

HALIFAX — Robert Niven can talk at length about the “green” benefits of his concrete-making technology. But if he can’t match or beat the price of traditional methods, he knows few producers will listen.

“We have to be green without compromise,” said the chief executive and founder of CarbonCure Technologies Inc., a Halifax-based clean-tech company that aims to shake up the global concrete industry.

Concrete is the most widely used building material in the world. But it is also responsible for roughly 5% of the world’s greenhouse-gas emissions, making it the second-largest industrial emitter behind coal. Mr. Niven says his company can help change that.

CarbonCure’s technology infuses carbon dioxide (the evil byproduct of industry) into the concrete-making process. The injection of CO<sub>2</sub> during the curing stage produces limestone, which actually makes the concrete stronger. Mr. Niven says the process also results in fewer defects, and producers use less energy and cement during the production phase.

Plus, the resulting concrete blocks serve as storage units for unwanted carbon dioxide, which is drawn from industrial waste sources such as power plants.

“We make concrete that is really indistinguishable from other concrete products,” Mr. Niven said in an interview at his Halifax office. “We make a better quality product, at a lower price. And it’s green. It’s that triple-win that makes it really attractive to producers.”

CarbonCure’s “bolt on” technology is now being demonstrated at three large concrete plants, in Halifax, San Francisco and Toronto. And CarbonCure blocks are installed in a growing number of buildings, including in Halifax at a new high school and on the Dalhousie University campus.

In June, CarbonCure blocks were installed in a section of the new Hullmark Centre Complex in Toronto, which is being developed by high-rise developer Tridel.

Tower Labs, an organization that uses real world buildings as test labs for new green materials, arranged the Tridel installation. Jamie James, Tower Labs' founder, said he has discussed CarbonCure's technology with a number of key players in the concrete industry.

"And they think it's one of the most exciting things to come along in decades," he said. "It's sort of the Holy Grail to be able to say these man-made concrete structures could actually become repositories of carbon dioxide. That's a very, very compelling story."

Mr. James is also president of 350 Capital, an investment group focused on green building technology. Last week, the group announced an undisclosed investment in CarbonCure.

CarbonCure doesn't actually make concrete, nor does it make the equipment necessary to perform its carbon dioxide injection process. Instead, the company licenses its technology to concrete manufacturers and takes a percentage of the resulting gross sales.

For Mr. Niven, it's a model that will aid the company's global ambitions. "It's very cheap. We can retrofit a plant in less than a day," he said. "And it's scalable. We can put this into any plant in the world, without displacing any existing manufacturers.

"It's a winning environment for everyone."

CarbonCure has raised a total of \$5.5-million, and Mr. Niven plans to pursue an additional round of \$3-million to \$5-million next year. The key, he said, is to find investors who can help push the company into international markets, particularly the BRIC countries of Brazil, Russia, India and China.

"That's where the demand is," he said. "If we're not going there, we're wasting our time."

Mr. Niven's goal is to have every concrete block and structure in the world made using CarbonCure's technology. "It just makes sense. Why wouldn't you do this?" added the company CEO, who started CarbonCure in 2007 after earning a master's degree in environmental engineering from McGill University. "We want CO<sub>2</sub> to be the new standard for concrete production."

Kevin Cail, an engineer and three-decade veteran of the concrete industry, believes that's a reasonable ambition.

Now a sustainable-construction consultant, Mr. Cail previously served as a senior executive at Lafarge North America, a building materials giant. His work with Lafarge involved seeking out innovative and sustainable construction technologies.

That role brought him into contact with CarbonCure, which he eventually joined as a board member.

According to Mr. Cail, there are no regulations forcing concrete companies to adopt CarbonCure's technology. But, he noted, architects and designers are increasingly pushing to create "net zero buildings" — structures with a neutral carbon footprint.

"There is clearly a movement afoot to construct buildings that are green," he said.

Added Mr. Niven: "We don't want to rely on taxes or carbon credits. We want to do this the good old fashioned way — making money by offering a better product at the same price or cheaper."

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