

CONCRETE

FLOOR

EPOXY

Back to the Grind on Coffee Facility Floor

BY STEPHANIE MARIE CHIZIK

PHOTOS COURTESY N.Y. STATE INDUSTRIAL COATINGS, INC.

Tim Hortons is a treasured coffee and donut chain that was started in 1964 in Hamilton, Ontario, by a former National Hockey League player of the same name. Known for the double-double (i.e., two sugars and two creams), roll-up rim coffee cup contests, and Timbits (aka donut holes), the breakfast institution has continued to edge its way into the United States.

To help the migration south, the company that creates the specialty blend of coffee for Tim Hortons, Maidstone Coffee, recently renovated an old mechanical facility into a state-of-the-art roasting and packaging plant. "This facility actually cooks/roasts the beans, grinds the coffee, and distributes it to all Timmy Hortons here in the northeast and part of Canada," said Jeff DeFranco, president and CEO of N.Y. State Industrial Coatings, Inc.

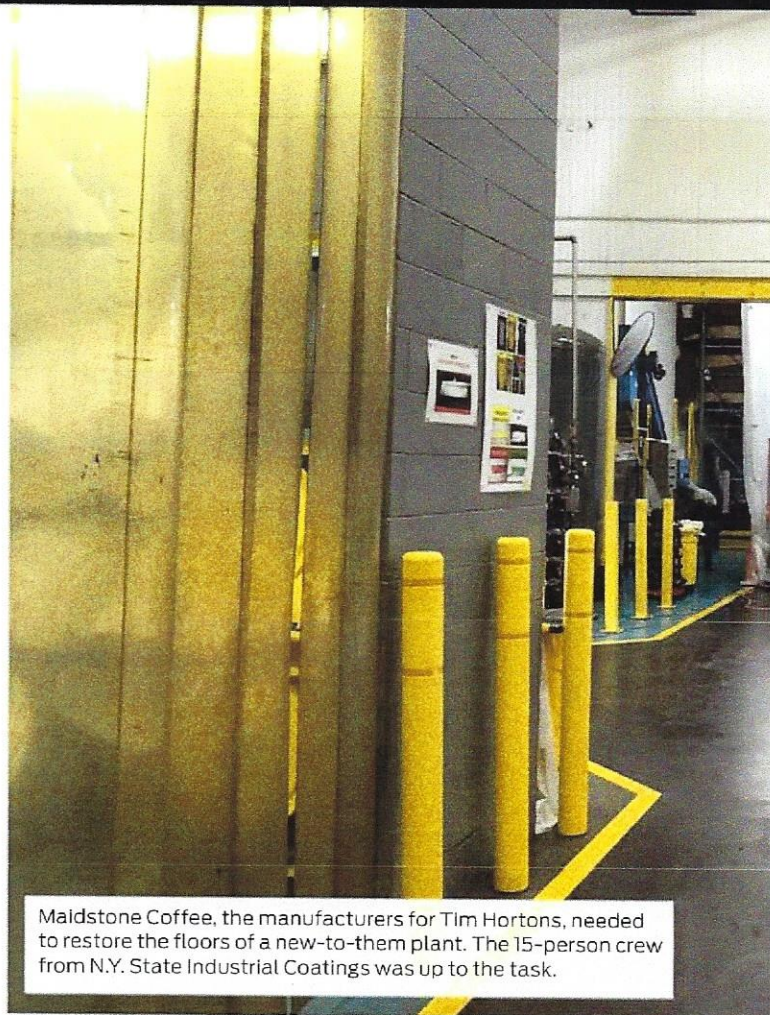
A 15-person crew from the coatings company worked to transform the space befitting the beloved coffee. "It's a huge plant, and we had to do the flooring installation during operations, so we had to be within compliance of their QC [quality control]."

It took a United States Department of Agriculture (USDA)-approved coating system, new Occupational Safety and Health Administration (OSHA) training, and 100 percent adherence to site requirements to get this job done.

Divide and Conquer

Due to availability of the coffee plant, the concrete floor had to be divided into two equal parts — each covering a total of approximately 21,000 square feet (1,951.0 m²). The crew applied the same system to each section but in two different installments. "There wasn't enough time to go through and do the whole thing at one time," DeFranco said.

The facility keeps busy on run orders, so maintenance was difficult to plan into that ad hoc schedule. And even if there had been scheduled downtime, it wouldn't have been enough



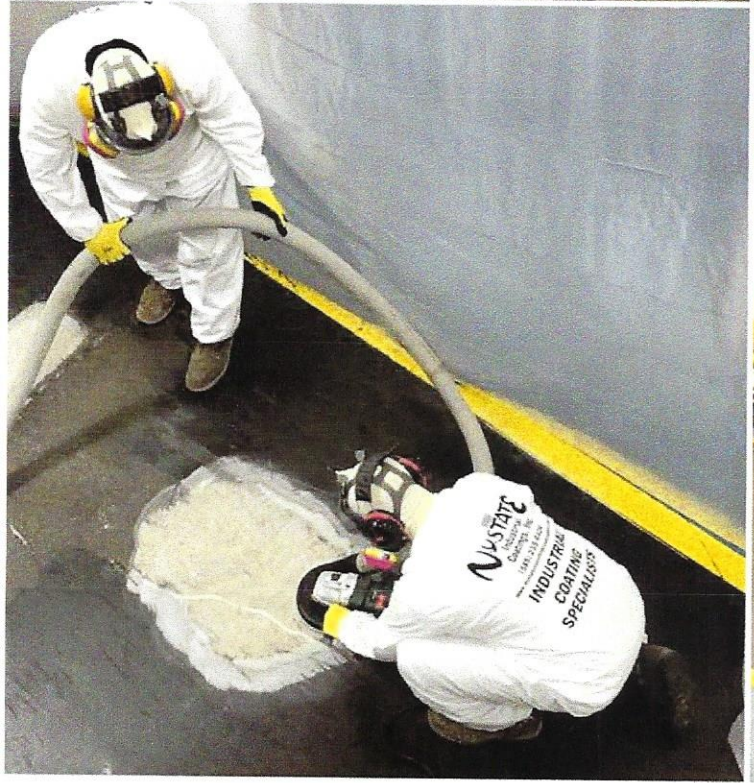
Maidstone Coffee, the manufacturers for Tim Hortons, needed to restore the floors of a new-to-them plant. The 15-person crew from N.Y. State Industrial Coatings was up to the task.



The ~21,000 sq. ft. (1,951.0 m²) project included concrete that was spalling and contaminated. The crew would need to use paint prep cleaner, irrigate, vacuum, and heat the concrete.



The crew followed various safety precautions, including wearing proper gear, such as Tyvek suits, respirators, boots, and hearing protection. They had a safety director, completed various tests and training, and monitored the air for quality.



Caffeinated Floor



To prep the concrete for the coating, the crew scarified and shot-blasted with equipment from Metabo and BlastPro. They were aiming to achieve an International Concrete Repair Institute (ICRI) Concrete Surface Profile (CSP) of 3.



The project was completed while the facility was still on line, so not only did the crew have to create a containment but they also had to put up plastic to protect the client's equipment.

to finish a project of this size in one go. "There were not enough windows of time to complete it," DeFranco continued.

In between the two installations, Maidstone Coffee moved its roasting and packaging equipment into the space. To keep the processing of the beans free of contaminants, the crew hung 6-mil (152.4 microns) plastic barriers. "We had zip walls with decontamination areas so we could come out of the area, disrobe, and then come back into their production area clean," DeFranco said. It was "very similar to an asbestos decontamination area."

Separating the two work areas meant that communication became a key to the project. A construction site in the middle of a functioning food facility can be tricky, but staying in constant communication with the quality control guy on the other side of the divide helped.

Communication included inspections throughout the day, "constant" air monitoring inside and out of the containment, and coming up with a plan B for every step. "Fortunately, it went perfectly," DeFranco said. "Our engineering was sound, and we had a backup plan in case the original did not come to fruition. We didn't have any need to adjust, but we were in constant contact to ensure that we were at the levels that they needed us to be at, which were zero VOCs [volatile organic compounds]." As he succinctly concluded about the client's high standards for safety, "There's no tolerance."

That included moving the materials and equipment from the storage area to the production area when the crew needed something. Any chemicals had to have proper labels, be sealed, and be in the original containers.

Despite the physical division, though, the N.Y. State crew worked alongside their coffee counterparts. It took the crew four weeks to complete the second installation — sectioned off into four areas that each took one week to complete — and the crew acted as Maidstone employees for all intents and purposes.

"All of the guys had to go through GMP (good manufacturing practice) training," DeFranco said. They also received lab training. "Timmy Hortons is state of the art with that; they make sure that their affiliates and employees are all up to snuff

there, so we had to go through training to make sure that we knew everything that was going on in the plant and were able to kind of fall in. We were kind of treated as, or they expected us to be as good as, the employees were."

A Tall Order

To get the grinds going, the crew started by covering the bottoms of roasters, conveyors, and palletizers with visqueen and Gorilla Tape. "All of the equipment was in place, so we had to work around it, protect it, and, again, allow it to operate when they had to operate it," DeFranco said. "It was very challenging from a protection standpoint."

Next they got to the surface prep. Over the course of about 2¹/₂ weeks, the N.Y. State crew covered all its bases, prepping the concrete for the coatings. The first step was to use AEROGREEN 4110 Paint Prep Cleaner, which is manufactured by Hi-Lite Solutions and distributed by Sherwin-Williams. The crew buffed that onto the floor using Mercury Floor Machines equipment then irrigated using a Mi-T-M 4,000 psi (27.6 MPa) power washer. As much water as possible was removed using Ruwak vacuums, and any remaining moisture was removed by heating the concrete.

They followed that by testing the floor for moisture using calcium chloride tests. That helped ensure that the water they added when cleaning didn't remain, and it also accounted for moisture coming from under the slab. At that point, finally, the crew could scarify and shot blast using equipment from Metabo and BlastPro, respectively, "to get to a solid base," DeFranco explained.

The plan was to achieve an International Concrete Repair Institute (ICRI) Concrete Surface Profile (CSP) 3, but the condition of the concrete threw the crew for a loop. "It was discovered after shot blasting and scarifying the cleaned surface that oil-laden contaminants were wicking up through the slab. In addition, profiling the surface exposed several areas of deteriorated concrete that produced an extremely spalled substrate," he continued. They had to re-clean those areas with the 4110 Paint

JOB AT A GLANCE

PROJECT:

Restore and coat the floors of a facility switching to manufacturing coffee

COATINGS CONTRACTOR:

N.Y. State Industrial Coatings, Inc.
108 Colvin St.
Rochester, NY 14611
(585) 235-6424
www.nystateindustrialcoatingsinc.com

SIZE OF CONTRACTOR:

30 people

SIZE OF CREW:

15 crew members

PRIME CLIENT:

Maidstone Coffee
60 Mushroom Blvd.
Rochester, NY 14623
(519) 720-2000

SUBSTRATE:

Concrete

CONDITION OF SUBSTRATE:

Spalling and contaminated

SIZE OF JOB:

~21,000 sq. ft. (1,951.0 m²)

DURATION:

4 weeks

UNUSUAL FACTORS/CHALLENGES:

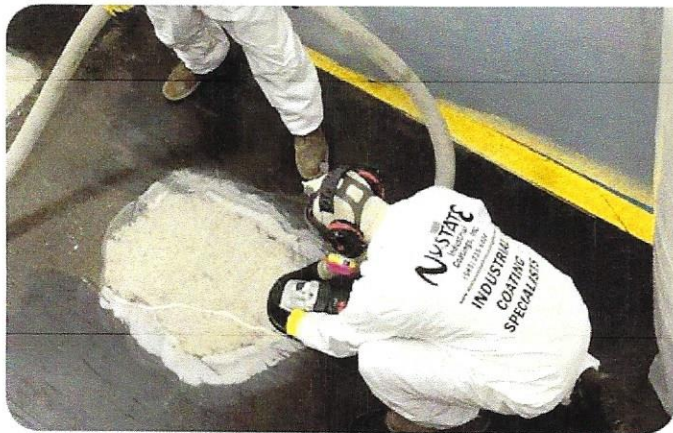
- » The materials had to be U.S. Department of Agriculture (USDA) compliant and have zero volatile organic compounds (VOCs).
- » The project was completed while the coffee facility was on line.

MATERIALS/PROCESSES:

- » Hung 6-mil (152.4 microns) containment; covered client's equipment
- » Engineered negative air into the containment using explosion-proof fans from Allegro and duct work
- » Buffed AEROGREEN 4110 Paint Prep Cleaner with Mercury Floor Machines and irrigated with Mi-T-M power washers
- » Vacuumed remaining water using Ruwaks and heated concrete
- » Scarified and shot-blasted to International Concrete Repair Institute (ICRI) Concrete Surface Profile (CSP) 3
- » Recleaned oil-laden areas with 4110 Paint Prep Cleaner, and re-shot-blast more aggressively to CSP 5-9
- » Rolled and brushed Milamar's International Coatings (ICO) Primer LV and troweled ICO Quik Patch Resurfacer to spalled areas
- » Applied primer to 200-250 square feet per gallon (4.9-6.1 m²/L)
- » Squeegeed and backrolled ICO Floor 51/Guard 51 at 1/4-inch (0.6 cm) thick, and broadcast aggregate
- » Squeegeed and rolled ICO Floor Coating/Guard Coating at ~20 mils (508.0 microns)

SAFETY CONSIDERATIONS:

- » Received lung scan; respiratory function and tests; physical
- » Wore Tyvek suits, gloves, respirators, boots, and hearing protection
- » Monitored air and used air scrubbers to maintain air quality



The project took place very soon after Occupational Safety and Health Administration's (OSHA's) new silica standards went into place. Prep equipment had dust shrouds and high-efficiency particulate air (HEPA) filters.

Prep Cleaner to remove the extra oil and used a more aggressive shot blasting to hit a CSP of 5-9.

When it was time to coat, the crew used materials that had zero VOCs and were USDA compliant. Each coating also had to be "able to handle exposures with clean in place (CIP) chemicals to make sure it would perform," DeFranco said.

The Milamar system included International Coatings (ICO) Primer LV, applied using rollers and brushes. That and the ICO Quik Patch Resurfacer were applied at varying thicknesses, depending on the integrity of the concrete, to bring it back to flush, especially in spalled areas. The resurfacer was hand- and power-troweled. That was followed by a full prime coat at 200-250 square feet per gallon (4.9-6.1 m²/L) and then a coat of ICO Floor 51/Guard 51, which was squeegeed and backrolled to an average of 1/4-inch (0.6 cm) thick. The crew broadcast aggregate into the slurry coat for slip resistance. The final layer was ICO Floor Coating/Guard Coating, and it was applied again with squeegee and rollers — regular and spike — at an average of 20 mils (508.0 microns).

They finished by adding striping in yellow and blue per

Some areas had to be re-cleaned and -blasted because oil was still wicking up. According to Jeff DeFranco, N.Y. State Industrial Coatings president and CEO, they had "to get to a solid base."



Caffeinated Floor



The coating system had to be U.S. Department of Agriculture (USDA) compliant and have zero volatile organic compounds (VOCs). That included a primer on spalled areas, followed by a full primer to the entire floor.

OSHA specs. "We delineated the tow path and the pedestrian walkway so they'd be in compliance with their safety director. That stuff was all done by hand," DeFranco said.

Falling in Line

To a man, safety was top of mind on this project for N.Y. State. For starters, the company employs a safety director who is OSHA certified and has a degree in health and safety.

For this and every other project, they also use a site-specific safety plan (SSSP) and wear proper personal protective equipment (PPE). That included Tyvek suits, hard hats, chemical gloves, full-face respirators with National Institute of Occupational Safety and Health (NIOSH)-approved organic vapor cartridges, steel-toed boots, and hearing protection. (The Maidstone associates also wore hearing protection, which helped to ensure they were protected during the surface prep stage.)

Each N.Y. State employee also received a lung scan, respiratory function test, full physical, and respirator fit tests as well as OSHA silica certification training. And even though the equipment was furnished with dust shrouds and high-efficiency particulate air (HEPA) filters per OSHA's new silica laws, the crew doubled up with air scrubbers to ensure that the Maidstone environment wasn't contaminated. Those were portable HEPA filtration units by Advanced Containment Systems, Inc.

On top of PPE, the crew engineered negative air with explosion-proof fans from Allegro and duct work. Pulling air in from the production area helps "ensure there's no way that any contamination can escape through the barrier," DeFranco explained. They also set up a "buffer zone" using safety cones with caution ribbon about 6 feet (1.8 m) out from the perimeter of the work area. As he said, they went "above and beyond."

"All of that stuff has to be taken into consideration before we head out the door to the project; there was quite a bit," DeFranco said. "And whenever we have these scenarios — and

VENDOR TEAM

Advanced Containment Systems, Inc.

Equipment manufacturer
8720 Lambright Rd.
Houston, TX 77075
(713) 987-0336
www.acsi-us.com

Allegro Industries

Safety equipment manufacturer
1360 Shiloh Church Rd.
Piedmont, SC 29673
(864) 846-8740
www.allegrosafety.com

Blast Pro Manufacturing, Inc.

Equipment manufacturer
6021 Melrose Ln.
Oklahoma City, OK 73127
(877) 495-6464
www.blastpromfg.com

Gorilla Glue Company

Material manufacturer
2101 E Kemper Rd.
Sharonville, OH 45241
(800) 966-3458
www.gorillatough.com

Hi-Lite Solutions

Material manufacturer
1285 Brucetown Rd.
P.O. Box 0399
Clear Brook, VA 22624
(540) 450-8375
www.hi-litesolutions.com

Mercury Floor Machines, Inc.

Equipment manufacturer
110 S Van Brunt St.
Englewood, NJ 07631
(888) 568-4606
www.mercuryfloormachines.com

Metabo Corporation

Equipment manufacturer
1231 Wilson Dr.
West Chester, PA 19380
(610) 436-5900
www.metabo.com

Milamar Coatings

Coatings manufacturer
311 NW 122nd St., Ste. 100
Oklahoma City, OK 73114
(800) 459-7659
www.milamar.com

Mi-T-M Corporation

Equipment manufacturer
50 Mi-T-M Dr.
Peosta, IA 52068
(563) 556-7484
www.mitm.com

Ruwak USA

Equipment manufacturer
54 Winter St.
Holyoke, MA 01040
(800) 736-6288
www.ruwac.com

Tyvek by DuPont

Safety equipment manufacturer
5401 Jefferson Davis Hwy.
Richmond, VA 23234
(800) 931-3456
www.tyvek.com

we've done a lot in the food and beverage industry, our niche market, in the past 30 years — it's become more and more of a necessity to have a really good plan of action prior to [the job] and tie it in with [the client's] safety." Having everyone trained and certified at the same level may seem like overkill, but to DeFranco, it keeps everyone "ready to go and fall in as needed."

Proof Is in the Coffee

In addition to running N.Y. State Industrial Coatings, DeFranco is a football coach, and that team-type mentality follows him to work. He has an all-for-one mentality — for



The crew finished with ICO Floor 51/Guard 51 with broadcast aggregate and a layer of ICO Floor Coating/Guard Coating. And with that, the crew was able to call it a day and grab a cup o' joe.

spots, from a laborer to our top administrators, our whole team suffers." Failure, though, was not the outcome of this project. "Everybody performed their roles flawlessly, so I'd like to commend everybody as a whole, the entire team," he continued.

DeFranco said Maidstone was "elated," but nothing is more a testament to a successful job than more work that comes in after it, which is exactly what N.Y. State has received from Maidstone. According to DeFranco, this project "started a really good working relationship, and they're looking for a contractor like we are. And that's the kind of client that we like — continued opportunity and growth." Not to mention a client that can offer a cup of joe. "We do share a cup of coffee with them whenever when we're in the area," he said. "[They're] always eager to roll out the red carpet."

The plant manager, Garrett Dobesh, also deserved kudos as far as DeFranco was concerned. "He really did a nice job spearheading the project," DeFranco said. "It's nice to have somebody who cares. He's passionate about the plant and it shows. It's an amazing facility." And it's a facility that the N.Y. State Industrial Coatings crew can be proud to have been a part of recreating. **CP**

successes and failures. "It takes everybody — from our safety director to set up a good plan with our VP of operations, the supervisors, right down to the laborers," he noted. "And what I like to say is this: If there's failure at any of those

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