete by 2050 but expect tangible action and a clear roadmap with short-term targets and results to maintain their support. The study's results were presented to CAC members and Allies in the spring of 2021.

Refreshed brand expression

All key elements of the CAC's visual identity have been redesigned to have a modern aesthetic that better reflects a dynamic, innovative industry and will increase the appeal of our communications. Our logo was adapted to be synergistic with concrete and take on a human, organic shape. Our tagline evolved from "Concrete |Build for life" to "Concrete. Building for life", a subtle change that gives it more power. Our fonts are more approachable. Our color palette is now softer, more engaging and it coordinates well with that of the GCCA, allowing us to harmoniously leverage their visual assets.



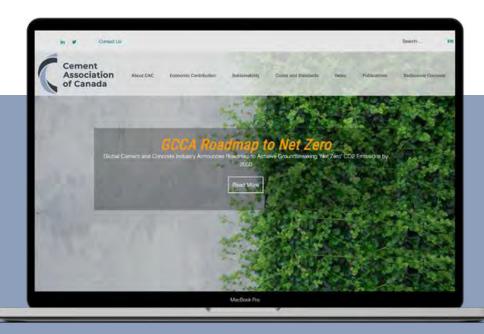
New digital footprint

A key element in the CAC's strategy to increase its relevance as a thoughtful and credible partner and consolidate its position as a transformational agent of change is building a best-in-class digital footprint, with a restructured website aligned with our social media platforms. Slated for a formal launch in January 2022, our new website tells our story in a fresh, engaging style, bringing into sharper focus our path to net-zero concrete and concrete's contribution to a sustainable future. It integrates, updates and expands on the most relevant content from cement.ca, concretebuildforlife.ca and rediscoverconcrete.ca, replacing these older sites.

The new site leverages more fully the breadth and depth of expertise within our industry as it brings together under an **Expertise Center** a broad range of technical resources to facilitate awareness and understanding of industry innovations for sustainable construction as well as best design practices with concrete. A work in progress, the Centre will cover cement and concrete materials, climate change and sustainability, buildings and transportation infrastructure.

The website will also integrate a new customer relationship management (CRM) system, a tool we will use for keeping track of people who interact with us (members, politicians, engineers, and architects). It will enable us to broaden and target our email marketing audience and keep our members and stakeholders better informed, so that they too can target their customers.

Our social media channels have seen major growth in the last five months as we are proactively posting more video content and engaging with stakeholders online. We have begun acting more proactively on social media to position cement and concrete as the building material of tomorrow. We have been working to strengthen our online relationships with our members and stakeholders, as seen through our continuous online engagements with members, or through larger projects like the GCCA Roadmap, which saw more than 15 unique Canadian stakeholders voice their support for the roadmap.



Our engagement has grown steadily on social media in the later months of 2021, with a:

67%

increase on Linkedin in organic (non-sponsored) impressions over 2020 433%

increase on Linkedin in click activity

71%

increase on Twitter in follower growth and 6.3x more mentions

Our engagement rates have more than doubled on both platforms. You may have already caught a glimpse of our new digital approach in the CAC's recent video on the industry's path to net-zero concrete which has been pinned on our Twitter feed.

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Twitter August-October 2020 to 2021 Compared

71%
Improvement in Follower Growth

6.3x

Increase in Mentions

2.5x

Higher Engagement Rate 14,670

More Total Impressions

2020 vs 2021 Linkedin Comparison

IMPRESSIONS





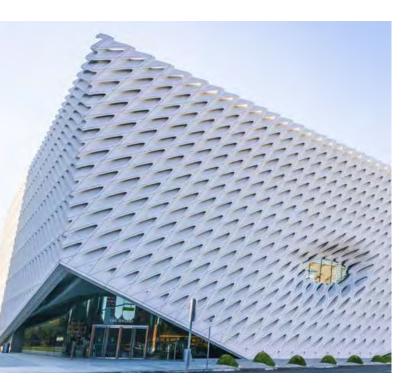


Amplifying the industry's commitment to net zero

While much of this year's communications work focused on revitalizing our communications strategy, promoting and amplifying the industry's leadership at the national and global levels in addressing climate change and advancing towards net zero has been just as consequential a priority. As was previously mentioned, the most defining moments of the year was the announcement of the CAC's partnership with the Government of Canada supporting the development and implementation of our roadmap to net-zero concrete. A strong digital advertising campaign positioning the partnership and the industry's leadership ran over a two-week period, reaching over 160,000 individuals in our target audiences and generating **over 1,800 visits on cement.ca**, where the virtual event and the announcement itself were posted.

More recently, we actively supported the GCCA's netzero roadmap announcement across all our digital channels as well as the PCA's. A lot of progress was made this year on improving the reputation of cement and concrete as a sustainable material. There were many articles and digital pieces produced to promote our industry as the net-zero building solution.

- → CBC article on how to make <u>Concrete more</u> environmentally friendly
- → Canadian Concrete Expo article
- → <u>LinkedIn article on supporting net-zero</u> concrete globally
- Video on Net-zero concrete



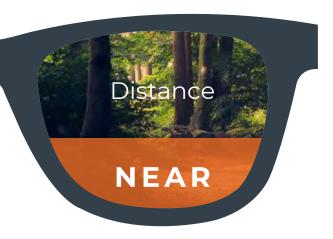
On a more tactical level, we communicated the industry's advances towards net-zero to subsets of our target audiences. For example, we participated in virtual events such as the 2021 Federation of Canadian Municipalities Annual conference, the RAIC 2021 Congress on Architecture as well as several presentations to federal House and Senate Committees and provincial legislative committees; contributed articles to industry publications such as Construction Canada, Canadian Concrete Expo's Staying Connected Magazine, International Cement Review and World Cement; and collaborated with CBC online on a positive article on "green concrete".



Codes and Standards

2021 was a landmark year for the Codes and Standards.
Starting this year, the focus for the CAC Codes and Standards work wasto ensure alignment with the industry's commitment to Net-Zero Concrete by 2050. Tasks that stem from our strategy were filtered through "progressive green lenses".





Codes and Standards operate at the core of the CAC mandate to serve the best interests of our members. Technical expertise supports our advocacy with the governmentw and provides the framework for the industry's market share.

Four key pillars form the strategy of the Director Codes and Standards work, with the goal to facilitate new cement and concrete products acceptance, as well as to protect our market share:



Develop

and/or improve the acceptance criteria for our products;

Improve

the design standards for the end product, that is reinforced concrete Improved design guidelines to make reinforced concrete structures a more attractive solution is terms of economy, safety, resiliency, sustainability, and versatility;

Advocate

for concrete as the material of choice compared to the other competing materials, such as wood and steel. Develop an allied network of academics and consultants to improve our influence in code committees;

Support

and propose research projects that provide the scientific evidence to support our advocacy within governments and the industry priorities.



National Building and Fire Code of Canada (NBCC)

The CAC holds active memberships on three NBCC Standing Committees (Fire Protection, Structural Design and Earthquake Design) and also participates as required on the Standing Committee on Housing and Small Buildings. Key NBCC issues currently being addressed by the CAC include:

NBCC New Governance Model – The RCT Agreement

The Regulatory Reconciliation and Cooperation Table (RCT) is a federal-provincial-territorial body established by the Canadian Free Trade Agreement (CFTA) to oversee the regulatory reconciliation process and promote regulatory cooperation across Canada. A new governance model for the National Code Development System was drafted in collaboration with the Provinces and Territories and the agreement was signed by all parties this past year. As captured in the agreement, Canada (NRC) will support the work of all Parties within the National Code Development System to execute change from the current system into a more inclusive, agile, responsive governance model to achieve a desired performance that includes collective and effective decision-making by all Parties, integration of all Parties' code development activities and the engagement of stakeholders and the public. This means that the NBCC will be the de facto building code for all Canada adopted in a timely manner and it will replace all provincial building codes. A provincial jurisdiction may still maintain a limited number of exceptions to the National Model Code. These exceptions will be applicable to that particular province only. One of our goals is to advocate a more nimble/timely code development. If we are to meet the Government's target of 40-45% reduction in GHGs by 2030 then the code cycle has to speed up. It cannot take 5 years cycles any longer or we will lose precious time to meet our 2030 targets.

Assuming that the NBCC adopts the CSA concrete standards as is, this agreement is of great benefit to the industry because our participation in the NBCC will be even more instrumental to influence decisions made across Canada. The CAC supported the addition of a new ministerial body that will provide the technical priorities stemming from government policy for each new Code cycle. Currently there is work underway to reduce the variances between Provinces and Territories and the CAC has had the opportunity to provide comments during the consultation period.

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Technical Changes That Benefit the Cement and Concrete Industry

The new provisions in farm buildings allow for more robust seismic design. The farm building code was outdated and the changes bring it up to speed with all other occupancy types. Significant changes in seismicity in Canada require structures to utilize more material to withstand more severe seismic events. These changes are beneficial to the cement and concrete industry as they apply across the board for all building materials and essentially project a market growth for concrete.



Wildfire-Urban Interface Guide (NRC)

This is a new guide developed by the NRC under the climate change adaptation program following the wildfire in Fort McMurray. It provides guidance for building fire safe structures. Buildings located within ten meters from forests are now required to use non-combustible materials such as concrete. The CAC consulted with the Association of Fire Chiefs to alignadvocacy efforts. The guide was published in 2021.

CSA Standards - Cement and Concrete Activities

CAC participates in a variety of CSA standards, including CSA A3000 Cement; CSA A23.1 Concrete; CSA A23.3 Design of Concrete Structures (as Secretary of the committee); CSA S413 Parking Structures and the CSA S6 Bridge Code. Recently we were also invited to join the CSA S850- Design and assessment of buildings subjected to blast loads. By participating in this code work we can ensure cement and concrete solutions are fully recognized and can also monitor and ensure data and science is provided by other competing building materials who sometimes advocate for code changes without the rigor that our industry provides. Current issues that the CAC is addressing through the CSA with relevance to the cement and concrete industry are described below.



"If we cannot influence the development of codes, standards and specifications that the federal, provincial and municipal governments use, then we lose part of the battle before it even begins.

The CAC places a huge emphasis on the participation in codes and standards committees by CAC staff, Members and Allies."

- Michael McSweeney, President and CEO

New Amendment in A3000- PLC, Harvested Fly Ash and other changes

The new CSA A3000 Amendment was published in May 2021. PLC has been accepted for use in sulphate environments without the use of SCMs. New provisions for harvested fly ash for use in concrete have also been adopted. Coal fired power plants in Canada are currently being retired or converted to natural gas at a rapid rate and all are legislated to be phased out by 2030. Without inclusion of harvested fly ash in the standard, critical shortages were anticipated imminently. More recently we have started to look at SCM supply around the Great Lakes; slag shortages are also anticipated by 2025. In addition, a number of changes passed in this latest amendment. We were successful in defending removal of the Moderate and High Sulphate-resistant cements (MSL and HSL). We also removed the limits for the Heat of Hydration in cements which was an impediment in increasing the limestone content in PLC.



Carbon Sequestration in Concrete and Recycled Aggregate

A new Annex on Carbon Additions has been adopted as an amendment to the existing CSA A23.1-14 Concrete standard and in the 2019 edition as well. This technology reduces the carbon footprint of concrete without affecting its plastic properties or performance and provides the concrete industry with its own Carbon Sequestration mechanism to combat climate change.

New provisions for using recycled aggregate in structural concrete are currently underway. The CAC successfully defended the idea in the last Technical Committee meeting.



Ultra-High-Performance Concrete

For the first time since its inception, Ultra High Performance Concrete (UHPC) has been adopted in CSA Standards. A UHPC annex now appears in the CSA A23.1-19 Concrete Standard and also in the 2019 CSA S6 Bridge Design Code. These new Annexes will provide guidance to the ready mixed concrete industry and designers alike in the design, testing and utilization of UHPC.

Concrete Design

We are in a new 5-year cycle following the publication of the 2019 edition. Important updates on seismic design and anchorage will be available in the next edition in 2024. High strength reinforcement will be introduced for the first time which will reduce reinforcement congestion and improve the constructability of reinforced concrete structures. This technology has great potential in reducing embodied carbon through lean construction.

Parking Structures

The new Parking Structures standard was recently published. The S413 Committee received pressure throughout the year to allow wood to be used in parking structures. The CAC successfully defended the use of concrete and the committee rejected the proposal for allowing wood due to durability concerns. New provisions permit the use of corrosion-resistant rebar. In addition, it was clearly identified in the scope of the standard that provisions for the better use of concrete apply across the board for structures with parking garages including residential construction. This clarification puts pressure to the Homebuilders to use quality control in concrete.



Canadian Highway Bridge Design Code S6 (CHBDC)

A new edition of the Code is underway. CAC's Director of Codes and Standards is the chair of two working groups; concrete columns, and concrete materials. An important objective for this cycle in collaboration with the seismic subcommittee is to reduce the minimum reinforcement in columns. The CAC is also working to respond to the request by regulators to replace the acceptance of a concrete batch by cast cylinders to cores taken from the structure. CAC responded with a caution to regulators that concrete cores can vary in strength based on the structure geometry and placement, something that the supplier is not responsible for.



Research and Development

The Low Carbon Concrete R&D Initiative

The CAC continues to work with the NRC in developing a research roadmap to net zero concrete. We held several pre-meetings with allied groups, government and academics in 2021. Seven workshops will take place by the end of 2021 and more than 160 participants have registered. The Low Carbon Concrete R&D initiative will provide critical outputs in the following four areas:

- Assessment and development of new substitution materials for use in concrete such as PLC with higher limestone contents and alternative SCMs;
- → New technologies to enable structures to be built with lesser amounts of higher performance concrete (lean construction);
- → Carbon capture and utilization;
- → Support for the use of alternative fuels in cement kilns.







Low Carbon Concrete Initiative

The production of senses, the key component of amounts contain the neutral, is a significant carbon emitter both in Canada and which wide. The Rabeshal Messach Council, working with the Cement Association of Canada, is developing the Lore Carbon Canada in inflative to product and Hample the Introducing trooled to move the some site industry to not zero carbon eliminates.

Carbon in Coment and Concrete Products

Reducing the embedied carbon in the cement manufacturing process is a critical component of meeting Canada's 2010 and 2050 carbon targets. Cement, the binding material in concrete, accounts for 5% of annual worldwide carbon production, while Canadian cement production is estimated to add more than 10.8 Mt of carbon dioxide to the atmosphere every year, 1.5% of Canada's GHGs emissions in 2017³

The Canadian rement industry recognities the need to reduce the embodied carbon in its products and has been preactive in introducing new products such as Portland Limication commant, which has up to a 30 % lower carbon footprint¹⁵ than ordinary Portland Cement (OPC). However, to become a net zero construction material while maintaining or improving durability and without significant cust implications requires significant research work to develop and validate the needed new technologies and processes. This work is the focus of the Low Carbon Concrete Initiative. Following the workshops, NRC will support the CAC in seeking funding for research from other federal departments.



CAC research proposal funded by the CSA

"Methods for evaluating the reactivity of supplementary cementitious materials (SCMs) for use in concrete" submitted by the CAC was awarded \$35K. The project will help us in making changes to the test that qualifies pozzolans (SCMs). The cement industry will work with the University of New Brunswick and the University of Sherbrooke to investigate the performance of the test over a wide range of pozzolans over the next year. With plenty of new materials in the market and startups marketing SCMs with unknown performance the CAC wants to make sure we have the right tools for fair evaluation.



40

Publications

The Concrete Design Handbook will be updated in 2022 following the release of the 2020 NBCC¹ to reflect the new requirements and revised specifications of the CSA cement and concrete materials standards and the CSA concrete design standard. More specifically, the current CAC Concrete Design Handbook references the 2014 edition of CSA A23.3 and must be updated for the 2019 edition of that Standard as it contains the Explanatory Notes to the A23.3 Standard that educators and practitioners use in applying the Standard to reinforced concrete design in Canada.

The Design and Control of Concrete Mixtures (EB101) 9th edition is being published in December 2021. The new edition includes updates on PLC, sustainability, aggregate pyrrhotite and UHPC. This publication is CAC's main educational material that is used in engineering programs at colleges and universities.

Going digital and offering subscriptions

Both the Design and Control of Concrete Mixtures and the Concrete Design Handbook are now offered in digital format. The new digital format is compatible with programs that offer accessible formats using the web tool plugin for people with disabilities. We also have started offering institutional and corporate subscriptions to our publications exclusively online!



New Design and Control of Concrete Mixtures 9th Canadian Edition

¹The publication of the 2020 NBCC was delayed to December 2021 because all meetings are now virtual and there was a large number of comments received after public review.



Markets and Technical Affairs

Economics Program/Market Intelligence

This year saw a dramatically different environment for the cement and concrete markets. While the third and fourth waves of COVID-19 swept across the country construction shut-down did not rematerialize, and in fact, construction levels were at higher than pre-pandemic levels in the residential sector. Demand was high and ensuring all customers were supplied became a challenge. Supply chain disruptions, labour shortages and material costs all became more important factors which put limits on the construction industry's availability to keep projects on schedule and on cost, leading to delays and in some cases project cancellations. Tracking government capital spends remains challenging as this segment of construction spending was and will remain critical to cement and cThis past year, much of this construction-related information was communicated through the CAC's bi-weekly reports and specific Monitors were released on critical issues. Presentations to Allies and CAC members also continued throughout the year. As in 2020, government programs to assist businesses was an important aspect this year and timely communication of the various changes to Members and Allies was critical.



The CAC Director Codes and Standards, Dr. Stamatina Chasioti with academics and specifiers at the CSA A23.3 Design of Concrete Structures TC meeting.

A few years after ending the CAC's consumption forecasting, the CAC Board approved its resumption in 2021. A revised forecasting model has been undergoing updates and improvements through a consultant and the first draft was presented to the Board of Directors at their November meeting. The 'black swan' event of the pandemic resulted in a boost of cement demand that was unexpected, and now that many of the drivers of that demand are receding it remains challenging to predict how 2022 demand will play out, especially with building permits and new housing starts showing month-over-month declines leading to the end of the year. Our new forecast predicts that both private sector demand and public sector capital investments will be strong through 2022, and although we expect demand for cement will be slightly lower this year, it is still above levels of the past few years. The Board of Directors has also approved the resumption of Monitor reporting, which will be shared with members and Allies, together with the twice-a-year forecasts in late March and August.



Education and Training

Part of the Cement Association's role is to help educate public / private owners, engineering / architect consultants, and contractors of the many benefits of cement and concrete products used in roadway applications. To assist in this process CAC staff developed a technical summary document on PLC and organized / participated in several webinars and courses. The following is a highlight of some of the education and training activities:



→ PLC Technical Summary Document

To facilitate the transition towards PLC across Canada, CAC staff compiled an information package on PLC and PLC- based Hydraulic cement to assist agencies in their due diligence assessment for the products adoption in local specifications. The document was reviewed and discussed with all member companies and technical PLC experts Doug Hooton and Mike Thomas prior to its release in March. An update of the document was made in May and a second update is scheduled for December which will include recently released research on PLC and update the project lists in the appendix.

→ Municipal Concrete Pavement Webinar Series

Concrete Ontario and CAC continued to host the Municipal Concrete Paving Webinars series which were attended by government agencies, cement companies, consulting firms and contractors from across Canada.

→ Scott McKay Concrete Technology Course Presentations on February 9th and 11th

CAC staff took part in the weeklong Scott McKay Concrete Technology course doing presentations on Concrete Pavements and Concrete Innovations which included discussions on PLC.

→ Presentations to various audiences

CAC staff developed and delivered a large number of technical and educational presentations at various events across Canada throughout the year. These included the following events: CLF Vancouver Infrastructure Event Planning Webinar; Canadian Concrete Pipe and Precast Association (CCPPA) Fall Meeting Presentation; SWIFT Conference Concrete Pavement Session; PCA / ACP Monthly Paving Webinar; Municipal Engineers Association (MEA) Annual Meeting Presentation; Concrete Saskatchewan and Concrete Manitoba PLC Webinar; and the DIALOG Design Low Carbon Concrete Inquiry.

Technical Committee Involvement

CAC Ontario Technical Committee held four meetings in 2021. The key function of this group is to discuss Ontario's Cement and Concrete Industries technical issues and liaison with MTO and Ontario municipalities on specification, certification, and testing issues. Other areas of discussion are marketing and promotional topics, liaison with OGRA Concrete Liaison Committee, liaison with Concrete Ontario and the research needs for the industry. Key accomplishments of the Committee in 2021 included:

→ Cement Treated Open Graded Drainage (OGDL) Layer Allowable Delivery Time

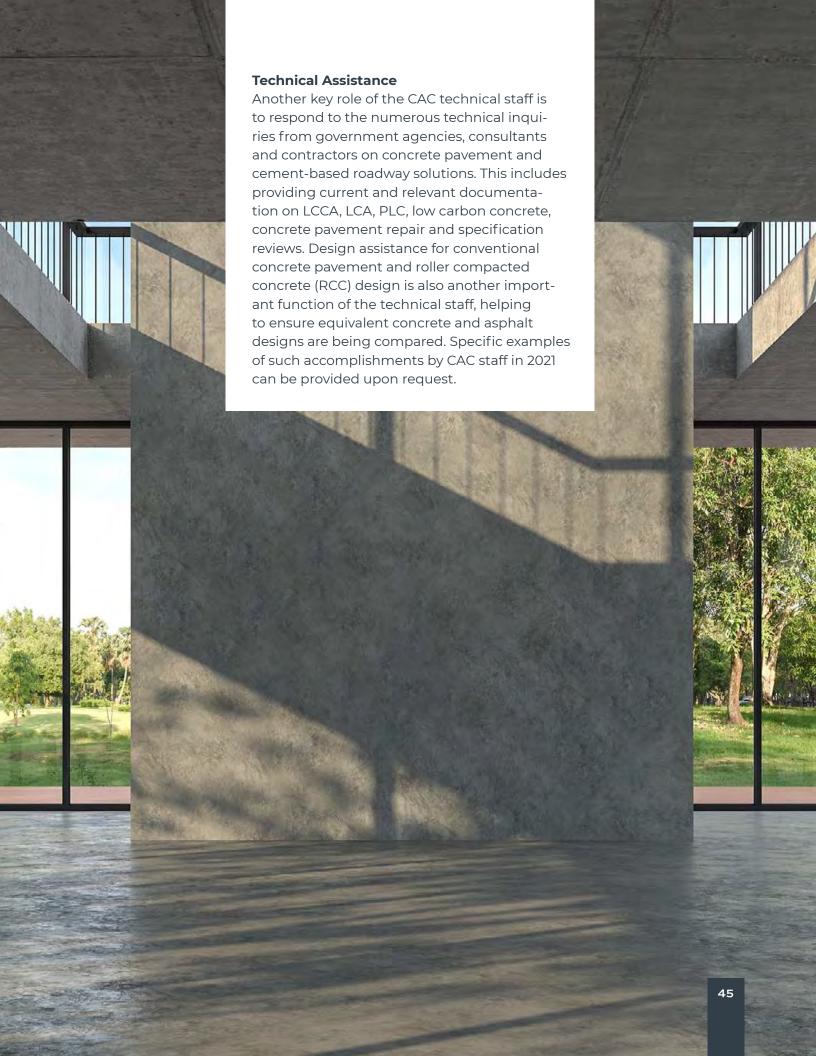
CAC staff are in continuing discussions with MTO staff to have the allowable delivery time for cement based OGDL increased from the existing 30-minute time limit. Detailed documentation showing how another DOT basing the allowable delivery time on ambient air temperature has been presented, as well as strength and porosity data for samples taken at varied times.

→ MTO TNM Noise Modelling Issue

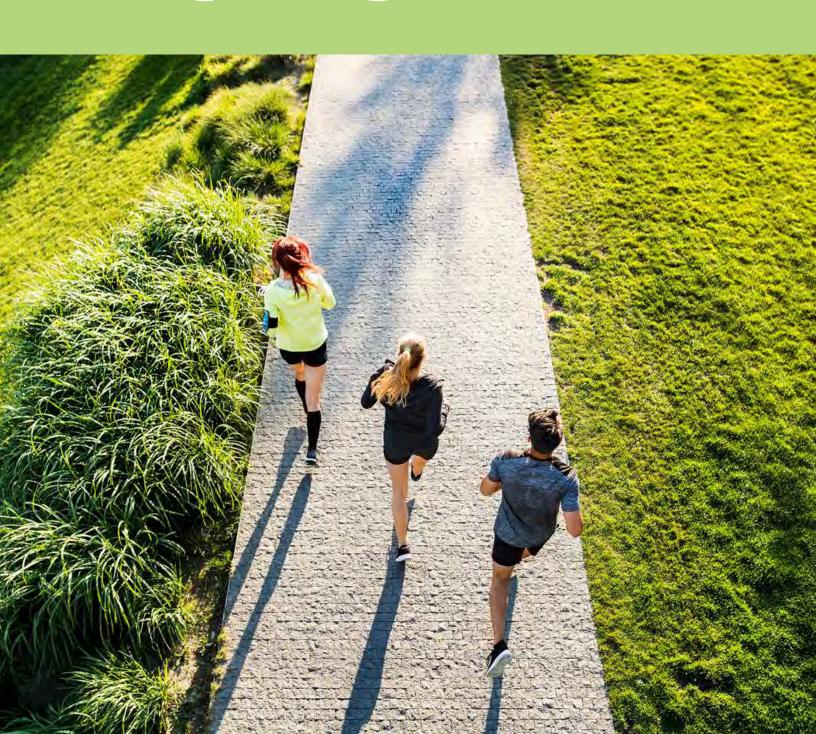
It was brought to our attention that the MTO Environment department was using the FHWA TNM noise software to evaluate new roadway projects (widening or new alignment) for potential noise issues. It was also noted the version of the model being used could not distinguish the difference in noise level when using different types of concrete pavement texture. CAC staff engaged with the MTO and will continue to monitor this issue to ensure concrete pavement is not put at a disadvantage due to the wrong application of the TNM noise model.

- → Abrasion Resistance Testing GU versus GUL
 At the direction of the Committee, CAC staff coordinated
 the hiring of a consulting firm to perform abrasion resistant
 testing of concrete specimens prepared using GU and GUL
 cement from its four Ontario member companies.
- → Cement and Concrete Reference Laboratory (CCRL)
 Acceptance for MTO Sulphate Testing MTO
 officially released the Amendment to OPSS 1350, November
 2019 Special Provision No. CONC0006 in May 2021 allowing
 Cement company CCRL certified labs sulphate mix design
 test results to be used to demonstrate resistance to sulphate
 attack.
- → Reviewed and Comment on MTO OPSS and OPSD Documents CAC Staff reviewed and comment on numerous OPSS and OPSD documents received form the ORBA and the MTO OPSS / OPSD review Committee.

Acting as representative for the Cement and Concrete Industry CAC staff promote the many benefits of concrete pavements, cement-based roadway solutions and use of PLC and low carbon cements to various organizations and technical committees such as the Transportation Association of Canada (TAC) committees, the Ontario Road Builders Association (ORBA) Structures and Concrete Paving Committee, the American Concrete Institute committees, OGRA Municipal Concrete Liaison Committee, Concrete Ontario Technical Committee, and the Canadian Airfield Pavement Technical Group (CAPTG).



Western Region Highlights



In 2021, the NDP government focused on delivering on its platform that centered on affordability for families and a strong emphasis on the environment. A fractured and rebuilding BC Liberal opposition left the government mostly unimpeded in its efforts.

However, a record-breaking hot summer "heat dome" with temperatures approaching 40 degrees Celsius across Metro Vancouver that resulted in several hundred heat-related deaths, and multiple wildfires across vast areas of southern BC and the destruction of the small town of Lytton while the Premier was away on vacation did generate some public and political discourse. In November, B.C. declared its third state of emergency of the year in the wake of catastrophic flooding and widespread destruction of major infrastructure due to the passage of "atmospheric rivers". The emergency declaration empowers the government to take a number of actions, including speeding up contracting for infrastructure repairs. Despite these challenges, John Horgan remains one of the most popular Premiers in Canada.

The BC Liberal party leadership campaign is currently underway with a total of six candidates in the race. The new leader will be selected on February 5, 2022 and will replace interim leader, MLA Shirley Bond. In late October the BC Premier released a statement that, after noticing a lump in his throat, he was undergoing surgery. The premier indicated that he will be continuing his duties, but Minister of Public Safety and Solicitor General Mike Farnworth was appointed as Deputy Premier.

Government Relations



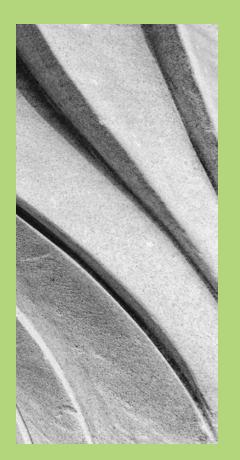
British Columbia

As the New Year began in BC and the province then reached the first full year of COVID-19 pandemic restrictions on March 13, 2021 the third wave hit and infection numbers climbed to nearly 1200 per day by mid-April. As the vaccination program began to roll out to the public in the spring and summer, however, there was hopeful anticipation of a quick return to normalcy. With the province in the middle of a lock-down and much of the business world now well versed in electronic virtual meetings, the BC Throne Speech was delivered in the BC Legislature on April 12th with many government and opposition MLAs participating remotely. Government expressed it plans to focus on recovery from the COVID-19 pandemic.

The BC government delayed its usual planned late February budget to April 20th. Instead of a live, in-person budget lock-up the briefing was held remotely with the BC Finance Minister Selina Robinson introducing a pandemic recovery 2021-2022 Budget with support for both workers and businesses. This included significant capital infrastructure stimulus funding (\$26.4 billion over three years) as well as additional funding under the Clean BC Program for Industry, totaling \$98 million for the current budget year for an overall program budget over 3-years of just over \$430 million.



In late October government released its Clean BC Roadmap to 2030 that is intended to reach a 40% GHG reduction target by 2030, from a 2007 baseline. The roadmap includes actions across eight pathways including: low-carbon energy; transportation; buildings; communities; industry; agriculture, aquaculture and fisheries; forest bioeconomy; and negative emissions technologies. The net-zero requirement for new buildings by 2030 and the commitment to increase the carbon price to meet the federal benchmark are the more notable commitments of interest to the cement/ concrete industry.



Over the year the cement industry provided input to Metro Vancouver on its proposal to update and amend the Metro Vancouver Air Quality Permit Fee Bylaw. This included virtual meetings with technical staff, written submissions by the Cement Association, Lafarge and Lehigh, and participation as a delegation at the Metro Vancouver Climate Action Committee. The presentation at the Committee was well received and triggered a wide-ranging dialogue and questions on air emissions, costs, competitiveness and competing building materials. However; the Committee members' extreme priority on local air quality, the environment and climate change has resulted in significant pressure on industry operating within Metro Vancouver. In an extended meeting of the Metro Vancouver (Regional District) Board, the revised Fee Bylaw was adopted, and its provisions will lead to an increase in annual air quality permit fees being implemented progressively over the next 7 years.

The BC construction sector continues to be one of the few bright lights of the provincial economy and while the pandemic caused the largest contraction of the economy since 1982, the construction sector has continued to operate throughout the pandemic and it grew by 4.2% in 2020 and provincial reports are indicating that GDP growth is expected to be 6% in BC this year.



Hon. Heather Stefanson, Premier of Manitoba

Prairies

As the fourth wave of COVID-19 progressed across Canada, it hit particularly hard across Alberta, Saskatchewan and Manitoba. Its health impacts led directly to a strong decline in the support for Premier Jason Kenney in Alberta and factored into changes in leadership in Manitoba. The announcement of the resignation of Premier Brian Pallister resulted in a leadership race and the election of Heather Stefanson as Manitoba's first woman Premier.

Following improvements on the impacts of the COVID-19 pandemic that were experienced in the spring of 2021, the Alberta Premier announced an aggressive "Open for Summer" plan coinciding with the start of the Calgary Stampede in July. A cabinet shuffle followed, with notable changes that included Ric McIver to the Ministry of Municipal Affairs and Rajan Sawhney to the Ministry of Transportation. In addition, Pam Livingston (who served previously as Chief of Staff to Minister of Environment and Parks Jason Nixon and was directly involved in the cement industry's past advocacy work) was promoted to Chief of Staff to Premier Jason Kenney. However, as the fourth wave of COVID-19 emerged and hit Alberta particularly hard, the Premier faced the strongest criticism of his tenure.

Alberta's climate policy for industrial emitters remained unchanged in 2021 and is scheduled for renewal on January 1, 2023. Consultation is expected to begin in 2022 and with the Alberta provincial election scheduled to be held between March 1st and May 31, 2023 we anticipate that there be some posturing on carbon pricing next year. In the interim, Alberta is expected to follow the federal carbon pricing schedule, which is set at \$40 a tonne of carbon for 2021 and \$50 a tonne in 2022.

Building from the initiative started in Ontario, Concrete Wins Alberta was launched with an inaugural meeting on May 26, 2021. Turnout and overall participation was positive, including roughly 30 representatives from Concrete Alberta, Alberta Sand and Gravel Association,



CPCI, CCPPA, and masonry groups. Over the summer, three working groups (Advocacy, Education & Promotion, and Front-Line Talent) were established to set out priorities and develop preliminary work plans ahead of a full group meeting in the fall. This initiative is expected to lead to co-ordinated in-person advocacy efforts in early 2022.

With several years of advocacy work with both the prior NDP and the current UCP government, both cement plants in Alberta received approvals from Alberta Environment and Parks authorizing the use of selected alternative, lower carbon fuel streams. These authorizations followed the faculties' individual, specific approval amendment/renewal processes. With these authorizations in place, both cement plants have been developing capital projects and necessary upgrades for the handling and use of alternative fuels. The CAC will continue to work with members to monitor and address any issues that may arise in the future.



On November 1, 2021, Premier Jason Kenney, and Environment and Parks Minister Jason Nixon announced the finalists of Emissions Reduction Alberta's (ERA) "Shovel-Ready Challenge" – this included a \$15 million ERA contribution towards a landfill fly ash recovery project by Lafarge Canada Inc.; and a \$11.7 million contribution to Lehigh Hanson for their work with the Edmonton Alternative Low Carbon Fuel Project. Both projects will lead to GHG reductions, increase competitiveness and generate jobs in Alberta.

Following from several engagements held in 2020 between the Cement Association of Canada, Lafarge and Lehigh and the Alberta Electrical System Operator (AESO) to discuss the bulk and regional electrical tariff design, on June 1, 2021 the Alberta Utilities Commission approved AESO's extension request and directed that its application be submitted before mid-October. The ultimate financial impact on cement producers is less than had been initially anticipated and new rates are not expected to come into effect until mid-2023.



Markets and Technical Affairs



British Columbia

Following decades of study, political delays and re-assessment, the Capital Regional District (Victoria) finally completed its wastewater treatment plant and began treating wastewater prior to discharge to BC's coastal waters. The destination for the resulting dried biosolids has followed similar delays, but ultimately began being shipped to be used as a fully biogenic alternative fuel at the Lafarge cement plant in Richmond in early 2021.

The CAC and members have had continued discussions with Metro Vancouver on the diversion of selected waste materials for the production of waste-based, lower-carbon fuels. Given a rather slow procurement process, we are anticipating that the processing of waste materials from Metro Vancouver will become possible for cement plants at some point in 2022.

Prairies

The CAC and its member companies held several meetings in Winnipeg, with both City and Manitoba government officials. After advocating for acceptance of the use of lower carbon cements (including both PLC and blended cements) the industry was pleased to have been presented with a draft city specification authorizing its use at an in-person meeting held with several engineers at the City of Winnipeg offices that was attended by staff from the CAC, Lafarge and Lehigh. This specification document, although not necessarily complete, represents a key positive step in moving towards full equivalency for lower carbon cement products that will help to reduce GHG emissions and facilitate a transition for the cement industry.



Ontario Region Highlights



Industry Affairs

We are now in the final year of the Ford government's first term. After receiving praise and high approval ratings for his dealing with the pandemic in 2020, Premier Ford's popularity took a tumble in the Spring of 2021 after a series of missteps, increased COVID-19 case counts, and public and business frustration over a prolonged shutdown. Nevertheless, his popularity began to rebound in the summer months after a successful vaccination campaign and a cautious and measured approach to re-opening the economy that avoided many of the issues his Conservative colleagues experienced in their provinces (i.e. Alberta, Manitoba, Saskatchewan).

As the pandemic in Ontario starts to take more of a back seat and businesses reopen, the government has turned its attention to the economic recovery and re-election efforts. With election day set for June 2, 2022, there is less than seven months to convince Ontarians that the Conservatives deserve another term. The Conservatives continue to lead both the Liberals and the NDP in recent polls. Interactions with government continue to be primarily through Zoom calls and Teams meetings, although in-person meetings began in the last quarter of 2021. The CAC took advantage of the gradual re-opening and people's desire to re-engage in person this past summer to meet with several political staffers and elected officials in-person. We continue to interact virtually on a regular basis to advance key initiatives.

Government Relations

Our interactions over the past year focused on the role the construction industry could play in the economic recovery. The CAC began 2021 participating in the government's pre-budget consultation with a simple and straightforward ask: **continue to invest in funding for infrastructure and transportation.** We reinforced the message that investment in infrastructure and construction is the quickest, most reliable engine for economic recovery and should be the foundation of stimulus efforts. As evidenced in the Build Ontario 2021 Fall Economic Statement, the government heard this message as it featured a strong focus on infrastructure investment and "putting shovels in the ground now".

The CAC continues to emphasize our willingness as an industry to be an active participant and partner in the economic recovery of the province. We have ongoing discussions and outreach with officials and ministerial staff in our targeted Ministries of Environment, Infrastructure, Natural Resources, Labour and Transportation.

Our key priorities remained:

- → Facilitating the use of alternative low carbon fuels to reduce emissions;
- → Reinforcing the role Portland-Limestone cement (PLC) could play to reduce GHGs at no cost to the taxpayer if mandated on all publicly funded infrastructure;
- → Promoting our red tape and regulatory burden reduction priorities;
- → Advocating for the exemption of fee increases for aggregate used in cement manufacturing and aggregate that does not travel using any public infrastructure;
- → Advocating for the use of the 'three-screen' lifecycle approach on all publicly funded infrastructure; and
- → Educating decision makers on the resiliency features of concrete infrastructure.





Hon Kinga Surma, Ontario Minister of Infrastructure

Cabinet Shuffle and New Introductions

In June of this year the Ford government made several changes to the Cabinet which included new Ministers in our key portfolios of Environment, Natural Resources and Infrastructure. The CAC immediately reached out to the new Ministers and in the summer had the opportunity to have meetings and establish relationships with the new Minister of the Environment David Piccini and the new Minister of Infrastructure Kinga Surma.

Climate Policy: The Use of Low Carbon Fuels

After many years of advocating for the use of low-carbon fuels, this year we concluded productive and successful discussions with the Ministry of Environment, Conservation and Parks and agreed on a process that will facilitate greater use of low-carbon fuels for our industry. In Spring 2021 our work was reflected in the government's Open for Business Bill tabled in the legislature.

We received strong support from the new Minister, David Piccini, for this initiative which resulted in a posting on the environmental registry for public comment (a necessary step for approval) in the summer. The new regulation received final approval from the Ontario government at the end of November and its implementation will begin on January 1, 2022. This is a big win for the industry that will bring Ontario more in line with other jurisdictions and go a long way to helping us achieve our emissions reduction goals.



Emissions Performance System

The CAC and members worked with both the federal and provincial ministries of Environment on the transition from the federal Output-Based Pricing System (OBPS) to the Ontario Emissions Performance System (EPS). The CAC liaised with the Ministry on behalf of members to ensure a smooth transition for our members to the new Ontario EPS program for January 1, 2022.





Aggregate Fees and the Cement Industry

In addition to our focus on alternative low-carbon fuels, we have been working with the Ministry of Natural Resources to advocate for the removal of fees on the limestone that is used in the cement manufacturing process or any aggregate that does not make any use of public infrastructure. In the Spring of 2021, the CAC, along with the Ontario Sand, Stone and Gravel Association and municipal representatives, was an active participant on the CAC's requested Minister's Working Group on Aggregate Fees and Royalties, where we advocated for this position with our Allies. We continue to work with the Minister's political staff on removing these fees, as well as the Ministries of Red Tape Reduction and Municipal Affairs and Housing.

Partnerships with Cement and Concrete Allies

We continue to work with cement members and concrete allies to promote and advocate on common areas of interest and concern with the government and political parties. Our overarching goal is to present a collective voice on key issues and promote the importance of the cement and concrete industry to jobs, the economy, and the economic recovery. As an essential, local product located in virtually every riding in Ontario we are a necessary and key partner for Ontario's infrastructure. Our work has been focused on the ministries of Labour, Environment, Infrastructure, Transportation, and Natural Resources. The next several months will focus on pre-election outreach to all political parties, ensuring our messages are a key part of the election discussion.

Concrete Ontario Advocacy

In addition to the advocacy work done for the CAC, we also advanced specific issues for Concrete Ontario with the provincial government. This included Ministry specific meetings, committee appearances, budget submissions, and joint letters to the provincial government. We continue to build this relationship and look for opportunities to leverage the collective strength of our two organizations.



Government Relations Communications

An ongoing goal of the Cement Association is to provide relevant and timely updates to cement and concrete allies on government and political activities across the country. The CAC produces a bi-weekly report that is distributed to over 700 people in Ontario and across the country and highlights the relevant developments and activities of provincial governments and the federal government. In addition to the biweekly report, this year a weekly election bulletin was produced to keep members up to date on all activities during the federal election.



"For our industry's part,
we will continue to advocate
for government funding for
infrastructure investment
to ensure the recovery is strong
for our sector."

- Michael McSweeney, President and CEO

Quebec & Atlantic Region Highlights



Government Relations

Our interactions with government officials were still affected by the COVID-19 pandemic and somewhat limited in 2021. In early January, the CAC successfully demonstrated to elected officials that adequate health and safety measures were implemented by the industry, both in industrial settings and on construction sites. As a result, cement manufacturing operations were allowed to continue throughout the successive waves of the pandemic in 2021.

Besides the COVID situation, our messaging to the Quebec government in 2021 revolved around two main themes: the contribution of the cement and concrete economy to the local economy in all regions of the province, and the barriers that our sector faces that impede our ability to contribute to the circular economy (and to further reduce our GHG emissions) through the replacement of fossil fuels in cement kilns with alternative fuels from the waste stream.

CAC officials, along with the CEOs of member companies, had the opportunity to meet with Pierre Fitzgibbon, the Minister of Economy and Innovation, in January to discuss the importance of the cement and concrete industry as a local product and to emphasize that despite the existing cement manufacturing capacity, there are still cement imports in Quebec. Our advocacy activities also included



a written submission as part of the Minister of Finance pre-budget consultations in January, a participation in public hearings on waste management, and several letters and interventions as part of the Conseil Patronal de l'Environnement du Québec (CPEQ)'s Board of Directors.

In 2022, the promotion of a life-cycle approach to procurement, the barriers to the use of low carbon fuels and the importance of science-based decisions to support the choice of construction materials will be part of our government relations strategy. We are also planning a lobbying blitz in collaboration with our Allies in February 2022.



Industry Affairs

Critical files for the cement industry in 2021 included the development of the rules for the cap-and-trade program beyond 2023, the barriers to the use of alternative fuels in cement kilns, and the modernization of the provincial environmental authorization regime under the Environment Quality Act.

Working with partners is equally important for the CAC. As a Board member of CPEQ, and a key player in CPEQ Air & Climate Change Committee, we took advantage of numerous meetings and opportunities throughout the year to discuss government programs and policies with other industry sectors, identify common concerns and develop joint strategies when appropriate.





Québec's cap-and-trade program post-2023

Discussions with the Quebec Government on the cap-and-trade program post-2023 have been ongoing since 2019. Government officials presented an aggressive approach to reduce emissions, including significant reduction in the free allowances regime, while also ramping up funding programs to help the industry transition to a low-carbon economy. On the free allowances regime, they recognized the higher level of risk for sectors such as cement, lime and the production of silicium and ferrosilicium. For those sectors, the proposed reduction in free allowances would be 2.34% annually, while it would be 4% for everybody else. They introduced a new concept where out of the required reductions, one fraction would be paid in a special fund where the money from a facility would sit for a maximum of 5 years and would be available only to that very same facility to finance GHG reduction projects. If the facility does not use it, then the money would go to the Green Fund. They also suggested a factor that would influence the actual reduction of free allowances based on the evolution of carbon prices in the world. This means that the 2.34% reduction rate could actually be less (between 0 and 0.6% less).

The CAC submitted written comments in November 2019, and again in 2021, emphasizing the need for greater certainty, as the approach presented by the Government introduced new factors that bear great uncertainty, thereby providing a disincentive to investment and innovation. Proposed regulations are expected to be published in December 2021 for public comments. The CAC continues to monitor the situation and will engage Members when the regulations are published in the Gazette officielle du Québec.



The use of alternative fuels

The Quebec Government mandated the Bureau d'audience publique sur l'environnement (BAPE) to conduct a comprehensive public inquiry on waste management, specifically as it relates to final waste, i.e. those residual materials for which there are no or few recycling or re-using solutions. Public hearings were held in March and in May 2021. Between the two series of public hearings, workshops were conducted with specific stakeholders. As potential users of such waste materials, a representative from the CAC and a representative from Ash Grove participated on April 28 in a workshop focused on diversion from landfills. The CAC followed up with a written submission, which clearly positioned the cement and concrete industry as being part of the solution by contributing to the diversion of waste materials from landfills. The document recommended to the Government to address current administrative and regulatory barriers to the use of alternative fuels in cement kilns and to modify its procurement practices to mandate a certain percentage of recycled aggregates in public infrastructure projects. The report from the BAPE must be delivered to the Minister of Environment and the Fight against Climate Change no later than December 22, 2021. We will continue to work on this important file in 2022.

Modernization of the environmental authorization regime

The Quebec Government had completed in 2020 a multi-year process aimed to modernize the environmental authorization regime under the Environment Quality Act. The new regime, which is now being implemented, introduces a risk-based approach to the authorization process, adjusting the comprehensiveness of the process to the level of risk of the activity. Despite an inclusive process that provided several opportunities for the industry and other stakeholders to articulate their comments and concerns over the past few years, benefits for the cement industry are still to be seen. In short, the new regime brings some improvements but still falls short of fixing the main problem for the industry which is the length of the approval process for most projects, including the use of low-carbon fuels in cement kilns. The CAC continues to monitor the situation and we hope to identify opportunities for improvement during the implementation of this new regime.



Markets and Technical Affairs

An important part of our activities aims at promoting the sustainability and durability of concrete infrastructure. This is done through education on life cycle analysis and life cycle cost analysis, as well as through communicating to government officials the importance of our sector to the economy and to the achievement of Quebec's GHG reduction targets. Given the current government "Economic nationalism" strategy, the CAC continues to emphasize the local and regional nature of the cement and concrete industry. On a related front, we are currently gathering data from port authorities in order to improve our knowledge of cement imports statistics in Quebec. Initial exploration of the data shows an increase in cement imports in recent years at the Quebec Port Authority, which goes against the goal of the Government to support the local production of goods. More discussion with government officials will be held on this topic in 2022.

Atlantic Canada

After a year of not being able to visit Atlantic Canada because of the pandemic, this fall the CAC's President travelled to the Atlantic provinces to have in-person meetings with elected officials and Ministry staff in both the NovaScotia and New Brunswick governments. He was joined in Nova Scotia by our partners at Atlantic Concrete.

In New Brunswick, he met with the new Principal Secretary to Premier Higgs where he presented the CAC's position on climate change and highlighted how it could help the province maintain its equivalency with the federal carbon backstop by using more low carbon cements and by employing a three-screen approach to procurement.



In Halifax we were able to speak with the new Premier's Director of Policy, the Assistant Deputy Minister of Environment and Climate Change, and two senior Deputy Ministers (regulatory Affairs and Public Works). Net zero buildings will be a strong focus of the government and the potential for use of low carbon cements is high. The CAC and Atlantic Concrete was also able to highlight the potential for GHG reductions through the use of alternative low-carbon fuels in cement kilns. We intend to follow-up in early 2022 and hold additional meetings with the new governments.



