

ROOFTOP AC PITS

EPOXY COLORS

ARTISTIC TANK

JANUARY 2022

CoatingsPro™

MAGAZINE

NIGHTTIME GROUND CONTROL

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» PRODUCTIVITY VS. EFFICIENCY

» MARIJUANA FLOOR TROUBLE

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Get to know some of the key players around the coatings industry.



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ON THE COVER (A) Due to outgassing concerns with the heat, this contractor worked at night to apply traffic coatings to a new parking facility at LAX.

—Photo courtesy of Polycoat Products.

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ON THE COVER (B) Working around AC units in the summertime meant paying extra careful attention to safety for this crew.

—Photo courtesy of Executive Coatings and Contracting.

Factory Gets Quick Turnaround on Epoxy Mortar Floor

BY KAREN D. OSTRANDER

PHOTOS COURTESY C.A. REED ASSOCIATES, INC.

BITZER Scroll manufactures scroll compressors for heat pumps and air conditioners. Over time, their Syracuse, N.Y., factory's concrete floor had undergone plenty of wear and tear in the harsh manufacturing environment — to the point where the floor needed to be recoated.

In March 2020, just as the COVID-19 pandemic was beginning in the United States, BITZER Scroll enlisted the installation arm of coatings manufacturer C.A. Reed to recoat a 35,000-square-foot ($3,252.0\text{ m}^2$) section of their factory floors. Fortunately for both businesses, they were declared essential, and the job could proceed as originally planned.

Getting Started

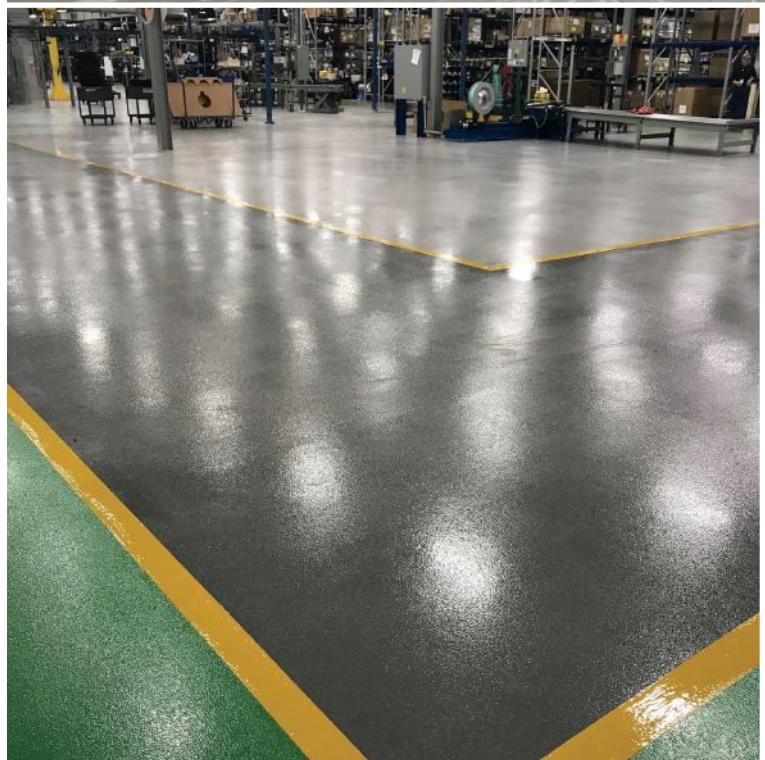
"The project engineer that brought us into this facility knew us from his previous place of employment where we worked for him and did a number of flooring projects for him," said Rob Park, vice president of C.A. Reed Associates. "When this project came across his desk, he contacted us, and we provided a proposal."

C.A. Reed's contracting division employs 30 individuals, and 10 of those were sent as crew members to this job in Syracuse — about 70 miles (112.7 km) from the contractor's headquarters. Project superintendent Ron "Chick" Cichinelli drove C.A. Reed's 53-foot (16.2 m) Peterbilt tractor-trailer to the site, and he was onsite throughout the six-day project. BITZER Scroll needed a fast turnaround because the plant had to be shut down for the coatings work, and during this time, C.A. Reed provided a new epoxy mortar coatings system.

According to C.A. Reed, their Industrial Epoxy Topping is a resinous flooring system consisting of 100 percent solids epoxy resin and selected aggregates that provide heavy-duty protection at $3/16"$ to $1/4"$ (4.8–6.4 mm) thickness or more. The product data sheet reads, "When grouted and sealed, the Industrial Epoxy Topping eliminates porosity and produces

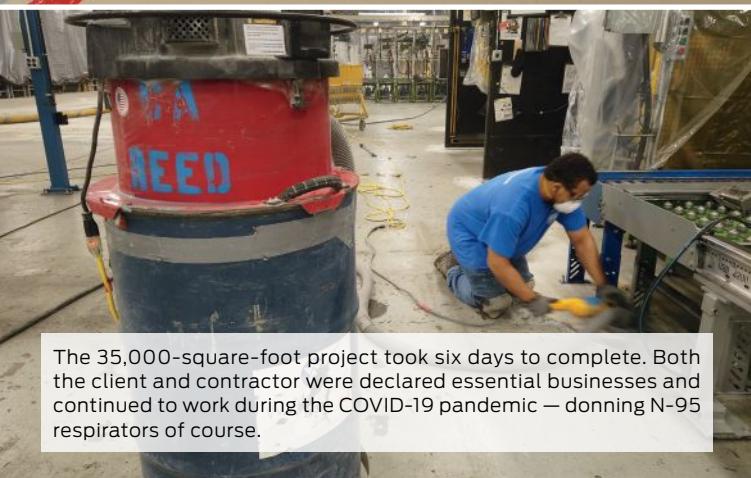


The work took place during COVID-19, and because of the connection within C.A. Reed, there were no delays. The company was able to get materials and equipment to the jobsite themselves.

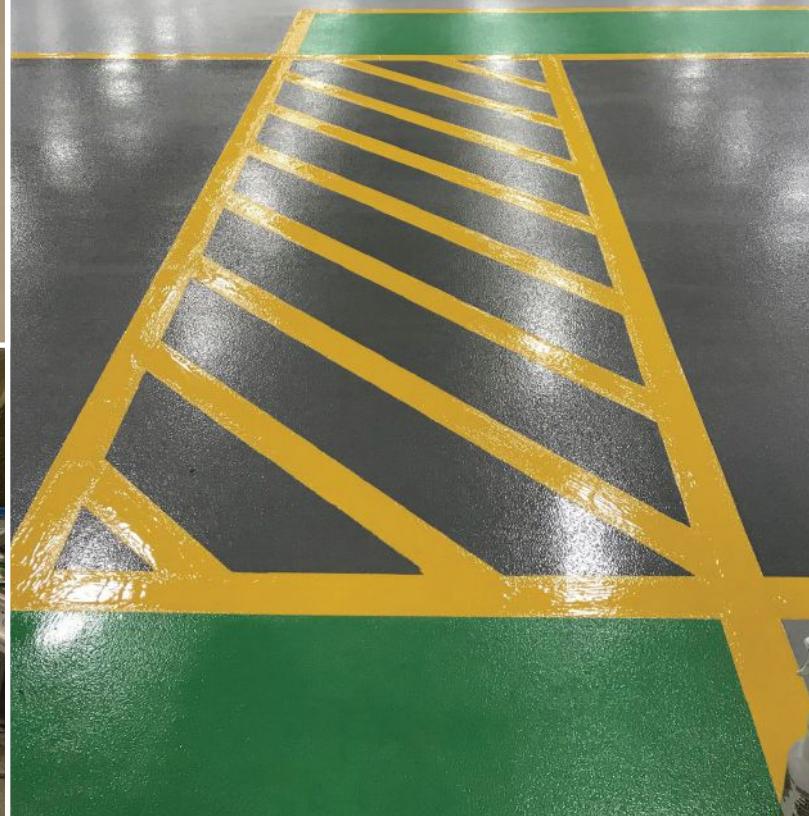


When a manufacturing facility needed a recoated floor, they called in C.A. Reed Associates. The company has both contracting and manufacturing arms, which came in handy when installing the new epoxy system.

Epoxy Mortar Factory Floor



The 35,000-square-foot project took six days to complete. Both the client and contractor were declared essential businesses and continued to work during the COVID-19 pandemic — donning N-95 respirators of course.



To install the new coating, the company used a crew of 10 people. They wore proper PPE, including steel-toed boots, gloves, and safety glasses. They also used dust containment in some areas.



Epoxy Mortar Factory Floor

a dense, skid-inhibiting finish that will minimize dirt and chemical penetration."

C.A. Reed had another benefit going for them on this project at BITZER Scroll: Acting as both the coatings manufacturer and coatings contractor, they could avoid any potential supply chain hiccups. "The nice thing about having that large tractor-trailer is the ability for us to arrive onsite at the beginning of that project, or the night before, with absolutely everything that we need," explained Park. "We're not reliant on some other trucking company. We're not reliant on a manufacturer of coating materials to be shipped.... We're the manufacturer of the coating materials, we're the contractor, we're the trucking company, so having that tractor-trailer allows us to pack our men and our equipment and our materials all in one package and have control over our own destiny."

The tractor-trailer also allowed the crew to bring with them the aggregate filler for the troweled mortar system. "It's really kind of a necessity," said Park. "In this particular job, you're talking about 70,000 pounds [31,751.5 kg] of aggregate."

Existing Conditions

The area to be recoated was where some general metal machining and fabrication occurs in the factory. "It's a pretty heavy-duty manufacturing environment," said Park. "Also, in the areas where they do some of the grinding and some of the abrasive stuff goes on the floor, there was more damage to the concrete in those manufacturing cells and in the heavy-duty traffic areas." In fact, the old coatings were as thick as 30 mils (762.0 microns) in some areas, but they were worn off, peeling, or flaking in other areas.

The first step of the job was to remove those previous coatings. Park described these as "several layers of epoxy paint, the best that I could tell. There might have been a layer of urethane on the top, which further complicates removals."

The C.A. Reed crew came prepared with a full arsenal of

The harsh environment of the facility had caused wear and tear on the floor, so the crew started by removed existing coatings. They also fixed any spalling and cracking with epoxy binder and polyurea joint filler.



surface preparation equipment, including two Terrco 3100 Series terrazzo grinders and three Blastrac 1-15D shotblasters, plus several DEWALT 7-inch (17.8 cm) angle grinders to get under the myriad in-place equipment that could not be moved.

For coatings removal, Cichinelli and his team used the Terrco grinders with Diamond Speed's 3-inch (7.6 cm) Metal Bonded 5-Segment Diamond Arrow Plug in 30 grit (medium) as well as the 3-inch Metal Bonded 10-Segment Diamond Plug in 18–20 grit. The 7-inch grinder cups used on the hand grinders came from the same manufacturer. With the preexisting coatings removed, the concrete was abraded to a medium-grit finish, International Concrete Repair Institute (ICRI) concrete surface profile (CSP) 3 or 4, using the Blastrac machines.

During surface prep, dust containment was a major consideration. "Even though this was not a pharmaceutical or a food plant or a beverage processing facility," Park said, "they still have some very clean manufacturing requirements.... It was a bit of a challenge because the removals required some pretty aggressive grinding." Even though high-efficiency particulate air (HEPA) filtration was used with all the grinding equipment — including Ruwac USA HEPA vacs hooked up to the angle grinders — the facility owner still put up some poly sheeting between the work area and other areas of the building. "There's always going to be dust kicked up," commented Park, "even by simply passing a broom across the floor."

In most places, the underlying concrete was in good condition, but there was some spalling and cracking in the heavy-wear areas. C.A. Reed recommended their 1/4" (6.4 mm)-thick Industrial Epoxy Topping because the system can resurface areas of spalled concrete in one pass. Of course, there were some cracks and joints that had to be detailed and repaired. Cracks were filled with C.A. Reed's #5100 epoxy binder, and VersaFlex's SL/75 polyurea joint filler was used to fill expansion joints and for other dynamic, moving joints.

To work around the facility's in-place equipment, the crew needed to use grinders from Terrco and DEWALT. The use of an e-cart helped to provide a safe, central source of electrical power for tools.



JOB AT A GLANCE



To achieve an ICRI CSP 3–4, C.A. Reed's crew abraded the concrete with three Blastrac shot blasters. HEPA filtration was used on surface prep equipment as a safety consideration.

Powering the Tools Safely

All told, surface preparation took a day and a half, with lots of equipment running at once. Therefore, like nearly any coatings job, the surface preparation phase required a safe, convenient power solution. C.A. Reed found that in a Hammond Power Solutions NMK030KB e-cart.

While describing the e-cart, Park said, "What's great about these power distribution carts is that you can get your 480-volt connection through the plant electrical service and...from that cart, we can operate our 480-volt 3-phase-powered grinders and shotblasters. We can also run up to 10 or 12 different circuits of 110-volt power in order to run the hand grinders and the vacuums for the hand grinders."

A centralized location for power can provide a much-needed safety factor on a jobsite. Park elaborated: "Anybody in this industry knows that you can only run a grinder on one standard

"Even though this was not a pharmaceutical or a food plant or a beverage processing facility," said Rob Park, VP of C.A. Reed Associates, "they still have some very clean manufacturing requirements..."



PROJECT:

Install a ¼-inch-thick industrial epoxy topping on a manufacturer's floor

COATINGS CONTRACTOR:

C.A. Reed Associates, Inc.
Canandaigua, NY
(800) 462-6149
LI: c-a-reed-associates
<https://careed.com>

SIZE OF CONTRACTOR:

30 employees

SIZE OF CREW:

10 crew members

PRIME CLIENT:

BITZER Scroll Inc.
Syracuse, NY
(315) 436-2101
@BITZERGroup
www.bitzerus.com

SUBSTRATE:

Concrete

CONDITION OF SUBSTRATE:

Good with spalling and cracking in heavy-wear areas

SIZE OF JOB:

35,000 sq. ft.

DURATION:

6 days

UNUSUAL FACTORS/CHALLENGES:

- » This job took place at the beginning of the COVID-19 pandemic.
- » Removal of the prior coatings required aggressive grinding in some places, and dust containment was a major consideration.
- » The crew had to apply multiple colors, work around in-place equipment, and have the floor ready for service within a 1-week shutdown.

MATERIALS/PROCESSES:

- » Removed existing coatings using grinders and hand grinders
- » Abraded the concrete using Blastrac 1-15D shotblasters to achieve CSP 3–4
- » Filled cracks and joints with C.A. Reed's #5100 epoxy binder and VersaFlex's SL/75 polyurea joint filler
- » Applied C.A. Reed's #5100 clear 100 percent solids epoxy primer at an average of 8 mils thickness using squeegees and 18-inch backrollers
- » Applied C.A. Reed #5100 pigmented epoxy mortar layer with aggregate filler at an average of 250 mils thick
- » Ground the floor again with the Terrco 3100 machines using a fine 120-grit stone, followed by a quick vacuum of the surface
- » Used squeegees and backrollers to apply C.A. Reed's #5200 Epoxy Coating to an average thickness of 10 mils each, while broadcasting a 54-grit white aluminum oxide into the topcoat

SAFETY CONSIDERATIONS:

- » Wore appropriate PPE, including steel-toed shoes, and 3M N-95 respirators
- » Utilized a Hammond Power Solutions NMK030KB e-cart
- » Employed HEPA filtration on all surface preparation equipment

Epoxy Mortar Factory Floor



The 100 percent solids epoxy primer, #5100 clear from C.A. Reed, went down at an average of 8 mils using squeegees and 18-inch backrollers.

110 circuit and a vacuum on another.... Not only does this [e-cart] provide all of that additional 110 service amperage, but it does it safely. Instead of having wires all over the place, extension cords running everywhere, you've got one nexus where you've got the power safely wired and everybody is pulling off of this little spider situation in the center. It's a much safer arrangement. Of course, if there is some sort of problem with the power, you've got the centralized unit of this design to shut down safely."

And speaking of safety, the C.A. Reed crew wore proper personal protective equipment (PPE) throughout the job. In addition to maintaining social distance to account for COVID-19 regulations, they wore steel-toed shoes, NSI N-Spec safety glasses from Northern Safety, hearing protection, gloves, and 3M N-95 respirators. "The men are generally wearing respirators as needed when doing surface preparation work, but we now are wearing them all the time in and around the work environment" due to the pandemic, said Park. "We were awfully proud of our crew. They worked safely and executed a number of projects for essential businesses all throughout the East Coast, starting here with BITZER Scroll."

Coating the Floors

When the surface was properly prepared, the coating process began with C.A. Reed's #5100 clear 100 percent solids epoxy primer applied with squeegees and 18-inch (45.7 cm) backrollers at an average of 8 mils (203.2 microns). "We use Wooster Super Doo-Z roller covers and Haviland red rubber squeegees to apply the primer, grout coat, and topcoat," Park said.

The primer coat was given about an hour to tack up; meanwhile, the crew was setting up the mixing station — a Stone Equipment SM2000 silo mixer (now under the Toro product umbrella) — for the epoxy mortar. This process entailed mixing C.A. Reed #5100 pigmented epoxy mortar layer with aggregate filler material supplied through Fairmount Santrol (now Covia). Once blended to a mortar, it was screeded out onto the tacky

primer, raked, and power troweled with 48-inch (121.9 cm) Wacker Neuson CT48-AV power trowels. The mortar layer was applied at an average thickness of 1/4", or approximately 250 mils (6,350.0 microns), over the course of two days.

"So we're mixing up our mortar — basically the A and the B of the epoxy along with the bags of the aggregate blend," Park elaborated. "That gets mixed up in that large mixer, and then we apply that. On this particular job and on all our large jobs, we'll apply the mortar, we'll carry it out to the application area on the floor, and do the first screed with our skid steer, our Bobcat with a bucket on it."

As the material was dumped with the Bobcat, the crew raked it out more precisely at the 1/4" depth using S550 Professional "Scarifier Lute" gaged rakes from Seymour Midwest. A crew member then took the power trowel over the surface to smooth it out. "That took us to the end of day 4," Park said.

The mortar cured overnight, and on day 5, the crew lightly ground the floor one more time with the Terrco 3100 machines using a fine 120-grit stone. This process, along with vacuuming, took off any slight imperfections prior to applying the grout coat.

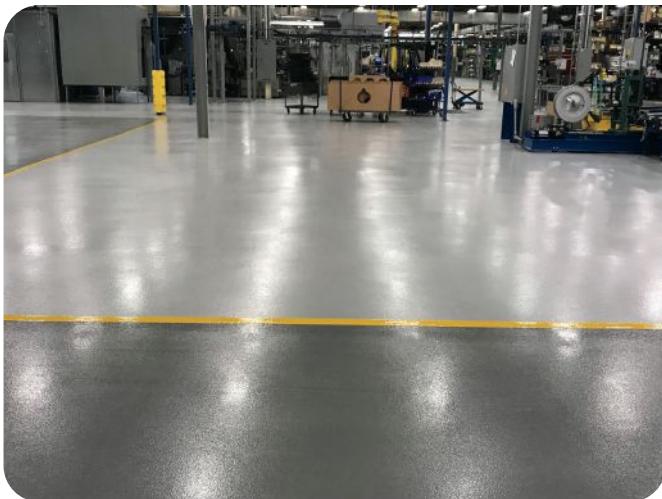
The grout coat, consisting of C.A. Reed's #5200 Epoxy Coating, is "basically a paint coat that goes on top of the mortar that seals it in. It's essentially the first topcoat," said Park. "We apply two coats on top of the mortar. That first coat is often referred to as the grout coat in the industry. The second coat that we apply is our topcoat. Both coats are applied at an average 10 mils (254.0 microns) of thickness."

A 54-grit white aluminum oxide was broadcast into the topcoat lightly, at a rate of about 20 pounds per 1,000 square feet (9.1 kg/92.9 m²), then backrolled evenly to provide non-skid properties. The mortar layer was applied in one uniform gray color, while the grout coat and topcoat were done in Dark Gray in the aisle ways and Medium Gray in the field. Safety green was used in some of the walkways, along with safety yellow lines.

Saving Money and Time

The epoxy mortar with aggregate filler went down at an average of 250 mils using a Bobcat skid steer, Seymour Midwest gaged rakes, and 48-inch Wacker Neuson CT48-AV power trowels.



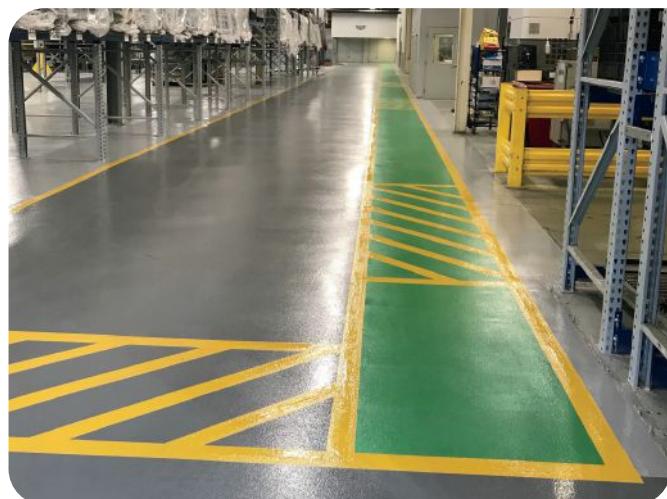


After grinding and vacuuming the floor again, the crew applied two coats of #5200 Epoxy Coating with squeegees and backrollers at 10 mils each with white aluminum oxide broadcast into the topcoat.

Park noted that clients can benefit from the installation of C.A. Reed's Industrial Epoxy Topping because it's a quick process. "When downtime is of critical importance, that seems to be where our particular niche is," he said. "The biggest hurdle that we're able to jump over for this customer — and all our customers — is the speed at which we can execute a project. Very few contractors can put down a 1/4"-thick epoxy mortar system with multiple colors in a 6-day period. We're able to do this time and time again. That's something that I think really separates us from most of our competition."

The contractor's speed made for a winning combination for both client and contractor. Not only did BITZER Scroll get a fast return to its manufacturing operations, but C.A. Reed also won second place in the Industrial Concrete category in *CoatingsPro Magazine's* 2021 Contractor Awards! **CP**

The crew left the jobsite after only a one-week shutdown. They had applied a colorful epoxy mortar system and then went on to win second place in Industrial Concrete for the 2021 Contractor Awards Program!



VENDOR TEAM

3M

Safety equipment manufacturer
St. Paul, MN
(800) 364-3577
@3M
www.3m.com

Northern Safety Co., Inc.

Safety equipment manufacturer
Utica, NY
(800) 571-4646
@NSafetyInd
www.northernsafety.com/

Blastrac

Equipment manufacturer
Oklahoma City, OK
(800) 256-3440
@BlastracNA1
www.blastrac.com

Ruwac USA

Equipment manufacturer
Holyoke, MA
(800) 736-6288
@Ruwac
www.ruwac.com

Bobcat by Doosan

Equipment manufacturer
West Fargo, ND
(701) 241-8700
@BobcatCompany
www.bobcat.com

Seymour Midwest

Equipment manufacturer
Warsaw, IN
(800) 815-7253
@MidwestRake
www.seymourmidwest.com

Covia Holdings

Material manufacturer
Independence, OH
(800) 243-9004
@CoviaCorp
www.coviacorp.com

Terrco Inc.

Equipment manufacturer
Watertown, SD
(605) 882-3888
FB: Terrco-
Inc-191529174263063
www.terrco.com

DEWALT

Equipment manufacturer
Towson, MD
(800) 433-9258
@DEWALTtough
www.dewalt.com

Toro

Equipment manufacturer
Bloomington, MN
(800) 344-8676
@TheToroCompany
www.toro.com/en/professional-contractor

Diamond Speed Products Inc.

Equipment manufacturer
Franklin Park, IL
(866) 406-3100
FB: DiamondSpeedProduct
<https://diamondspeed.net>

VersaFlex

Material manufacturer
Kansas City, KS
(913) 321-9000
FB: versaflexinc
www.versaflex.com

Hammond Power Solutions

Equipment manufacturer
Guelph, ON, Canada
(866) 705-4684
@HPSTransformers
www.hammondpowersolutions.com

Wacker Neuson America Corp.

Equipment manufacturer
Menomonee Falls, WI
(262) 255-0500
@WackerNeusonNA
www.wackerneuson.com

Haviland Corporation

Equipment manufacturer
Linn, MO
(800) 325-3915
FB: havilandcorporation
<https://havilandcorp.com>

The Wooster Brush Company

Equipment manufacturer
Wooster, OH
(800) 392-7246
@WoosterBrush
www.woosterbrush.com