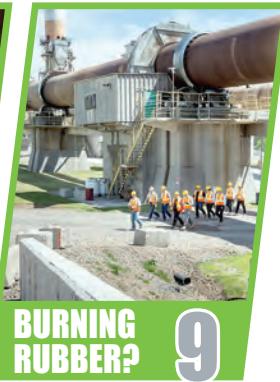




ACA AWARDS 3



NEW PRESIDENT 5



BURNING RUBBER? 9

EPDs playing significant role for building green

By Kathy Johnson

It has been just over a year since the Cement Association of Canada registered the first environmental product declarations (EPDs) with the Canadian Standards Association Group for general use and Portland-limestone cements, further maximizing the role concrete materials play in building green.

According to Travis Smith, Lafarge Canada's territory sales manager based in Brookfield, N.S., the completion of the industry average EPD for the Canadian Ready Mix Concrete Association (CRMCA) in early 2017, as well as certification for an industry average EPD in late 2015 for the National Precast Concrete Association, gives the industry an extremely strong EPD presence nationwide and across multiple industries.

Using products with EPDs can contribute to LEED credits, including a new credit incorporated in LEED v4 for EPDs that have been third-party verified by an approved program operator.

"Because of concrete's versatility, there are many applications where concrete can be used in a building project, from foundation and superstructure to sidewalks and parking lots. That means concrete can contribute to every credit category," says the Atlantic Concrete Association.

"An Environmental Product Declaration for building materials can earn your products valuable credits within the LEED rating system and meet a growing number of procurement requirements for governments and industry. Concrete is an important component of these credits. Using concrete can influence 25 of the 55 LEED v4 credits and prerequisites and potentially contribute to as many as 74 of the 110 points available."

Since the introduction of LEED v4 last fall, Adam Auer, vice president, environment and sustainability for the Cement Association of Canada, says, "We have been hearing from members that they have started to use EPDs in LEED related applications. We expect to see LEED v4 drive more demand for EPDs the longer it's established."

Smith says he's "getting a lot more requests for letters stating what my products can contribute to LEED projects, which is a direct response to the increased rigidity of the LEED v4 program pertaining to product disclosure. Even though LEED v4 was officially launched in October 2016, ... I believe LEED teams are still learning what the 'low hanging fruit' is to capture points in the new certification criteria.

Continued on page 2



The Halifax Central Library is certified LEED Gold thanks to incorporating a variety of innovative sustainability features.



Atlantic Concrete Association

Association béton Atlantique

Publication Mail Agreement #40064799

Atlantic Concrete Association (ACA)
Association béton Atlantique (AbA)

Produced for ACA/AbA by Advocate Media Inc.

(Formerly Atlantic Provinces Ready Mixed Concrete Association)

Return undeliverable Canadian addresses to: below return address
301-3845 Joseph Howe Dr., Halifax, NS B3L 4H9

Tel: (902) 443-4456 Fax: 902-404-8074
Web site: www.atlanticconcrete.ca
Email: info@atlanticconcrete.ca

AFFIX MAIL LABEL HERE

Continued from page 1

“My feeling is that EPDs are going to become more widespread. I think it’s still relatively unknown how concrete can contribute to LEED v4 projects. The official CRMCA rollout of the EPD project will be an eye opener to many in the construction industry. Then as more projects seek their LEED v4 certification, there will be a steady influx of requests from the concrete producers.”

Smith says the major change the industry will notice with LEED v4 is through the Material and Resources section.

“This is where LEED project teams want manufacturers to disclose what the ingredients are of their materials, along with their effects on the environment from a life-cycle standpoint, from extraction and manufacturing across its useful life to eventual breakdown and hopefully reuse in some capacity,” he says.

“Environmentally friendly cements and concrete mixes that preserve both raw materials and reduce carbon emissions may aid in driving substantial value as

we move to greater environmental consciousness and sustainability of raw materials. As mentioned earlier, EPDs will continue to gain traction as building material providers are pushed by government and LEED project teams. Those material providers without EPDs may not get the same opportunities to have their materials specified on a LEED project, and eventually they will find themselves at a crossroads.”

LEED v4 is the framework and benchmark for the next generation of green buildings. Its development spanned more than three years and engaged hundreds of volunteers and thousands of stakeholders around the world.

“With programs such as LEED, the construction industry is forced to evolve and adopt change, and with initiatives such as a nationwide industry average EPD, the concrete industry is moving in the right direction,” Smith says. “Any project achieving any level of certification under the LEED program shows a commitment to environmental stewardship and sustainable construction practices.”

LEED Projects in Atlantic Canada

- The Miramichi East K-5 School, set to open this year, is seeking certification for the first LEED v4 BD+C School in Canada.

- In March, the Yarmouth Consolidated Memorial High School achieved LEED Gold certification under the LEED v1 system.

- Also obtaining LEED Gold certification is the six-story downtown office tower development in St. John’s, NL.

- The Halifax Central Library is certified LEED Gold thanks to incorporating such features as a vegetated roof, a rainwater collection system that collects rainwater in an underground cistern and reuses it in washrooms, and an active four-pipe chilled beam system with high-efficiency heat recovery.

- Three projects in Nova Scotia have LEEDv1 Platinum certification, including the Nova Scotia Power Office in Halifax, the Efficiency Nova Scotia Building (LEED v4 for Commercial Interiors) and the Solterre Concept House (LEED 2009 for Homes).

For more information on LEED credits, visit www.usgbc.org and www.cagbc.org.



There are exciting innovations in carbon capture and utilization technologies, many of which are being developed here in Canada, says Adam Auer, vice president, environment and sustainability for the Cement Association of Canada. Included in that group are Pond Technologies, Solidia and Halifax-based Carbon Cure.



Adam Auer, vice president, environment and sustainability for the Cement Association of Canada, says the use of alternative fuels in the creation of cement, even the waste by-products of other construction sectors, is increasing the role concrete can play in achieving LEED certifications.



Pinnacle Agencies Ltd.

Material Consultants to Construction & Industry



1-800-761-0663
pinnacleagencies.ca



Atlantic Concrete Association passes out the hardware



ACA Safety Chair Paul Miller (centre) presents a Safety Performance Award to Mike Clements (left) and Scott Flemming (right) of Ocean Contractors Limited. Individual plant safety awards recognize member company plants with no lost time accidents, while company safety awards recognize member companies for performance of hours worked compared to workplace accidents.

ACA Safety Chair Paul Miller (right) presents a Safety Performance Award to Jack Brenton (left) of Brenton Investments Ltd. Individual plant safety awards recognize member company plants with no lost time accidents, while company safety awards recognize member companies for performance of hours worked compared to workplace accidents. Other nominees included VJ Rice Concrete Limited, Ocean Contractors Limited and Warren Ready Mix.



ACA Environment Chair Travis Smith (right) presents the Environmental Award to Bryan Rice (left) of V.J. Rice Concrete Limited. The purpose of environmental stewardship recognition is to promote environmental leadership, innovation and/or achievement through the development and implementation of new or previously proven environmental practices at the plant or at the site. Other nominees included Brenton Investments Ltd.



Scott Flemming, Jamie Reid, Alex Kennedy, Steve Peters and Pam Woodman participate at this year's annual general meeting.



Board Member Mark Munro presents ACI President Randy Chase with the Errol Praught Memorial Hockey Trophy on behalf of the Associate Members who skated to victory over the Producer Members at this year's hockey showdown.



ACA Safety Chair Paul Miller (right) presents a Safety Performance Award to Darren Cross (left) of Humber Ready Mix. Individual plant safety awards recognize member company plants with no lost time accidents, while company safety awards recognize member companies for performance of hours worked compared to workplace accidents.

Ready Mix Briefs

- **Blanchard Ready Mix** will now be operating the Warren Ready Mix facility in Rexton, N.B.
- We regret to announce **Michelle MacMullin** has submitted her resignation. Her last day with us was April 26. Michelle was with the association for nearly four years and has been a valuable part of the ACA team. Since joining in 2013, Michelle has built strong relationships with members and proven herself to be more than competent and capable in her role as membership coordinator. She will surely be missed by all. ACA President Jamie Reid says, "During my time on the Executive, I've had the opportunity to work closely with Michelle, and it's with warmest per-

sonal regards that I wish her success as she moves on to pursue another opportunity and further advance her career." Membership have been informed of Michelle's resignation and the Executive is working closely with Pam Woodman on ACA's next steps moving forward.

- The Atlantic Concrete Association is saddened to announce the passing of **Norman F. MacLeod** on Dec. 22, 2016 in Halifax. Since his retirement from the Canadian Portland Cement Association in 2000 as a civil engineer, Norm stayed connected to the industry through teaching and mentorship. He was an active volunteer with ACA, teaching many of our courses

and had previously been awarded an Honorary Life Membership. Norm will be sadly missed by our industry. A donation was made in Norman's name to the Scottish Rite Charitable Foundation of Canada by the Atlantic Concrete Association.

- ACA would like to wish **Paul Miller** the best of luck as he leaves the industry and moves on to new opportunities.
- Save these dates on your calendar: **Aug. 18 to 20** is the Summer Family Fun Gathering at the Algonquin Resort in St. Andrew's, N.B.; and **Sept. 14** is the 2017 Annual ACA Golf Tournament at the Royal Oaks Golf Club in Moncton, N.B.

The many faces of ConAtlantic 2017



Reid looking forward to his tenure as president

By Andy Walker

Throughout his 14 years in the industry, Jamie Reid has been a strong believer in the value of the Atlantic Concrete Association.

"I joined early in my career and it has been a great resource for me," he says. "There's just so much expertise around the table and I've learned so much from my fellow directors."

Reid, who is the P.E.I. operations manager for OSCO, recently took on the role of ACA president. He has been one of two directors from his home province for the last four years, serving as vice president of the association for two years before taking over at the annual meeting in February.

Reid is a business administration graduate from the University of Prince Edward Island, and a native of Stratford, P.E.I. He went to Charlottetown Rural High School and now lives in nearby Mermaid with his wife and three children.

Reid says his predecessor as ACA president, Scott Flemming, has left the organization in a stronger position than when he assumed the post and Reid hopes to follow in Flemming's footsteps.

"I will be relying a great deal on the expertise of the board members," he says.

Reid considers it vital to have an association that can represent the interests of the industry in discussions with various levels of government.

"Together we have so much more influence," he says.

However, Reid says he doesn't see any major issues on the horizon.

"That can change pretty quickly, but I'm confident we have the directors and staff to meet any challenges that might come along. We are always working hard to make concrete the building material of choice."

In that regard, Reid intends to keep up the association's educational efforts, both for members and the general public. He says the ACA's new website should be a major tool in that effort.

"We want to keep our members up-to-date on the latest trends in the industry. Like most industries," Reid says, "it's changing all the time."

Meanwhile, he says it's important to ensure potential customers are aware of the many benefits of using concrete. Reid is optimistic 2017 will be a good construction season throughout the region.

Reid is a proud Atlantic Canadian, saying the region is a great place to work and bring up a family. He does admit to having a bias towards his home province, but firmly believes in the regional cooperation the association promotes.



Jamie Reid, P.E.I. operations manager for OSCO, takes over as the new president of the Atlantic Concrete Association.

Insurance is our
profession.

Construction is our
passion.

Construction is not just another target market at Stanhope Simpson. It's what we do **best**. We insure and bond more ready mix than any other broker in the Maritimes.

Schedule a consultation today with our President, Victoria Stanhope, MBA and her team of dedicated construction insurance & surety bonding specialists and experience **the Stanhope Simpson difference**.

Stanhope Simpson
INSURANCE LTD.

Independent. Local. Professional.

stanhopesimpson.com

902.454.8641

KRATOS
FLYASH EVERYDAY IN EVERYWAY

KRATOS FlyAsh
Patented Treatment Process

- ✓ Consistent
- ✓ Reliable
- ✓ Dependable

To learn more contact
Travis Richard, P.Eng

902-717-3847

trichard@shawresources.ca

SHAW
RESOURCES

Alkali silica reaction at the Mactaquac Dam

By Jon Coe

The deterioration and planned remediation of the Mactaquac Dam was a major focus during the recent Atlantic Concrete Association conference held in Saint John, New Brunswick.

First to speak on the subject was Phillip Gilks of NB Power, who gave an overview of the current situation. Later, Ted Moffatt of the University of New Brunswick spoke on the nature of the deterioration and remediation strategies.

The Mactaquac Dam, 19 km upstream from Fredericton on the Saint John River, is a hydroelectric dam producing 10 to 12 per cent of New Brunswick's power. It was built in 1968 and envisioned as having a lifespan of 100 years. However, when deterioration of the structure became evident, it became clear a solution to the problem would be required, needing to be implemented by the late 2020s.

The Mactaquac Dam is primarily an earth structure, with divergent spillway, main spillway and powerhouse. Describing its construction, Moffatt says four classes of concrete were used, all of fairly low-strength: 2,000 psi, approximately 13 MPa. The concrete in classes one and two was three inches in diameter. Class three was 1.5 inches and class four was three quarters of an inch.

The bulk of the dam was constructed using class one, with the rim of the dam constructed using classes two, three and four. A low cement content of 300 was used, required in such massive structures that generate a lot of heat.

The coarse aggregate used was from onsite, from the millions of tons of excavated material. The fine aggregate was sand from Zealand, just north of the dam, and the water from the river itself. The coarse aggregate used was about 90 per cent silica, of which approximately 75 per cent was an unstable quartz, resulting in the aggregate being very reactive.

Moffatt says about 10 years after it was built, the dam started expanding due to alkali silica reaction (ASR). The dam has expanded approximately nine inches in height since the 1970s and expansion has resulted in the closing of the circular openings accommodating the turbines.

Over the last 30 or 40 years, slots have been cut regularly between the turbines with 15mm wide diamond blades to allow for the expansion, letting the turbines spin and continue to generate power.

ASR, discovered in the 1940s by Thomas Stanton, occurs due to the dissolution of reactive siliceous minerals found in many aggregates. It results in an alkali silica gel forming around the aggregate, which then absorbs water and expands, thus weakening and ultimately cracking the concrete. The results of ASR can most commonly be seen in what's known as map-cracking. ASR can also lead to many other durability problems, including sulphate attack and freeze-thaw.

As the process of ASR was known at the time of the dam's building, a one-year test on the material was carried out. The testing was state-of-the-art for the time and showed no reaction. The method that was used did not pick up any ASR because the aggregate was slow-reacting. The reaction did not in fact start until around 10 years after construction.

In recent years, NB Power has engaged the public in the process of deciding how to proceed. Phillip Gilks says options include repowering the dam, which would involve replacing the spillway and powerhouse; a no power option, which would require replacing just the spillway to maintain the headpond; or the restoration of the river to its natural state.

However, the preferred option is what NB Power calls the 'Life Achievement' option. That is, to extend the life of the facility at the same location, up to its original 100-year lifespan. This would necessitate controlling seepage with grouting and surface sealing; repairing damaged and deteriorated concrete; replacing mechanical and electrical components; removing and replacing the six turbines; modifying the powerhouse superstructure and improving fish passage facilities. This option should provide greater flexibility, allowing adaptation to future needs.

In considering future construction, Moffatt looked in depth at alkali silica reaction and methods that can be used to stop it occurring. He says four constituents are required for ASR to occur: a reactive aggregate, moisture, alkalis and calcium. As it's hard to avoid the presence of moisture and calcium, the other two factors need to be mitigated to avoid ASR occurring.

Back in the 1940s and '50s, it was thought that if the alkali content was below 0.6, ASR wouldn't occur. Nowadays, the equivalent alkali content in the concrete is the significant factor.

Moffatt says when putting a mix design together, for example, with a cement content of 350kg per cubic metre, with an alkali content in the cement of 0.78, then the equivalent alkali content would be 2.73. When the value is below 3, there's a good chance ASR won't be present.

As well as using lower-alkali cement, supplementary cementing material can also be used to eliminate ASR. These include fly ash, silica fume and slag.

Supplementary cementing materials have been used in several dams containing a highly reactive aggregate, including Lower Notch dam in Ontario, which used 35 per cent fly ash. It was built about 40 years ago and re-



Speaker Ted Moffatt, University of New Brunswick, is welcomed to the stage to speak about alkali silica reaction and its effects on the Mactaquac Dam.

portedly shows no signs of ASR.

To keep the Mactaquac Dam until 2068, Moffatt looked at what might be done to stop ASR if the decision is to rebuild it using the highly reactive material that's onsite, rather than shipping in massive amounts of non-reactive aggregate.

Using fly ash is a possibility, typically at levels of 20 to 40 per cent. Fly ash is a by-product of burning pulverised coal in electric generating stations and is produced in at the Belledune plant in the north of the province. It produces approximately 100,000 tons of low calcium fly ash each year. Around half is sold and the other half put into a landfill adjacent to the plant.

Moffatt says NB Power funded a research project in 2008 to gauge the impact of fly ash in preventing ASR in concrete. Some of the largest concrete research blocks in the world were produced, around 40 cubic yards in size.

The five cubes are located at the foot of the dam, each with different mixes. One has no fly ash (as a control), one has 30 per cent fly ash, another has 40 per cent, and a fourth has 50 per cent. The fifth cube is made up of 50 per cent reclaimed fly ash from the Belledune landfill. This was also tested due to the uncertainty of the future of coal-fired power stations, which may ultimately mean the end of the production of fly ash.

Expansion is measured throughout each of the blocks, including horizontal and vertical expansion. After eight years of the project so far, no expansion has taken place in any of the blocks except the control. This one is already showing significant cracking due to ASR.

Continued on page 7

Ocean Family of Companies
since 1934

THOMPSON'S
MOVING & STORAGE
a great move!

7276206

902-469-5100 | www.thompsonsmoving.ca

since 1934
THOMPSON'S
MOVING & STORAGE
a great move!

OCEAN
Built on Quality.

BRIAR
TRANSPORT

130163

gcp
applied technologies

MANDYS AD

GCP Applied Technologies

David Kline
Sales Technician, Concrete & Masonry
Mobile: (902) 497-0372
david.kline@gcpat.com
www.gcpat.com

13109ndi

Women shouldn't discount concrete industry as career option

By Kathy Johnson

What started out as a part-time summer job as a receptionist has turned into a career that has so far spanned 25 years and has taken OSCO's Tracy Dobson to senior management.

"It has been a great career," Dobson says. "What I've enjoyed about it is you're always learning. After 25 years, I'm still learning every day; new admixtures, processes, new projects... there's so much more to the concrete industry than people see. It's not just a truck going down the road and pouring concrete. There are also a lot of logistics and planning involved, especially if you're working on a project in the downtown core."

Dobson started working part-time as a receptionist for Ocean Concrete while she was going to university. After finishing her degree in commerce, she moved up to accounting and gradually "got more and more involved with the operational side of the company." She is now manager of OSCO's Nova Scotia operations.

"When I started 25 years ago it was 100 per cent men," Dobson says. "There were very few women."

Now, women are getting into the industry workforce as truck drivers, dispatchers, quality control personnel, testing technicians, batchers, management, and the list goes on.

"I can't think of one role in our business that isn't suited to a female," says Mel Fiander, president of Quality Concrete. "They can drive a truck. They can run equipment. They can work on the technical side, the business side, the customer service side and the sales side and are working in these positions for companies in Canada and across North America. Its just the numbers are not that high."

Quality Concrete has recently hired two females: one in dispatch and one driving a truck, Fiander says. "All the same opportunities are available to females as males in the concrete industry. Don't discount the concrete industry if you're considering a career in the construction industry."

Dobson says over the years, OSCO has had several female truck drivers who were "excellent" at their jobs.

"It brings a whole new vibe into the workforce when you bring a few women in," she says. "It makes a better

working environment. There's more variety and more respect. It's definitely a good thing for the industry."

Dobson estimates there are probably about two dozen women employed in the concrete industry in Nova Scotia.

"Women can definitely do anything," she says. "A lot of women go into quality control. A lot work for ready mix companies testing, mixing, dispatching... they can work on the crew if they want."

One of the great things about the concrete industry are the opportunities for advancement, Dobson says. "There is always room to grow. You can go from driving truck to running a whole batch plant. A lot of people move up from truck driver to other positions."

Dobson says others start out with a testing company and as they get into it, they learn more about admixtures, processes, batching and design. "It's not something you're going to learn in school," she says.

Want in? Get a class 3 driver's licence or go to a technical school and learn about concrete and technology, Dobson advises.

"The possibilities are endless."

Modernization underway at Port of Saint John

By Jon Coe

Tyler O'Rourke of the Saint John Port Authority, addressed February's Atlantic Concrete Association Conference in Saint John, speaking about the planned modernization of the city's port.

O'Rourke says most of the port's current structure is from between 1912 and the 1930s. Some updates have been made since then, with the most modern elements of the port being from the 1970s and '80s.

Currently, 26.5 million tons of cargo are handled each year by the Port of Saint John and it's the third largest cruise port in Canada, after Vancouver and Halifax. About 75 cruise vessels docked in Saint John last year; at its peak, it saw 200,000 passengers in 2010. The cruise ships utilize massive mooring bollards, with concrete used to ballast them down.

Saint John enjoys four key rail connections for freight, and New Brunswick's recently updated road infrastructure means there are excellent connections to New England as well as the rest of Canada.

By 2011, O'Rourke says, the Saint John Port Authority determined the infrastructure built in 1912 was getting to the end of its useful life. A plan for the modernization of the port was then initiated and it began looking at options.

This plan has grown into a \$205 million

project, which was approved for funding in 2015, and should result in a major boost to the province's GDP while producing many jobs. These jobs will be created for the delivery of the modernization project itself, but also in and around the newly modernized port upon completion.

In July of last year, the new container terminal operator, DP World, concluded the old cranes were too small. By August, bigger cranes were sourced in South Carolina and it was agreed these would be shipped to Saint John in November. This gave the Port Authority just three months to do an engineering analysis on the cranes' 1970s structure, which is supported by 2,000 hollow core concrete piles. These aren't easy to maintain.

To accommodate the new, much larger cranes, a lot of upgrading and additional reinforcing had to be done. This will involve 12 to 13 caissons, each of 1,000 cubic yards, to reconstruct the port.

On top of that a large sea wall, about 10m wide at the base, is needed due to the Bay of Fundy's extreme tides. Also necessary is the deepening of the channel into the port. As modern ships are increasing in size, the channel depth is going to have to be increased to 10m.

It's hoped the modernization project will be completed by 2022 and the updated port will bring a much-needed boost to the economy of the area.

Continued from page 6

Since determining that work will be done to ensure the dam will meet its originally intended lifespan, work has been done to assess strength and elasticity throughout the structure. Since late 2015, 130 cores have been removed from the dam, six inches in diameter and 14 inches long. These have been placed in a solution that accelerates the rate of expansion under various

temperatures, allowing researchers to simulate the performance of the concrete after decades of use.

As far as the current situation is concerned, NB Power is now seeking environmental and financial approvals, gathering further information and seeking to engage more with First Nations groups. This research will provide a wealth of information for those deciding on any future re-construction of the Mactaquac Dam.

OSCO Concrete is a member of the OSCO Construction Group

Fast, Dependable Solutions For all your Ready-Mix Needs

Featuring the LARGEST PUMPS in the region!

NEW BRUNSWICK

Strescon Ready-Mix - Saint John 506-633-8877
Strescon Ready-Mix - Moncton 506-858-7110

PRINCE EDWARD ISLAND

Schurman Concrete - Summerside 902-888-4331
Schurman Concrete - Charlottetown 902-628-0127
MacLean's Ready-Mix - Montague 902-838-2925
MacLean's Ready-Mix - Souris 902-838-2925

NOVA SCOTIA

Sackville Concrete - Lower Sackville 902-864-7880
Bedford Ready-Mix - Bedford 902-835-0882
Annapolis Valley Ready-Mix - Windsor 902-798-2291
Glenholme Ready-Mix - Debert 902-662-3722
Tristar Concrete - Sheet Harbour 902-885-2358

www.oscoconcrete.com

MULTI-RESIDENTIAL PROJECTS. MULTIDIMENSIONAL PERFORMANCE.



HAMBRO

THE COMPOSITE FLOOR SYSTEM FOR YOUR MULTI-RESIDENTIAL PROJECTS

Hambro D500 and MD2000 are high-performance solutions ideal for multi-residential buildings. Fully adaptable to your design and load specifications, these fire-resistant composite systems designed by Canam deliver outstanding soundproofing performance and boast a space-freeing span capacity of up to 43 feet. Hambro is optimized to facilitate mechanical system installation and reduce construction time and costs.



Hambro D500 composite floor system on load-bearing steel stud walls

YOUR LOCAL REPRESENTATIVE



Pinnacle Agencies Ltd.
Material Consultants to Construction & Industry

1-800-761-0663



CANAM
BUILDINGS

canam-construction.com

Lafarge registers Tire Derived Fuel System for environmental assessment

By Kathy Johnson

By the time you read this, Lafarge Canada Inc. should know whether it has the green light to proceed with its proposed Tire Derived Fuel (TDF) System pilot project at the Brookfield, N.S. cement plant.

The proposed Lower Carbon Fuel: Tire Derived Fuel (TDF) System was registered for environmental assessment with Nova Scotia Environment on March 23. Public comment and submissions were accepted until April 24, with the minister scheduled to decide on whether the project can be granted conditional environmental assessment approval. The environmental assessment process can result in an approval with conditions, a requirement for further investigation or a rejection.

Lafarge is proposing to construct and operate a system that will use scrap tires as a lower carbon fuel, in place of coal or petroleum coke, in Kiln #2 at its Brookfield Cement Plant. Pending approval to proceed, construction is anticipated to commence mid-2017 with operations starting in late 2017. Lafarge will construct and design the TDF Injection System to receive and feed the tires into kiln #2, which will be equipped with a mid-kiln feed system.

"This project is to demonstrate and, based on positive results, permanently replace a portion of the fossil fuels used at the Brookfield cement plant in partnership with researchers based at Dalhousie University," reads the environmental assessment registration document. "The project builds on previous, independent research that includes international literature reviews, fuel chemistry evaluations, and lab-scale combustion trials."

The 34-page registration document goes on to say that based on research, "it is expected that locally sourced, lower carbon fuels will bring enormous environmental, societal, and economic benefits to cement making when handled in an environmentally sound manner.

"Scrap tires used for thermal energy in a cement kiln can reduce greenhouse gas emissions by roughly 30 per cent, for every tonne of coal replaced (to be confirmed during the demonstration period), along with an expected 10 to 15 per cent reduction in NOx emissions. No significant adverse effects, other than a slight increase



People tour the Lafarge cement plant in Brookfield. The company is proposing to use a Tire Derived Fuel (TDF) System at the plant as a low carbon fuel. The pilot project has been registered for environmental assessment with Nova Scotia Environment.

Contributed photo

in truck traffic, are expected. Emissions from fossil fuel mining and processing are also conserved. Scrap and used tires will be put to a high value use in the manufacture of cement and so contribute to a circular economy."

Lafarge is proposing to use up to 20 tonnes per day, or up to 6,000 tonnes per year of scrap tires in kiln #2, which is approximately 15 per cent of the total fuel input to the kiln.

"The silica and iron present in scrap tires can act as raw material during cement manufacturing, adding a second re-use attribute for the scrap tires as they're completely combusted at temperatures over 1,600 degrees C and all non-combustible components are incorporated into the cement, partially replacing virgin raw materials."

This is the second time Lafarge has sought approval to use a tire derived fuel system at the Brookfield plant. An application in 2007 was denied.

"We learned a lot from that experience," says Rob Cumming, environmental director for Lafarge Canada. "We've been moving cautiously forward, step by step. We recognize this is new technology to Nova Scotia and the Brookfield community, so we're proceeding with that in mind and taking an approach of transparency."

Lafarge held seven public consultation sessions prior to filing the registration document, which resulted in "good dialogue," Cumming says. If Lafarge gets permission to proceed, it will be installing continuous emission monitors, and the emission results will be shared with the public.

"We've got nothing to hide," Cumming says.

The Brookfield plant already operates at 30 per cent low carbon fuel use, utilizing shredded non-recyclable plastics and asphalt shingles. If the TDF project is approved, it will increase fossil fuel replacement use at the plant to 50 per cent, which will make it one of the best in the world, Cumming says.

"It's looking like a very good fuel for a cement plant."

Cumming says increasing the use of low carbon fuels will also "position the Brookfield plant to stay ahead of the curve" when it comes to emerging carbon regulations.

"Failure of the plant to pursue lower carbon fuels could ultimately put the plant at risk of closure, and subsequently necessitate the importation of cement from outside of the Atlantic region, thus increasing the cost of buildings, bridges and other infrastructure for the region," reads the registration document.

Branding: five steps for building your company's brand

BDC

Entrepreneurs tend to be hands-on types, who react quickly to operational challenges and shifting market demands. However, implementing an effective, cohesive branding strategy to market their business often comes as an afterthought or not at all.

Yet, businesses that define and build their brands gain huge advantages over their competitors, says BDC senior consulting partner Normand Coulombe.

"Your brand is your promise to the customer," Coulombe says. "Research shows that companies with strong brand names generate vastly disproportionate sales and profits."

Over the years, Coulombe has helped countless small and medium-sized businesses implement effective branding strategies and tactics. Here are some of his tips.

1. Conduct effective market research

Before making significant branding efforts, businesses must know the lay of the land. Research on customer tastes and competitors' offerings is crucial in developing distinctive brands.

2. Focus on a unique value proposition

"It's a competitive world out there," Coulombe says. "The best way to prevail is by developing a brand that conveys to customers a unique value proposition — something that stands out." That can mean an offering that is more dependable, has a longer life or is less expensive than the competition. In many sectors such as residential construction or landscaping, effective styling can be a key to success.

3. Choose a brand name that delivers your message clearly

Once a business has identified its customers' desires and has come up with products to meet those needs, it must choose a brand name that delivers that message clearly. Venerable marketing expert Al Ries, who coined (with Jack Trout) the term "product positioning," has said the power of a brand is inversely proportional to its scope. Coulombe agrees. "Try to be specific," he says. "Give each product or service offering a different brand identity, as opposed to simply repeating the company name."

4. Emotional connection

Psychologists have found that 90 per cent of communication is non-verbal. Shrewd marketers have long known

that businesses can vastly improve brand effectiveness if, in addition to a good name, they evoke appropriate emotions. One simple way to do this is through the effective use of colours. For example, emphasize the tints available for some concrete products, greens for environmental themes, blues for water and so on. They all can help to reinforce an effective brand name. Some companies even use music to build brand identity. For example, think about trademarking any musical notes played during or at the end of your television commercials or promotional videos.

5. Deliver consistent communications

Once a company has developed an effective brand and corporate identity strategy, it must be implemented consistently through every "point of contact" with its customers, including in advertising, signage, public-relations efforts and so on. One key, says a recent Conference Board of Canada report, is to get employees on board. "Your company's employees are its greatest brand advocates. Creating an internal branding model will help them to understand and connect to your core brand(s), then communicate that brand message to your customers."

Concrete tank is fisher's delight for Nautical Seafoods in Digby

By Joan LeBlanc

Shellfish buyer/processor Nautical Seafoods can boast one of the most durable lobster holding facilities anywhere at its new facility on the waterfront in Digby, N.S.

Owner Shawn Everett completed fabrication of a 40 x 60 x 6 foot rectangular concrete shellfish storage tank in Oct. 2016 and has since begun construction on the remainder of the lobster pound's building, located at the former site of the old Casey Sea Foods building on the Water Street extension.

"Digby needed this facility and I'm pleased to play a role in getting it up and running. Since the tank was completed in October we've been able to use it for both lobster and scallops," Everett says.

Construction is currently ongoing on the 150 foot by 60 foot metal building and Everett plans to have the entire facility open for business sometime this fall.

Rural Roots Engineering & Design of Masstown, N.S., in association with Brent Thornhill, owner and senior engineer with North Shore Engineering Inc. in Tatamagouche, designed and is overseeing construction of the project while M.R. Poole Excavating in Hampton, N.S. was the contractor.

"In large part, due to the location of the new lobster pound (at the water's edge), we needed to ensure the concrete tank is secure and, in the event of storm surge tides, won't lift up and sail off into the harbour. That's one of our main design considerations on the shoreline; even though it's a big concrete tank, it's really a big concrete boat inside of a building," Thornhill says.

He says controlling the buoyancy level of the tank is paramount, as well as the proper placement of the rebar to control cracking.

"The foot-thick inner and outer wall of the tank is double reinforced. The placement of that is important, not only to prevent cracking, which is bad

not only because it leaks, but it's bad for the rebar. It will rust it out, corrode it very quickly. I have to say I'm very impressed with the finished tank. The contractor, Brad Poole, did a great job with it and I'm confident with the work he's done," Thornhill says.

Using the appropriate formula of concrete, particularly with this type of project, better guarantees the longevity of the structure, Thornhill says.

"We used a 35 MPA, Class one concrete; it's very high strength and very chloride resistant. It's better

than what is used for concrete curbs, which are exposed to a lot of road salt, which is 32 MPA, C2. This type of project is submersed, always under water, so it has to be chloride resistant. It's got a long lifespan; it'll be there in 80 years. In fact, they should get 100 years out of it. When they do come to tear it down, they'll curse me because of all the rebar we put in it," Thornhill says.

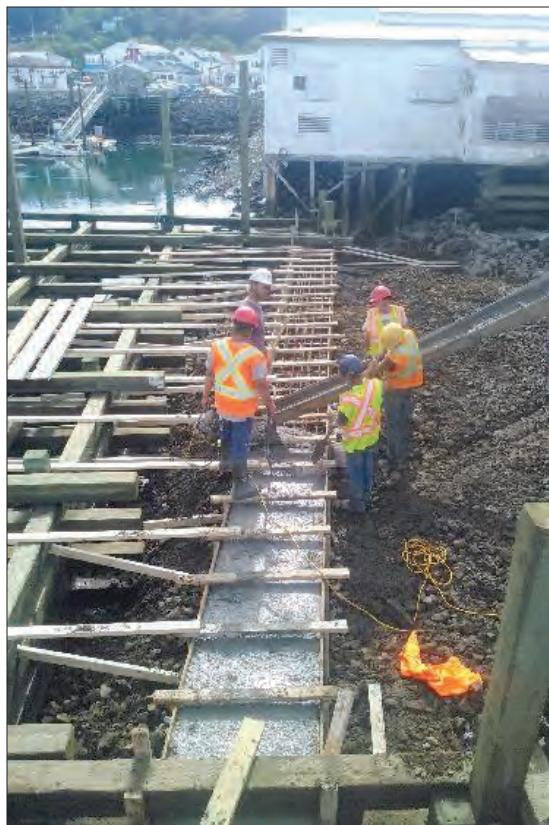
Prior to construction of the tank, Poole shored up 30 feet of timber cribbing, then covered it with concrete decking. An adjacent wharf slip is also fabricated with concrete and 'roughed up' to create a non-slip surface.

Thornhill says the wall between the wharf and the building creates the end of the foundation wall facing the harbour.

"It forms an integrated retaining wall that holds the building and prevents any storm

surge from pounding in under the building and washing out the aggregate. So, if something big happened and the dock was ripped off, the building wouldn't fail. The cribbing that goes to the dockside doesn't really provide any support. It's the opposite: the building creates the counterweight for it," he says.

Nautical Foods is also carrying out some upgrades to its shellfish storage and retail outlet in Parker's Cove, N.S.



The wall between the wharf and the building creates the end of the foundation wall facing the harbour. It forms an integrated retaining wall that holds the building and prevents any storm surge from pounding in under the building and washing out the aggregate.



Rural Roots Engineering & Design of Masstown, N.S., in association with Brent Thornhill, owner and senior engineer with North Shore Engineering Inc. in Tatamagouche, designed and is overseeing construction of the project while M.R. Poole Excavating in Hampton, N.S. was the contractor.

ACA website undergoes major upgrade

By Andy Walker

It was a process that took several months, but Dan Coffey is confident the Atlantic Concrete Association now has a website that will serve both members and potential customers well.

Coffey, manager of sales and marketing for Shaw Resources, was part of a committee that took on the job of making sure the association's pit stop on the information highway was up to date. "Our old website wasn't really all that user friendly and we weren't getting much traffic — having an online presence is vital for our industry."

One of the first things that became apparent, he says, was that the site had to be enabled for mobile devices.

On the member portion of the website, there are sections on certification programs, upcoming conferences and networking events, as well as general information about the association and the benefits of membership. There are also industry resources, as well as information on the latest trends within the industry, both in Atlantic Canada and beyond.

The portal for potential customers includes information



about the benefits of concrete, both from an economic and environmental standpoint, as well as a list of members that can supply products for the customer's next project.

"We are really pleased with the finished product," Coffey says.

That sentiment was echoed by new association president Jamie Reid. While the effort was started before he assumed office, the incoming president says he agrees 100 per cent with the need to modernize.

"The old site just wasn't being used all that much. It's vital in this day and age to have a website, but if it's to serve any purpose, it has to be user friendly and contain timely and up-to-date information."

Both Coffey and Reid say the new website will continue to be a work in progress and will be updated to reflect new developments in the industry.

The many advantages of Central Mix

Concrete is a highly versatile construction material, both in terms of its uses and in the ways it can be produced and delivered to the construction site.

V.J. Rice Concrete Limited recently opened a Central Mix concrete plant. Central mix concrete plants include a stationary mixer that blends the concrete materials prior to discharge into the truck mixer.

This provides several advantages. When using a Central Mix plant, each batch of concrete is pre-mixed before transferring the product to trucks for delivery. The truck mixer then becomes primarily an agitator during delivery.

Central Mix also allows for non-agitating haul units, such as dump trucks, to be used to deliver concrete, usually over relatively short distances, increasing the flexibility of a

company's fleet.

The main advantages of central mixing include faster batching and reduced wear of the truck mixer drums. However, central mix plants can be more expensive to purchase and maintain than transit mix plants.

"Operating a central mix concrete plant provides us several advantages, including reducing fin wear in our drums, further automating the mixing process and shortening the loading cycle," says Bryan Rice, general manager for Mt. Uniacke's V.J. Rice Concrete Limited. "Most importantly however, utilizing central mix provides for greater quality control, allowing us to supply a high quality, consistent and reliable product to our customers, that's uniform to place and achieves consistent high strengths."

Concrete plays big role in building, operating green IKEA Halifax

By Kathy Johnson

It's no surprise concrete has played big role in helping to make the new IKEA store in Halifax the company's most sustainable building in Canada.

"We have committed that IKEA Halifax will be constructed to operate as the most sustainable IKEA store in Canada, and to achieve this we're focusing in particular on energy efficiency, waste avoidance and mobility," says IKEA spokesperson Amanda Fitzpatrick.

Construction of the 330,000-square foot, two-storey building began last year and is expected to be finished this fall. A showroom and large warehouse will fill the first floor. Additional show room space, a restaurant and administration offices will be located on the second storey. Bird Construction was awarded the construction management contract.

"The store will feature a rooftop solar photovoltaic system to generate electricity that we will consume on-site to minimize our demand from the grid," Fitzpatrick says. "A geothermal energy system will provide roughly 50 per cent of the building's heating and cooling, further reducing our energy needs on-site.

"We will also install our first solar wall, using passive solar energy for heating the air that flows behind it. All the lighting on-site will be LED, which also reflects our commitment to only sell the most energy efficient lighting products to our customers. This store will be the first in Canada with a living wall, with live plants

fed with natural light at the entrance to the restaurant area. This feature will help to purify the air in the building and provide a calming effect."

Contributing to the building's sustainability is the fly ash used in all the concrete flatworks at the store, and the thermal insulation sandwiched in the concrete foundations to combat thermal bridging, Fitzpatrick says.

"Doing this provides an advantage over steel-frame construction, from an energy perspective, by minimizing the thermal breaks in the wall," she says. "Precast panels have significantly less structural and connective penetrations than steel-frame construction, allowing a more continuous span of insulation, which as a result will provide better thermal performance."

IKEA Halifax is the first of IKEA's 12-store expansion across Canada, which is expected to be complete by 2025. The Halifax store is expected to employ an estimated 300 full and part-time employees.

"IKEA's commitment to sustainability is a natural extension of our vision to create a better everyday life for people," Fitzpatrick says. "Our objective is to be a positive force on people and the planet, and it's at the heart of everything that we do. Our sustainability strategy, People & Planet Positive, identifies three key areas we focus on as a business: inspiring and enabling customers to live a more sustainable life at home, creating a better everyday life for people and communities, and being energy and resource efficient."



This artist's concept shows what the completed store and surrounding grounds will look like.



This close-up of the concept drawing provides a glimpse of just how much space the store has for its roof-top solar photovoltaic system.



Architect: boeri studio

More than a building.

A building is never just a building. It's a place where we live our lives, share ideas and create a sense of community.

As we face climate change challenges, all buildings and community infrastructures need to deliver on a new level of complexity, as do the materials they rely on. That's why today's concrete is reducing GHG emissions through refinements to its manufacturing process, new products like Contempra and investments in emerging low carbon technologies. Yet, its historic strength remains.

Concrete is evolving to meet the demands of a low carbon, climate resilient future. Best of all, it's manufactured locally, close to where it is used.

Get more facts at rediscoverconcrete.ca

#rediscoverconcrete



VJ RICE CONCRETE LIMITED

TOLL FREE: 1-800-465-7500
www.riceconcrete.ca



Mount Uniacke: (902)866-4444 Kentville: (902)679-4444
Bridgetown: (902)665-4444 Digby: (902)245-3300



Manufacturing and supplying superior concrete products since 1961

- Ready Mix
- Septic Tanks
- Brick & Block
- Tumbled Valley Stone
- Industrial Aggregates
- Retaining Walls
- Heavy Precast
- Pipe & Manholes
- Hardscape Products
- Erosion Control

★ V.J. RICE CONCRETE LIMITED ★

NOW SERVING HALIFAX & SURROUNDING AREA
CENTRAL MIXED CONCRETE

Mount Uniacke: 1-902-866-4444