

O&G's Customers and Suppliers on the Move

A mound of clean and powdery Pozzotive® sits in front of the municipal waste glass from which it comes, manufactured with inventor Urban Mining Northeast's proprietary process

AND THEN IT WAS TIME FOR POZZOTIVE®

**FOR TWO DECADES A SUSTAINABLE BUILDING TECHNOLOGY –
GREEN AND GROUNDBREAKING AND UNLIKE ANY OTHER –
MATURED AND WAITED FOR THE RIGHT CIRCUMSTANCES
TO MOVE INTO PRODUCTION • 2020 WAS THE YEAR, WITH O&G AS
PLANT CONSTRUCTOR AND ENTHUSIASTIC ANCHOR CUSTOMER**

Louis Grasso is a methodical and unstoppable man, a solid, steady force that cannot be knocked off course. His course is bringing to market on a grand scale a product he and his business partner, Patrick Grasso, have called Pozzotive. It's an additive for concrete, in a class of compounds called pozzolans, that Louis Grasso began developing twenty years ago. With a production plant approaching startup in space leased inside O&G's Beacon Falls Fabrication Center, Pozzotive is poised to get noticed.

It was 2000 when Louis set up a meeting in Manhattan with world-renowned architect Bob Fox, Jr., perhaps best known for his LEED Platinum, 2.1 million-square-foot Bank of America Tower and his role as the founding chairman of the Urban Green Council in New York. What Grasso intended to be a show-and-tell about the architectural blocks his company could provide turned into a charge from Fox: "He said to me, 'Louis, go back and find a way to make your products sustainable and green and add recycled content. Better yet, add regional post-consumer recycled content.' That was how this all started."

Louis Grasso, engineer, inventor and principal at Urban Mining Northeast, has worked closely with O&G's Bill Stanley, Materials Division VP, for the past eleven years. Grasso and Stanley are repositories of everything, and maybe more, about concrete, from its many compositions to its many applications. Theirs is the continuation of a relationship that began nearly 20 years ago with the late Bob Oneglia. Grasso's concrete block company sold blocks to O&G, and the Grasso's construction company bought concrete from O&G for building projects. Grasso told Oneglia about his novel pozzolan recipe, how it

would make a sustainable concrete with very high performance and be a "green building material," the new wave coming in construction. Grasso is still fond of recounting how Bob Oneglia called Pozzotive one of the most exciting new products he had seen in his 40 years in the construction industry. Continuing the long-standing relationship, O&G has become an early adapter and will be a major customer of Urban Mining Northeast.

By way of background to the Pozzotive story, a family of compounds called pozzolans can be added to concrete for various purposes. Pozzolans have been used for thousands of years – volcanic ash was an early pozzolan, a "supplementary cementitious material," added to concrete by the ancient Romans to lessen the amount of cement needed to hold the ingredients together. The particular pozzolan chosen today is driven largely by the end application for the concrete: sidewalk recipes are different than bridge decks than interior floors, and so on. With Pozzotive, Grasso has not only added strength and imperviousness to chemicals that eat away at concrete, he's solved a municipal recycling conundrum, cut the amount of energy needed to produce concrete, reduced CO₂ emissions for that same process, and created a sustainable, green building product. These are heavyweight, industry-changing benefits.

So what is Pozzotive exactly? Simply, it's very finely ground glass, cleaner than anyone else has been able to get it. Getting to that point – bright white and free flowing, nearly like a liquid – is not simple at all. It's what Grasso calls his secret sauce. No one else has been able to take glass from a material recovery facility, or MRF, as feed stock for a pozzolan. Referred to as "murf" glass, it's the glass that winds up in our recycling bins,

complete with labels, food residue, stray plastic, bits of metal, bones, whatever. The patented Pozzotive process transforms MRF glass from a discarded liability into an essential ingredient.

Another sidebar: municipalities are obligated to find uses for their crushed MRF glass. No customer seems to want it, or at least in the quantities large municipalities need to move. So mostly it's crushed and spread as a covering layer in landfills (lest you think your curbside glass gets transformed into new bottles). But Grasso will help recycle that glass in a big way. He views the hills and hills of crushed MRF glass piling up in landfills as mounds of opportunity. "The Department of Energy and Environmental Protection, the solid waste people – they're thrilled we're doing this," Grasso says.

Stanley and T.J. Oneglia, Materials Division Vice President, see Pozzotive as a significant enhancement to the high-performance concrete products they sell, and more. "It's also

Pozzotive as an early and enthusiastic customer," says Oneglia. "In addition to the importance of developing a green building product," he continues, "the Federal Highway Administration is stressing the need to increase the life cycle for bridges from 50 to 100 years. Bridges need to be able to resist chloride ion penetration from salts into the concrete structures and down to the reinforcing steel." That's what pozzolans can inhibit when added to a high-performance concrete mix. "For salt resistance Pozzotive really outperforms other pozzolans on the market."

It wasn't until 2016, with all the benefits of Pozzotive proven and with the larger economy at a sweeter spot, that the timing was right for Urban Mining Northeast to site a plant whose location would make using Pozzotive in O&G's ready mix operations convenient. Leased space within the Beacon Falls Fabrication Center was their location of choice. It would mean a scaled-down plant to fit the space – somewhere in capacity



CO₂ Reduction

Pozzotive can replace up to 50% of the cement in concrete, reducing embodied CO₂ emissions on a nearly ton-for-ton basis. Because concrete is the world's most abundant construction material, the beneficial environmental impact of Pozzotive is dramatic.



Better Concrete

Pozzotive produces a more durable, longer-lasting and higher-performing concrete that significantly improves its resistance to chloride penetration, sulfate attack, efflorescence and freeze/thaw cycles.



Circular Economy

Pozzotive is made from 100% post-consumer glass, harvested and processed regionally, and used in local, sustainable building projects. This reduces transportation emissions and costly landfills and creates an optimal "circular economy."



A Safer Material

Pozzotive is free of crystalline silica (see page 11), a carcinogen, and toxic heavy metals, making it a safer and more environmentally friendly replacement for concrete admixtures, industrial fillers and abrasive media.

going to significantly reduce our carbon footprint for producing concrete," says Stanley.

Louis Grasso the engineer jumps in with more of the data he loves. He oversaw a life-cycle assessment of the new plant in Beacon Falls – every motor, every emission point. "This plant," he says with emphasis, "is going to cut the environmental impact by 95 percent compared to making regular cement."

The timing of Pozzotive's scale-up was important. It was 2012 when O&G first looked into Pozzotive. The housing market was coming back to life but the price of cement was still very low and there was an abundance of fly ash, an indispensable ingredient of cement, coming from coal-fired power plants. The economics "weren't where they needed to be" for Pozzotive. Several years later the picture had changed. Sources of fly ash "started to go away" as environmental regulations were forcing the closures of coal burning electrical plants, the source of fly ash, and cement prices were climbing. "We got back into working with Urban Mining Northeast and proving out the concept and the benefits of

between their pilot plant alongside the Hudson River in upstate New York and the large-scale operations the Grassos envision.

This first larger-scale Pozzotive production facility, a momentous marker in Louis Grasso's course, will be called Urban Mining CT. It will be commissioned this September, running up to about 50 percent capacity through year one, and then at 100 percent capacity in year two and thereafter. In the meantime, and far into the future, the Grassos will continue to champion the clean, green, high-performing product they have poured heart and soul into. ●

O&G CONGRATULATES THE GRASSOS

and is proud to be Urban Mining CT's anchor customer and expand our use of Pozzotive to commercial scale.

For more on Pozzotive's advantages visit Pozzotive.com.

Pozzotive is a registered trademark of Urban Mining Northeast LLC

Pozzotive-ly Proven

Pozzotive® has been selected for use in some of New York City's largest and highest-visibility projects. Here are a few...



United Nations Plaza, Manhattan



Halletts Point High Rise, Queens



City Point, Brooklyn

CLOCKWISE FROM TOP LEFT

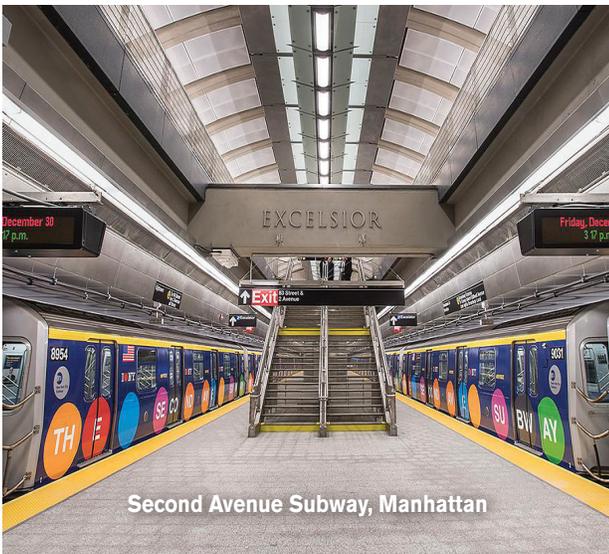
UNITED NATIONS The UN Plaza approach was resurfaced with high-performance permeable pavers made with Pozzotive, which had been made from recycled window glass taken from the UN during renovations.

HALLETS POINT America's first high-rise pour using highly fluid, self-consolidating structural concrete batched with Pozzotive PSI- tested stronger than traditional concrete by more than 50 percent.

VIA 57 WEST Built with a vision for sustainability, this ultra-modern and innovative residential complex used structural concrete block, cast-in-place flooring and pre-cast stairs made with Pozzotive.

SECOND AVENUE SUBWAY Concrete block with 30 percent Pozzotive went into every station on the Second Avenue Subway, the City's newest and most modern subway line. Pozzotive was specified by AECOMM, the world's largest infrastructure firm.

CITY POINT Pozzotive-batched structural concrete block and prestressed hollow core concrete plank were employed in this mixed-use, multi-building complex designed by COOKFOX Architects.



Second Avenue Subway, Manhattan



Via 57 West

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POZZOTIVE PRODUCTION PLANT

COMING ONLINE IN BEACON FALLS

Versatile George Parenteau of the O&G Building Group has led the construction of manufacturing plants and the Millstone 3 nuclear power plant, among a host of projects over four decades. Building this new facility is in his wheelhouse. “There’s nothing here that we can’t comfortably build,” he says, “but it has gotten hectic at times – this is a design-build project and we’ve been evolving and redesigning as we go.” Downsized to fit inside the Beacon Falls Fabrication Center, the plant will demonstrate and test out all the moving parts that go into making Pozzotive, even as it provides a projected 50,000 tons of the groundbreaking pozzolan for high-performance concrete right from the start. The facility is on target to begin operating this September.

TOP TO BOTTOM • A 130-ton capacity silo being craned into position. • Four of these six silos together will hold 850 tons of Pozzotive. • Part of the production line are a pair of 38-foot-long ball mills that will produce 13 tons of Pozzotive per hour. • Builders, visionaries, experts (left to right): Jack Harding, Beacon Falls Facility Manager, George Parenteau, Project Manager, T.J. Oneglia, Vice President, Materials Division, Patrick Grasso, Principal, Urban Mining Northeast, Louis Grasso, Inventor/Principal, Urban Mining Northeast, and Bill Stanley, Vice President, Materials Division.

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