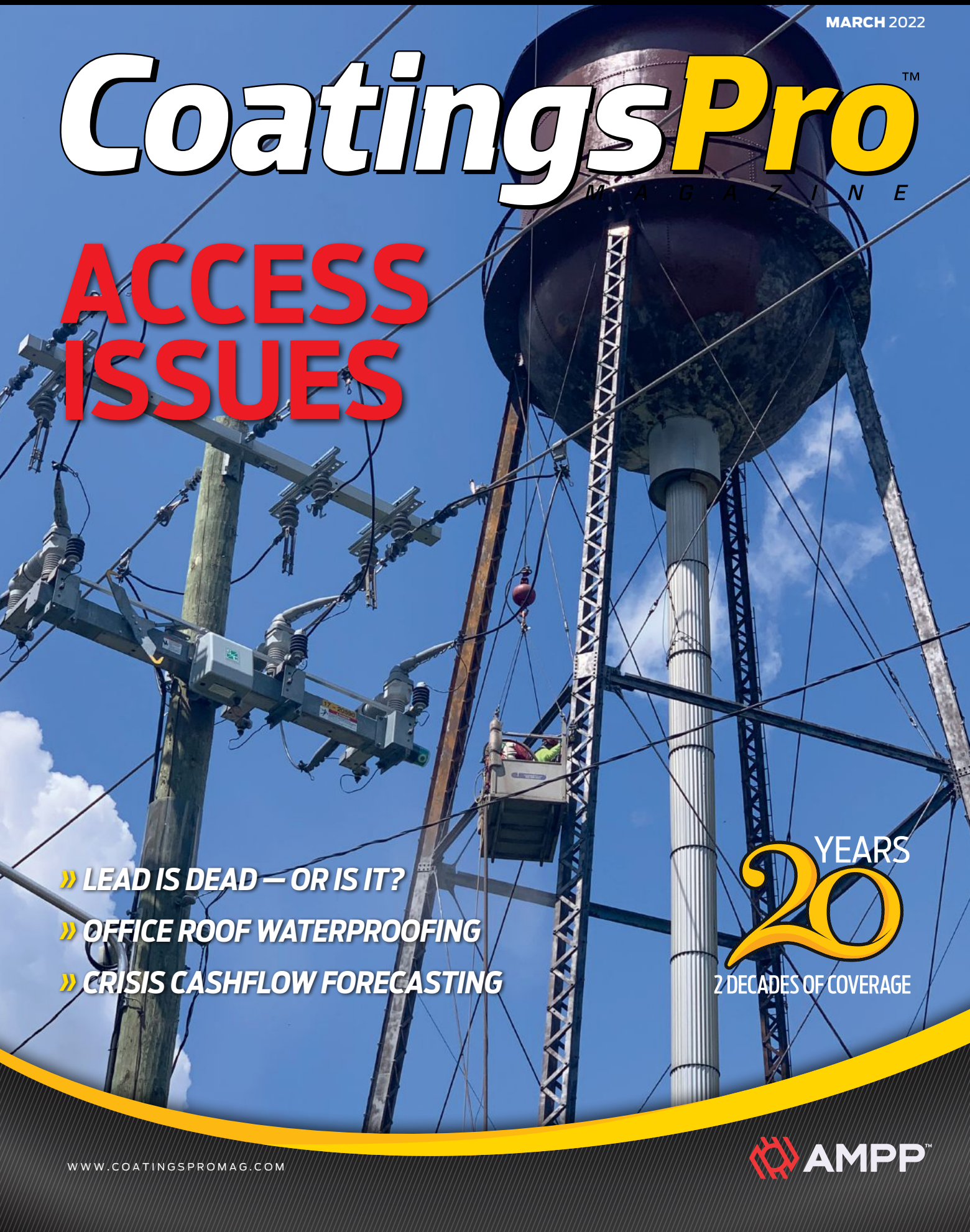
CHECKERED FLOOR STEEL GAS PIPE CONCRETE COATING FAILURES

MARCH 2022

CoatingsPro™

MAGAZINE



ACCESS ISSUES

» LEAD IS DEAD — OR IS IT?

» OFFICE ROOF WATERPROOFING

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In This Issue

MARCH 2022
VOL. 22, NO. 3

FEATURES

NEVER AGAIN

ON THE COVER Power lines, treetops, spectators, and more gave this crew a few challenges and opportunities to find creative solutions while recoating a historic water tank in Michigan.

—Photo courtesy of Protective Coatings Epoxy Systems

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MARCH 2022
VOL. 22, NO. 3

DEPARTMENTS

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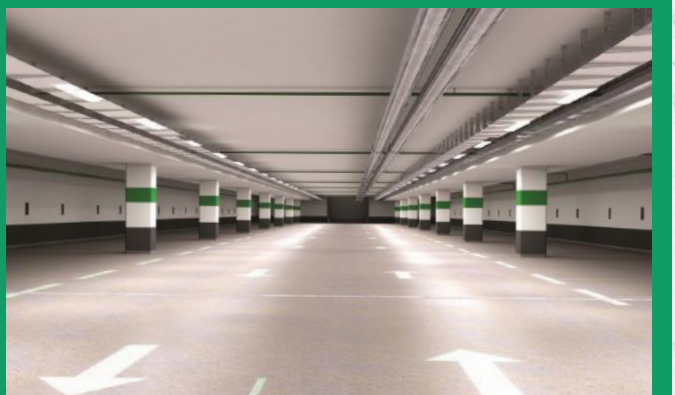

For complete product information, visit wrmeadows.com or call 800.342.5976.

A Little Hero Worshipping

By the time this issue is in your hands, the 2022 Winter Olympics should have recently ended. Like many of you, I'm sure, I've loved both seasons of the Olympics since I was little. The opening ceremony, the singing of the winner's national anthem, the underdogs, and the people who continue to prove time and time again that, yes, they are the best! (That's GOAT, for the younger crowd out there.) Apolo Ohno, Kerri Strug, Simone Biles, the Dream Team, the Mighty Ducks, Surya Bonaly, Usain Bolt. There are so many people whose names we know because of their athletic greatness.

I sincerely hope that at some point in your life, you get to experience that feeling of winning that — I can only assume — comes with something as big as the competition on this size stage. And it doesn't have to be in the competitive athletic arena. At your coatings contracting business, I'm sure there are days, weeks, months even when you feel like the underdog. When you have to persevere through all odds to get the job done right.

But you do. You work hard. You get the job done. You push through the challenges, the setbacks, the hiccups, and the pressures. And, hopefully, you are finished with not only a great product but that sense of accomplishment. That, my friend, is well earned.

The Many Faces of the Hero

In this issue, we're celebrating these kinds of successes. Some may seem small to others, but we know who the true heroes are:

- Teammates working in the field. From a commercial garage floor (page 38) to a steel tank with donated materials (page 54), waterproofing a roof (page 82), and beyond, the coatings crews are doing the hard work every day.
- Teammates working behind the scenes, working on the cashflow (that seems crucial!) and staying up to date on changes in safety protocols, procedures, and standards. The Money Matters article starts on page 18, and the Safety Watch article starts on page 26.
- Other stakeholders on the project, including architects, engineers, general contractors, and specifiers — the latter of which has an article in this issue on page 32.
- And, of course, the family and friends who support each and every one of you. Special shout out goes to those unsung heroes!

New Teammate

One more success that I'd like to note from the *CoatingsPro* side of the house: We've welcomed a new editor to our crew! David (Dave) St. Clair started working with us in January, and he has already brought a positivity to our team. I'm looking forward to you all meeting and working with him sometime soon (photo on next page). As always, please let us know if you have any ideas, feedback, or the like for us at editor@coatingspromag.com.

In the meantime, happy coating!

Stephanie

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Letters

Letters to the editor are always welcome. We reserve the right to edit for space considerations. E-mail responses may be sent to editor@coatingspromag.com. Or mail to: Editor, CoatingsPro Magazine, 4501 Mission Bay Drive, Ste. 2G, San Diego, CA 92109

Editor,
When will the 2022 Contractor Awards Program winners be announced? We're eager to hear if we won this year!

Anonymous

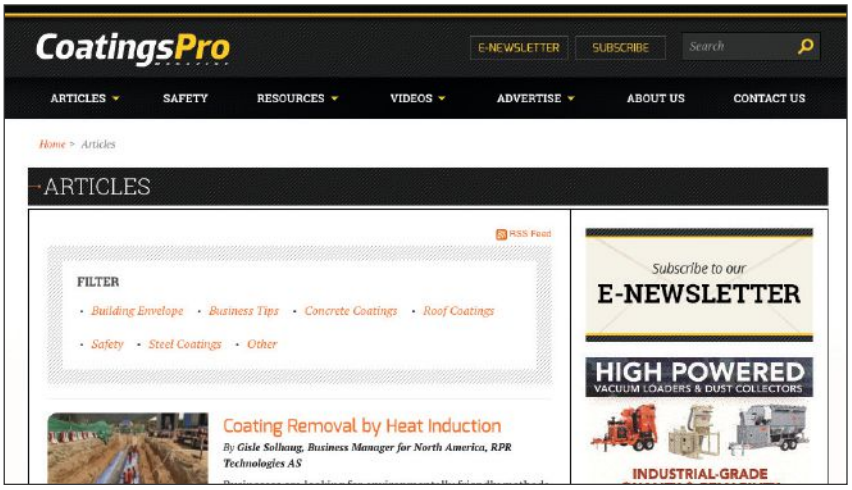
Dear Anonymous,
We're eager for you to hear! The awards winners will be announced this month at the inaugural AMPP Conference + Expo in San Antonio, Texas, and then we'll be sharing project and crew highlights in the upcoming May issue of the magazine. Good luck to everyone who entered!

~Editor-in-Chief

Welcome David St. Clair, *CoatingsPro*'s new editor!

Web Content

This Month On: *coatingspromag.com*



Online Only

Check out our online-only articles for March and April: anniversary-related content, helpful hints for this year's inaugural AMPP Conference + Expo, new videos, and much more! www.CoatingsProMag.com/articles, www.CoatingsProMag.com/videos, and www.CoatingsProMag.com/podcasts

FEATURE: Chicken Trailer Gets Upgrade

A four-person crew was needed to upgrade a trailer used to haul chickens. They installed spray polyurethane foam and polyurea to the walls and ceiling.

~Photo courtesy of FF Adhesive & Insulation

DEPARTMENT: What's Your Leadership IQ?

Highly qualified, motivated people choose to work for companies with strong cultures. Do you have the right Leadership IQ to take your company forward?

~Photo courtesy of GettyImages

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Industry Briefs

World of Concrete 2022: Fueling Industry Connection and Advancement

World of Concrete, Informa Markets' premiere exhibition serving the thriving construction and masonry industries, concluded the event's 47th annual event held January 17–20 at the Las Vegas Convention Center (LVCC). Convening close to 37,000 registered professionals, the consistent foot traffic in the expo halls, high engagement with the comprehensive educational offerings, and overall vibrance exuded from participants underscores the industry's critical need for in-person connection.

Not only does the industry gather at World of Concrete's annual event for deal-making and education but to see and demo the most cutting-edge products available on the market and see the latest industry developments that lay the groundwork for the coming year. Trends from the 2022 event include, but are not limited to:

- Greater jobsite productivity, with new battery systems that deliver more power to the hand tools used to perform demanding concrete tasks, such as drilling, cutting, and demolition;
- Introduction of equipment that is automating concrete construction activities, including 3D printing, rebar tying, and drilling overhead holes;
- Entrance of new materials that increase contractor productivity while still ensuring durable repairs;
- Streamlined management data management systems that enable contractors to tighten a project's critical path; and
- Product and equipment updates that reduce a project's carbon footprint and increase contractor productivity.

For more information, contact: Informa Markets, www.informamarkets.com.

Matt McDermott Named President of Garland's U.S. Commercial Roofing

Garland Industries announced the promotion of Matthew McDermott to president of The Garland Company, its commercial roofing division for the United States. Garland's commercial roofing division is the company's flagship roofing brand and the original core business of Garland Industries. The group describes itself as a manufacturer of high-performance roofing and building envelope solutions for commercial, industrial, and institutional markets.

McDermott earned a bachelor's degree from William Penn University in Iowa and completed his business graduate program from Northwestern University. After a decade of working as a roofing contractor, McDermott joined Garland in 2011 as a territory manager in Southeast Florida and was named the company's "Rookie of the Year." Since then, he has served in a variety of sales and marketing leadership roles with increasing responsibility and has been based at Garland's Cleveland headquarters since 2016. For more information, contact: Garland, (800) 321-9336, www.garlandco.com.

Surety Industry Launches Contractor Bonding Education, Mentoring Program

The Surety & Fidelity Association of America (SFAA) and the National Association of Surety Bond Producers have jointly developed and launched the surety industry's new Contractor Bonding Education & Mentoring Program. This free program helps small, new, emerging, minority-owned, and other disadvantaged contractors learn how to qualify for construction surety bonds, thereby expanding their business opportunities.

The program includes two components: a set of eLearning modules available online 24/7, which can be taken on demand at the learner's pace, and an optional mentor program with industry professionals who can provide practical advice and recommendations for the mentee to follow. For more information, contact: SFAA, (202) 463-0600, www.contractorbondinged.org.

GARDCO, BYK-Gardner USA Announce Business Line Manager

The Paul N. Gardner Company (GARDCO), in conjunction with BYK-Gardner USA, announced the addition of Matthew Fajt as its business line manager for physical test equipment, effective Jan. 4, 2022. In that role, Fajt is providing the direction for the physical test line of equipment for GARDCO and BYK-Gardner with worldwide responsibilities. His expertise, strategy, and process improvements are helping to grow and strengthen the organization and to create a long-lasting relationship with clients and vendors, according to the group.

Fajt arrives with more than 20 years of sales, management, and application experience in the coatings and inspection equipment industries. His background is with Sherwin-Williams, KTA-Tator, and Satterfield Painting. He holds a NACE Level 2 Coating Inspector Program (CIP) certification and currently resides in Pittsburgh, Pa. For more information, contact: GARDCO, (954) 946-9454, www.gardco.com.

Roofing Alliance's 25th Anniversary Year Concludes

The Roofing Alliance, the foundation of the National Roofing Contractors Association (NRCA), announced the release of a special eBook celebrating the top 25 accomplishments of the Roofing Alliance over the past 25 years. Starting off with the alliance's inception in 1995, the eBook notes, "The Board of Trustees of the National

Roofing Foundation decided to either 'fold up the tent' or make the foundation a real organization. Consultant Charlie Fazio was hired to do a feasibility study and believed the founders could build an endowment fund of $6 million. NRCA President Bennett Hutchison secured commitments from a group of NRCA contractor leaders, and fundraising began in earnest."

The eBook also highlights the $1 million donation by Firestone Building Products that launched the capital campaign for the new foundation, now over 25 years ago. It summarizes the many successful research programs, philanthropy initiatives, and technology and sustainability programs that have defined its mission of promoting the advancement of roofing through research, education, technology, and charitable programs. For more information, contact: Roofing Alliance, (847) 493-7573, www.roofingalliance.net.

LATICRETE Appoints Dahra Granovsky to Board of Directors

LATICRETE, a leading global manufacturer of construction solutions for the building industry, has elected Dahra Granovsky as the newest member to its board of directors. As a family-owned business, LATICRETE is unique in having an independent fiduciary board. Granovsky joins LATICRETE with more than 15 years of experience in managing a large family-owned manufacturing business. In her new role, Granovsky will enhance the lives of LATICRETE customers and employees by leveraging her extensive expertise in sustainability and management.

Granovsky currently serves on the boards of directors at Intertape Polymer Group Inc., Hammond Power Solutions, Velan Inc., and Atlantic Packaging Products Ltd., and she is the CEO of BA Folding Cartons, a folding carton packaging company. In addition, Granovsky formerly held the role of president of Atlantic Packaging Products, a manufacturer of corrugated packaging with integrated paper mills and recycling services. For more information, contact: LATICRETE, (800) 243-4788, www.laticrete.com.

Saf-T-Gard Commemorates 85th Anniversary

For Saf-T-Gard International, Inc., a

family-owned and -operated global supplier of industrial safety products now in its 4th generation of ownership, 2021 marked the 85th anniversary. The first "P" in PPE stands for personal, and never before has safety been more personal than it is today, the company explained. Since its establishment in 1936, Saf-T-Gard has enabled on-the-job safety, compliance, and peace of mind for hundreds of thousands of workers and their families by delivering superior safety products and solutions that protect against work-related hazards and prevent serious injuries. "Saf-T-Gard is 85 years strong, and our solid history is a testament to our dedication, commitment, and stability as a company," said Richard Rivkin, chairman and CEO. For more information, contact: Saf-T-Gard, (800) 548-4273, www.saftgard.com.

LeChase Opens New Center to Train Workers

LeChase Construction Services recently opened a new training center that will be used to teach best practices for containing noise, dust, and contaminants during construction projects at hospitals, pharmaceutical research companies, and other critical facilities. The mix of classroom and hands-on training in containment barriers, negative air pressure, HEPA (high-efficiency particulate air) filtration, and good housekeeping techniques will reduce the risk of cross contamination and provide a safe environment for patients, staff, and others.

Located at LeChase's New York Metro office in Armonk, the new infection control risk assessment (ICRA) training center is believed to be one of the first in the country developed by a private company. It will be used as a resource organization-wide to ensure the firm's employees and subcontractors stay at the forefront of the emerging and established health and safety protocols. For more information, contact: LeChase, (914) 741-1212, www.lechase.com.

Tesla NanoCoatings Hires Principal Development Scientist

Tesla NanoCoatings, Inc., described as a global leader in carbon nanotechnology, recently hired Ted Hammer as its principal development scientist. With Hammer's direction, Tesla plans to further its position as a nanocoating technology pioneer. The company has 40 patents in total, and it received five new patents in 2021.

Hammer recently received his Ph.D. in polymer science from The University of Akron. As a graduate student, Hammer investigated structure-property relationships for ultraviolet (UV)-curable polyester powder coatings and developed novel UV-curable polyester resins. During that time, he also had the opportunity to work with one of the leading carbon nanotechnology scientists, Dr. Jorma Virtanen. Their work resulted in a patent for "self-stratifying coatings," which was awarded to Tesla in 2021. Hammer has also published articles in several prestigious peer-reviewed journals. For more information, contact: Tesla NanoCoatings, (330) 809-6700, www.teslanano.com.

Protective Industrial Products Acquires Bisley Workwear

Protective Industrial Products, Inc. (PIP), described as a global leader in hand protection and personal protective equipment for the industrial, construction, mining, and retail markets, has agreed to acquire DJG Corporation Pty Ltd. DJG is the parent company of Bisley Workwear, headquartered outside of Sydney, Australia. With more than 20 locations around the world, PIP is a portfolio company of Odyssey Investment Partners.

Bisley is widely recognized for innovative workwear designs and its ethical and sustainable sourcing affiliations. Today, Bisley is the top provider of workwear and safety wear in Oceania, along with being strategically well-represented in 10 key areas around the globe. Bisley's in-house design team has worked with leading fabric and material specialists to continually produce innovative, stylish, and comfortable workwear. This includes garments for men and women that are used in oil and gas, construction, manufacturing, logistics, agriculture, and maintenance and repair operations. For more information, contact: PIP, (855) 284-6800, www.pipusa.com.

Chromaflo Technologies Names Belinda Leonard as Industry Manager

Chromaflo Technologies, a premier global provider of colorant technology solutions, has named Belinda Leonard as its industry manager — industrial coatings for the Americas region. In her new role, Leonard will manage Chromaflo's industrial coatings product lines for the product management group. She will be responsible for product line strategy and profitability, working with the business to understand cost drivers, markets, and alternatives to help set pricing. Leonard will also manage the product lifecycle and oversee the process for site selection, new product introductions, developments, and enhancements, as well as define strategic marketing initiatives and manage

cross-functional ownership of products in the region. Leonard is transitioning to the role in a promotion from her previous position with Chromaflo as coatings technical service representative for the Americas. For more information, contact: Chromaflo, (440) 997-5137, www.chromaflo.com.

North Carolina Adopts ACI Concrete Repair Code

On Sept. 14, 2021, the North Carolina Building Code Council (BCC) voted to accept American Concrete Institute (ACI)'s proposal to amend the 2018 North Carolina Existing Building Code to reference ACI CODE-562 "Code Requirements for the Assessment, Repair, and Rehabilitation of Existing Concrete Structures." It was then subsequently approved for adoption by the North Carolina Rules Review Commission on Nov. 18, 2021. Effective Jan. 1, 2022, North Carolina became the fourth state to reference ACI CODE-562, joining Hawaii, Ohio, and Florida.

The code change establishes minimum requirements for the design, construction, repair, and rehabilitation of concrete structural elements in buildings for various levels of desired performance as deemed appropriate for the project. In addition to improved life safety, the requirements clearly define objectives and anticipated performance for the code official, owners, designers, contractors, and installers. For more information, contact: ACI, (248) 848-3800, www.concrete.org.

WJTA Announces Officers, Board of Directors

Bill McClister, an industry consultant based in La Porte, Texas, has been elected the 2021–2023 chairman of the board of the WaterJet Technology Association (WJTA). Also elected for the 2021–2023 term were President Jimmy Peck, general manager of MPW Industrial Services; Vice President Kerry Siggins, CEO of StoneAge, Inc.; Secretary James Ashmead, research investigator, DuPont Specialty Products; and Treasurer Drew Waltenbaugh, president and CEO of NLB Corp.

Newly elected and re-elected board

members are David Beckum, CEO of Augusta Industrial Services, Inc.; Jerry Carter, vice president of sales and chief commercial Officer at SPIR STAR Ltd.; Bradley L. Coble, hydroblasting specialist, Covestro LLC; Dee Green, vice president of operations, USA DeBusk, LLC; Bill Krupowicz, vice president and general manager, Jetstream of Houston; and Bill Shaw, CSHO, SMS, vice president of employee development, Evergreen North America Industrial Services. Luis Garcia, president of the U.S. Gulf Coast region at Northern Safety & Industrial, La Porte, continues to serve a remaining term on the board of directors. For more information, contact: WJTA, (314) 241-1445, www.wjta.org.

Hilti to Acquire Construction Technology Company Fieldwire

Hilti Group, a global leader in innovative tool and fastening solutions, technology, software, and services for commercial construction, has agreed to acquire Fieldwire, a San Francisco-based construction technology company, for approximately $300 million. The strategic acquisition will bring together Fieldwire's best-in-class product and Hilti's global brand and market reach to help drive productivity to contractors and on construction sites. Fieldwire provides a leading platform for jobsite management that powers more than a million jobsites worldwide.

Founded in 2013, Fieldwire has built a strong presence in North America and managed to expand internationally into Europe and Asia Pacific, while building market-specific features that enable customers to improve field productivity. The company is presently supporting thousands of clients to better manage their jobsites digitally by offering a software solution that is reliable, is easy to use, has a wide range of features, and is also device-agnostic. It is used by general and specialty contractors alike and is known for its field-first approach to productivity. For more information, contact: Hilti, (423) 234-4949, www.hilti.group.

Covestro, University of Pittsburgh Launch Circular Economy Program

The rise of circular economy principles, where materials are kept in continuous use by design across industries, has led to a new collaboration between Covestro LLC and the University of Pittsburgh (Pitt). Under this arrangement, Pitt's Mascaro Center for Sustainable Innovation and Swanson School of Engineering will house the new Covestro Circular Economy Program.

The Covestro Circular Economy Program represents the first graduate-level circular design academic program in the United States to specifically address the challenge of global waste and material use. The program aims to create opportunities for the research, education, and innovative advancement of circular economy principles that begin with academia and fuel real-world solutions designed to save the planet. For more information, contact: Covestro Circular Economy Program, (412) 624-6718, www.engineeringx.pitt.edu/circulareconomy.

Wayne Geyer Inducted Into STI/SPFA Hall of Fame

Wayne Geyer, formerly the executive vice president of the Steel Tank Institute/Steel Plate Fabricators Association (STI/SPFA) and a long-time industry expert, was inducted into the STI/SPFA Hall of Fame in a special presentation at the group's November 2021 annual meeting in Nashville, Tenn. Geyer was presented with a plaque and will have his name added to the Hall of Fame wall at the STI/SPFA headquarters office.

Geyer joined the STI/SPFA staff in 1985 and spent more than 35 years with the organization, almost all of those as executive vice president. He became an industry expert for speaking engagements, a regular contributor to industry publications, and an advocate for all STI/SPFA members. He participated in several organization and committees for design, codes, and standards. Geyer strived to position STI/SPFA as a well-respected association whose members were the highest quality fabricators and suppliers in the industry. For more information, contact: STI/SPFA, (847) 438-8265, www.steeltank.com.

New Makita Direct Repair Service

Makita USA, Inc., described as an innovative leader in power tools, outdoor power equipment, pneumatics, cleaning solutions, and accessories, is expanding its service and repair options with a new direct repair online service. Direct Repair gives users free "roundtrip" shipping to and from a Makita factory service center, with easy online access to repair status notifications.

The program is powered by a new online app, a 24/7 solution for users to process a repair request and print a shipping label. Once packaged with a custom printed label, users can drop off the tool at one of more than 6,300 FedEx shipping centers nationwide for delivery to a Makita site. With 24/7 access, users can check back online any time for status updates. Upon repair completion, the Service Center ships the repaired tool back to the user. Makita technicians repair all tools with genuine parts, and most repairs are completed within three days of receipt. For more information, contact: Makita, (800) 462-5482, www.makitatools.com/directrepair. **CP**

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TRAINING OPPORTUNITIES

Fall Protection Safety Training for the Competent Person

The Latino Worker Safety Center (LWSC) is a multilingual Occupational Safety and Health Administration (OSHA)-compliant institute dedicated to the safety of workers in construction and manufacturing and dedicated to helping contractors and companies meet OSHA language training requirements. As its name implies, the LWSC specializes in Spanish language safety training, but it also conducts courses in English, Spanish, Polish, Arabic, Chinese, and Cantonese. The center was created by an OSHA Susan Harwood Grant in 2010 to establish a multilingual training and resource center that would serve the needs of companies located in Illinois, Wisconsin, Michigan, Indiana, Ohio, and Minnesota.

The LWSC has scheduled a Fall Protection — Competent Person in-person training course for Monday, March 14, 2022, at the LWSC training center in Hillside, Ill. Hours for this one-day certificate course run from 7:30 a.m. to 4:30 p.m., including a lunch break. This fall protection training course is designed for those wishing to meet OSHA competent person fall protection training. Available in English, Spanish, Polish, Arabic, and Chinese, this course costs $225 and includes a student workbook and class materials. Attendees will take a written exam and, upon passing the course, will be issued a training certificate that is valid for three years.

During this certificate class, workers will learn their responsibilities as a competent person, including:

- Helping an employer create a training program;
- Finding fall protection standards/letters of interpretation;
- Defining the role of employees in fall protection plans;
- Learning the nature of fall hazards in the work area;
- Developing procedures for erecting, maintaining, disassembling, and inspecting fall protection systems;
- Using and operating guardrail systems and personal fall arrest systems;
- Creating a certificate of training and knowing when retraining is needed.

In addition, attendees will receive training in the following areas: fall protection standards per 29 CFR 1926.500, ladder safety per 29 CFR 1926.1053, and scaffold fall protection requirements per 29 CFR 1926.451(g).

For more information, contact: LWSC, https://lwsc.org.

Fall Protection Safety for the Competent Person

The Construction Safety Council (CSC) is a nonprofit organization dedicated to the advancement of safety and health interests in the field of construction throughout the world. It was chartered by a board of directors composed mostly of large construction company owners and operators whose vision and leadership made the organization possible. Since its founding in 1989, the organization has grown to become a world-class professional construction consortium with associations that span the globe. With an emphasis on quality and customer service, CSC has developed construction safety, health resources, and loss reduction tools that are designed to positively impact any safety program.

CSC offers a Fall Protection Safety for the Competent Person course that is designed to educate workers about the hazards associated with falls, the OSHA Competent Person requirements for fall protection, fall hazard identification, how to select proper protective systems, and the importance of pre-planning to avoid falls and injuries. By the end of this eight-hour course, participants will be able to identify common fall hazards, list the OSHA Competent Person fall protection requirements, state three methods to avoid falls, and identify proper protective equipment markings.

An upcoming fall protection safety course will meet on Wednesday, March 16, 2022, from 7:30 a.m. to 4:00 p.m. The course, which costs $175 for contributors and $275 for non-contributors, includes a reference book and photo ID card. CSC will also host two free half-day classes in fall protection: Fall Protection in Construction, which meets on Monday, March 21, from 7:30 to 11:30 a.m., and Fall Protection Hazards, a virtual class that meets on Wednesday, March 30, from 7:30 to 11:30 a.m.

For more information, contact: CSC, buildsafe.org. **CP**

The information for these events was accurate at the time of publication.

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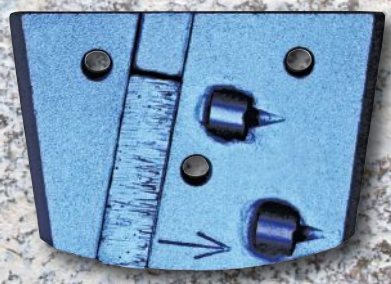

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Save Benjamin$ Now! Cashflow Forecasting in a Time of Crisis

*By **Leslie Shiner, Owner of The ShinerGroup***

We are living in interesting times, worldwide, whether we're directly affected by challenging economic developments related to the COVID-19 pandemic or not. Over the past couple of years, we have developed a system of cashflow forecasting to address the effects of global challenges. Oftentimes when we do cashflow forecasting, we do it in terms of growth. This time, we're doing it slightly differently in terms of what happens when volume falls. Understanding the nature of your company's costs and cashflow forecasting is particularly important during times of crisis.

One question that has been frequently asked is how should a business change in response to a global pandemic? The COVID-19 situation has been very fluid. Things are changing all the time, and it might change again in two seconds. What should businesses do with fast-changing information? From a business perspective, start with a look at cash flow and the business forecast.

Review the company's standing right now. What are the company's cash reserves? What's going on with employees? Are there loyal employees to take care of? Is now the time to reevaluate any employees who haven't performed well? How can the company help its employees survive a global pandemic? What about your customers? Which other cash resources are available? These are all important questions to ask, and we'll focus first on preparing a cashflow statement and looking at the company's cash reserves.

Your Cash Reserves

It's always disheartening to hear — and many employees may experience this — when people live paycheck to paycheck, and they have $500 savings in the bank. It's a difficult situation when employees do not have any cash reserves. But what about when it happens at a company? Does your company have cash reserves to survive a crisis?

To answer that question, there are a few items to look into. First of all, what's the minimum cash needed for critical infrastructure and payments required by law per month? What cash must be spent? From a personal perspective, this includes either mortgage or rent, utilities to keep the lights on and keep the internet on — especially so we can watch programs such as "Tiger King" on Netflix. Similarly, from a business perspective, what's the minimum needed? What kind of obligations does your business have? What lease obligations? This is not just payroll but also a mortgage or rent. What are the minimum cash needs to maintain the company's critical infrastructure?

Calculate that number, then compare that to how much cash is in the bank and any other cash that is available, such as untapped credit lines. Are there credit lines that are not fully tapped? What about credit cards?

Next, take the company's financial obligations and divide it by the cash available. That's going to tell you the number of months the company can continue to operate with absolutely no revenue. That's not to say there won't be any revenue, but that's the operational baseline. The company's monthly cash needs divided by its available cash is a viable month's operation.

When considering cash needs, identify any key employees. Are there key employees who must be paid in order to maintain operations? Builders have been under different guidelines depending on whether they are under shelter-in-place orders. In some places, only required federal, emergency, or structural construction was considered essential.

What is the company going through now in terms of what business can be conducted? Is it completely shut down? Is it doing some business? Does the company provide service as a component? Does it have maintenance and repair as a component? Which employees must remain on payroll to maintain the operations the company is allowed to do?

Payroll Taxes

Next, consider which other payroll taxes are outstanding. Are there special government delay exemptions that apply due to circumstances? Are withholdings not required until a later date? There may be exemptions or delays in payments.

Also look at the equipment and the material for projects that are ongoing. Look at all the company's projects — even the projects that have been put on hold — and try to figure out which of those can start right away. Start taking a look toward the future. Also separate out general administrative, sales, marketing, and any other costs.

What becomes important is to look at fixed costs versus variable costs. If the company stops working, which costs will continue and which costs are able to be postponed? Once that is established, it's time to start playing the "what if" game. What if there's a drop in sales, so production slows down, and jobs slow down. Which costs are going to change?

Finally, during today's supply chain crises, pay attention to which jobs might be put on hold or cannot start due to the inability to obtain materials. What will happen to your profit margin as inflation affect the job costs? Can you pass any of the cost increases on to the client, or are you locked into the contract price?

How to Put It All Together

Use these scenarios to determine the company's available cash or cash shortage, and create an adjusted cashflow forecast spreadsheet. This spreadsheet provides an easy way to look at which costs can be broken down or cut in a crisis. Easily view the amount of adjusted profits and starting non-committed cash to see the cash that's available during a crisis or the cash that's left over. As circumstances change, feed new information into the spreadsheet to create a cashflow plan while remaining flexible in deciding the best use of current cash and potential incoming cash.

For example, there could be a 15 percent cut in revenue, and using a cash flow forecasting spreadsheet, you are able to cut out $6,000 in costs. That's not bad! You can also start taking a look at cost-cutting details. What about salary cuts or reduced overhead? On the other hand, which price increases need to be included, such as fuel expenses? There's different information that can be customized to the business.

During a crisis, you need to create a plan quickly and be able to be very flexible with it. You'll need to decide the best use of current cash and potential incoming cash. And, you'll have to define the company's critical needs to stay viable. Cashflow forecasting provides a structure for making these decisions during stressful times without acting from a place of panic or distress. **CP**

The content in this article was originally presented in a webcast for Integration Controls. Reprinted with permission. Disclaimer: Shiner is not a CPA nor a lawyer. This information does not constitute financial or legal advice.

Leslie Shiner is the owner of The ShinerGroup, which performs financial management consulting in the construction and integration space. She earned her MBA in accounting and finance from UC Berkeley and co-authored a book called *A Simple Guide to Turning a Profit as a Contractor.* For more information, contact: Leslie Shiner, lshiner@shinergroup.com.

Coatings+, AMPP Annual, and Beyond!

As the Association for Materials Protection and Performance (AMPP) celebrates its first birthday, members, staff, and other stakeholders are looking forward to the inaugural AMPP Conference + Expo. The event, which will be the new annual combination of the former NACE International CORROSION and SSPC: The Society for Protective Coatings' Coatings+, will take place in San Antonio, Texas, March 6–10, 2022. AMPP is looking forward to bringing the coatings programing that was so loved at Coatings+ to the new AMPP annual conference.

The final iteration of what was known as Coatings+ took place December 13–16, 2021, at the Phoenix Convention Center, bringing together 1,000 attendees, 83 exhibitors, and a new-to-the-show coating experience. Individual and structure award recipients were recognized during a luncheon on Monday, December 13. Read about the award winners at https://sspc.org/coatings-2021-awards/.

One of the highlights at Coatings+ 2021 was the keynote speaker, Lisa Bodell. Bodell is an award-wining author and CEO of FutureThink, a business management consultant company. She shared messages on how to look for workplace complexity and provided some suggestions for how to simplify those.

To bookend the event, AMPP's CEO Bob Chalker spoke with Staff Writer Ben DuBose in a podcast interview, sharing a few thoughts about Coatings+. Chalker said, "First of all, I think it went extremely well. One thing we had to deal with was the impact of COVID-19. That did impact us by reducing attendance. People were concerned about being in a large group at that time. That said, on site, the energy level was incredibly high. I think people had a great experience.

"It was a smaller event. But the feedback I got was that the people there were the right people. They said, 'I had the opportunity to engage and network with those folks I really wanted to see.' It was an atmosphere of celebration. It was an atmosphere of hope and [knowing] that the future's bright.

"One of the things I did is I talked to a lot of companies, or representatives of companies, about what they're seeing over the next couple years. Are they optimistic, or are they pessimistic about the industry? Almost across the board, people are optimistic about the next several years for our industry. That definitely adds to a positive vibe.

You had asset owners able to talk to contractors, and vice versa. You had business people who were able to integrate with the applicators, so they became more knowledgable about their decision making.

"There was a tremendous amount of work that ended up getting done to help mold this into one organization. Some of that work was formal, in the sense of committee meetings and other activities to make decisions, and to do planning, and to put processes in place, or to decide how we're going to complete this integration.

"But the other things that were happening that I think are equally important were the bonding events and people getting to know each other who didn't have the opportunity to meet before. This gets back to another one of the benefits that we saw early on. By being one organization, instead of people being in their two isolated worlds — I'm a NACE member or an SSPC member — they're able to come together and interact across these

boundaries. You had asset owners able to talk to contractors, and vice versa. You had business people who were able to integrate with the applicators, so they became more knowledgeable about their decision making.

There was a tremendous amount of networking and positive relationship building. Also, I think we were able to get rid of some of the past myths about the legacy organizations, and we were able to see the positives that both have brought to the table.

"But I do have to put it in some context. That's my opinion. Mine doesn't matter as much as those people who were in attendance or the people listening to this. What they thought, if they were there, matters most. I think it was positive. But I'm sure there were some things that probably didn't go as well as they could have. And I expect there was some sadness because we are going to see a dramatic change in how we move forward."

As the Coatings+ event merges with the annual CORROSION event, attendees have much to celebrate, including the announcement of *CoatingsPro*'s 2022 Contractor Awards Program winners; the keynote by Ray LaHood, former U.S. Department of Transportation Secretary; and heavy equipment booths on the exhibit hall floor. Additionally, presentations will be available virtually on demand after the event for those unable to make it to the in-person event.

Thank you to our sponsors and exhibitors for their support, including the International Union of Painters and Allied Trades (IUPAT)/ International Finishing Trades Institute (FTI), BP, The Sherwin-Williams Company, Dairyland Electrical Industries, PPG Protective & Marine Coatings, Tinker & Rasor, Carboline Company, CRW Consulting & Distribution, De Nora, HoldTight Solutions Inc., Covestro LLC, DNV GL USA Inc., and GPT Industries. See a full list of sponsors at https://ace.ampp.org/sponsor-recognition.

For more information about AMPP's annual conference + expo, contact https://ace.ampp.org.

Coming Soon: New AMPP Coating Inspector Program

The new AMPP Coating Inspector Program (CIP) is launching in April 2022. Although current certification levels will remain the same, some changes will happen as part of this process. A new name and a new course for Level 1 will be launched. The new program will combine the best parts of NACE's legacy CIP and SSPC: The Society for Protective Coatings' legacy Protective Coatings Inspector (PCI) programs. The new program levels will be:

- Basic Coatings Inspector (Level 1)
- Certified Coatings Inspector (Level 2)
- Senior Certified Coatings Inspector (Level 3)

All certified cardholders will be moved to the appropriate level. For example, a current CIP Level 2 Inspector would become a Certified Coatings Inspector, and a PCI Level 1 Inspector would become a Basic Coatings Inspector.

More information will be available in April. In the meantime, check out the FAQs online ("Update on the New AMPP Coating Inspector and Applicator Credentials") at www.ampp.org/education/.

CoatingsPro's 2022 Contractor Awards Program Winners Announced!!

CoatingsPro is announcing the sixth annual Contractor Awards Program winners on Wednesday, March 9, 2022, at the inaugural Association for Materials Protection and Performance (AMPP) annual Conference + Expo in San Antonio, Texas. This year, winners in seven categories were chosen by industry experts. *CoatingsPro*'s Editorial Advisory Group members — Kyle

Hough of Champion Specialty Services Corp., Matt Koerner of Xtreme Polishing Systems Xpress NYC, Marsha Parker (independent), Roy Schauffele of Division 7 Solutions Inc., and Tony Serdenes of Greenman-Pedersen, Inc. — along with a safety expert, Jack Fearing of Fearing International Group, and *CoatingsPro*'s technical editor, Malcolm McNeil of McNeil Coatings Consultants, comprise this year's judges.

And the winners are:

- Commercial Concrete Category:
  1st Place: Hardig Industrial Services, "Elder High School Gym"
  2nd Place: Chamberlin Roofing & Waterproofing, "OU Research Parking Garage"
  3rd Place: T.W. Hicks, "Good Shed Hangar"
- Commercial Roof Category:
  1st Place: Wedge Roofing, "Quest"
  2nd Place: Spray-Tec, "Ohio Theatre Renovation"
  3rd Place: Spray-Tec, "Freight Company Roof Restoration"
- Industrial Concrete Category:
  1st Place: C.A. Reed Associates, "Horst Engineering Facility Renovation"
  2nd Place: Blastek, "Sturgis Influent EQ Tank"
  3rd Place: Technocreto, "Saldines ABInbev"
- Industrial Steel Category:
  1st Place: N.Y. State Industrial Coatings, Inc., "FDA Food Compliant"
  2nd Place: Thomas Industrial Coatings, "Lock and Dam 25"
  3rd Place: Intech Contracting, "Texas Street"
- Specialty Project Category:
  1st Place: Stuart Dean Company, "15000 Aviation"
  2nd Place: Apellix FX+ (Field Services + Lab), "City of Wooster Ohio—Cleaning Elevated Water Tower"
  3rd Place: Eric Henn Murals, "Glass City River Wall"
- Contractor/Crew MVP Award: Fran Smith of A&W Maintenance and Coatings, LLC, "NJ PSEG T-to-90 Pipe Modification"
- Work It Safe Award: Stuart Dean Company, "15000 Aviation"

In-depth coverage of the award winners will be available in the May 2022 issue of *CoatingsPro*. For more information, contact: www.coatingspromag.com/contractor-awards. **CP**

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Is Lead Dead? Regulatory Changes Could Be Coming

By ***Alison B. Kaelin, CQA, Principal at ABKaelin, LLC***

After nearly 50 years of health intervention and regulation of lead by the U.S. Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and other government agencies, we still have a multi-media lead problem in 2022. Regulations to reduce childhood, public, and occupational lead exposures were initiated and revised in the 1980s through the early 2000s, but they have largely remained unchanged since, despite overwhelming scientific evidence of health effects occurring at lower blood lead levels (BLLs) and airborne exposures.

Lead is a naturally occurring heavy metal in the Earth's crust. Widespread extraction and use of lead have contaminated the environment, exposed people to lead, and created public health problems worldwide. The primary pathways for human exposure to lead are inhalation and ingestion.

In the industrial painting industry, the removal, repair, and renovation of coatings containing lead fall under OSHA as well as multiple EPA and other regulations. Industrial painters continue to remain among those who are overexposed to lead.

In October 2021, the Biden administration initiated National Lead Poison Prevention Week, starting a "whole of government" approach led by the EPA to reevaluate current lead thresholds and regulations to reduce lead exposures. Concurrently, OSHA has targeted BLLs on its regulatory agenda and has suggested voluntarily compliance with recommended medical guidelines until regulations are changed.

This article will focus on four topics related to lead that are likely to impact the industrial painting industry within the next few years.

Table 1. Lead in Paint Thresholds

	Pre-1980s-1990s	1990-2010	2010-Current	Future
HUD / EPA	HUD: 5,000 ppm	HUD & EPA: 5,000 ppm	No change	Changes under consideration
CPSA	600 ppm	90 ppm*	No change	Changes under consideration
OSHA	Any	No change	No change	No change expected

*Also includes toys and other substrates

Table 2. Lead in Dust Thresholds

	Pre-1980s-1990s	1990-2010	2010-Current	Future
EPA / HUD Window Troughs	800 µg/ft^2	400 µg/ft^2	No change	Reductions under consideration
EPA / HUD Windowsills	600 µg/ft^2	200 µg/ft^2	100 µg/ft^2	Reductions under consideration
EPA / HUD Floors	200 µg/ft^2	40 µg/ft^2	10 µg/ft^2	Reductions under consideration
OSHA Cleanliness*	200 µg/ft^2	No change	No change	Unknown

*OSHA Compliance Directive used pre-1990 level for floors of 200 µg/ft^2

Current health effect information from the EPA and OSHA websites indicates that even low levels of lead can result in the following:

Table 3. EPA Health Effects

Children	Adults	Pregnant Women / Fetus
Behavior and learning problems	Cardiovascular effects, increased blood pressure and incidence of hypertension;	Baby to be born too early or too small;
Lower IQ and Hyperactivity	Decreased kidney function; and	Hurt the baby's brain, kidneys, and nervous system;
Slowed growth	Reproductive problems (in both men and women).	Increase the likelihood of learning or behavioral problems; and
Hearing Problems		Put the mother at risk for miscarriage.
Anemia		

1. Lead in Paint

In the early 1900s, white lead was the principal pigment used for interior and exterior paints. Lead use in residential paint was unregulated until 1955, when the paint industry adopted a voluntary standard of no more than 1 percent lead by weight for paint for interior uses. Other lead-based pigments for exterior paints and primers for metal structures and vehicles continued in use into the early 1980s.

Consumer Product Safety Act

The Consumer Product Safety Act (CPSA) of 1978, applicable to the manufacturing of coatings for consumer use, banned paint and similar surface coatings that contained lead or lead compounds and had lead content (calculated as lead metal) in excess of 0.06 percent of the weight of the dried paint (or 600 parts per million, ppm). This explicitly applied to the manufacturing of interior and exterior house paints intended for consumer use where the risk of childhood lead poisoning existed. The Consumer Product Safety Improvement Act of 2008 lowered the allowable concentration of lead in residential paint, toys, and other materials from 0.06 percent (600 ppm) to 0.009 percent (90 ppm).

Lead in industrial coatings is still not regulated and is still present in zinc, fireproof, and other coating systems. Since Safety Data Sheets only have to report 0.1 percent (1,000 ppm) of the lead present, this often flies under the radar.

HUD and EPA Definitions of Lead Paint

The Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, referred to as the HUD Guidelines (U.S. Department of Housing and Urban Development), were introduced in 1986 to address when the abatement of lead-based paints would be required in *residential housing*. HUD established a level of 5,000 ppm (0.5 percent) to trigger the removal of lead-based paints. This level was largely based on the level of the detection capabilities of X-ray fluorescence (XRF) analyzers of 1.0 mg/cm², or the equivalent to 0.5 percent. The level of 5,000 ppm was technology driven and has no direct correlation between the lead-related health effects.

WORK IT **SAFE**

RECOMMENDATIONS FOR PREVENTING COLD STRESS

Workers should avoid exposure to extremely cold temperatures when possible. When cold environments or temperatures cannot be avoided, workers should follow these recommendations to protect themselves against cold stress:

- Wear appropriate clothing.
  - Wear several layers of loose clothing. Layering provides better insulation.
  - Tight clothing reduces blood circulation. Warm blood needs to be circulated to the extremities.
  - When choosing clothing, be aware that some clothing may restrict movement, resulting in a hazardous situation.
- Make sure to protect the ears, face, hands, and feet in extremely cold weather.
  - Boots should be waterproof and insulated.
  - Wear a hat; it will keep your whole body warmer. (Hats reduce the amount of body heat that escapes from your head.)
- Move into warm locations during work breaks; limit the amount of time outside on extremely cold days.
- Carry cold weather gear, such as extra socks, gloves, hats, jackets, blankets, and a change of clothes, as well as a thermos of hot liquid.
- Include a thermometer and chemical hot packs in your first aid kit.
- Avoid touching cold metal surfaces with bare skin.
- Monitor your physical condition and that of your coworkers.

For more information, contact: www.cdc.gov/niosh.

Table 4. OSHA Health Effects by BLL			
As low as 10 µg/dL	**BLLs above 20 µg/dL**	**BLLs 20 to 40 µg/dL**	**BLLs above 60 µg/dL**
Chronic	Chronic	Chronic	Acute & Chronic
Impaired kidney function	Subclinical effects on cognitive functions	Cognitive aging	Acute effects such as convulsions, coma, and in some cases, death
High blood pressure	Adverse effects on sperm/semen quality and delayed conception.	Deficits in visuomotor dexterity, lower reaction times and attention deficit	Chronic conditions such as anemia, peripheral neuropathy, interstitial kidney fibrosis, and severe abdominal cramping.
Nervous system and neurobehavioral effects, cognitive dysfunction later in life			

The definition of lead paint of 0.5 percent was adopted in the Residential Lead-Based Paint Hazard Reduction Act of 1992 — Title X and 40 CFR Part 745, Lead; Identification of Dangerous Lead Levels — Final Rule of 2001. Since 2001, "HUD and EPA are collaboratively considering whether to lower the threshold level of lead-based paint; they are also looking into whether to lower the lead dust hazard standards... HUD, consistent with EPA, CDC [Centers for Disease Control and Prevention], and OSHA, notes that paint with lead that is deteriorated or disturbed, even if its lead content is below the current EPA and HUD standards, may still pose a human health hazard..."

The Children's Health Protection Advisory Committee (CHPAC) sued the EPA and HUD to reduce paint and dust thresholds. Lead dust thresholds were reduced in 2020 due to a court order. No action was taken on paint thresholds.

OSHA's Approach to Lead Paint

The 1993 OSHA lead standard for construction concluded that, in the absence of any health-based values, the initial protection portions of the standard would apply if any concentration of lead is present in the coating. This requirement remains in effect today. Thus, in the 1926.62 — Lead standard, OSHA did not define or establish a threshold level for lead in paint. Rather, OSHA focuses on the presence of any lead and the evaluation of airborne exposures to lead during various tasks.

On the Horizon

The EPA Draft Lead Strategy calls for:

- A reevaluation of the EPA/HUD lead abatement thresholds and protocols, which are currently based solely on the amount of lead in the coating (i.e., 5,000 ppm);
- A review of the current EPA standard (40 CFR Part 745) for paint, dust, and soil clearance levels;
- Changes in the Consumer Product Safety Commission definitions for lead;
- The consideration of a regulation of renovations in public and commercial buildings.

It's also likely that the EPA will make changes to all of the above, with emphasis on the lead in paint and lead in soil thresholds. These regulations may also focus on underserved communities and/or residential and child-occupied buildings first.

2. Health Effects of Lead

Lead can affect almost every organ and system in the body. Children six years old and younger are the most susceptible to the effects of lead.

Health effects from lead were identified in children and some occupational workers in the 1970s and resulted in the early HUD guidelines and OSHA General Industry Lead Standard. When the OSHA Construction Lead Standard was issued in 1993, worker training was required in the acute and chronic health effects of lead.

An EPA Integrated Science Assessment (ISA), conducted in 2005 related to lead in ambient air, established a causal relationship between lead (at lower BLLs than previously thought) and multiple chronic health effects.

Changes to the Hazard Communication Standard (HCS), which took place in 2012, changed the lead standards (and other hazardous metals standards for arsenic, cadmium, and hexavalent chromium), to include a discussion of specific health effects. For lead, they include:

- Reproductive/developmental toxicity;
- Central nervous system effects;
- Kidney effects;
- Blood effects;
- Acute toxicity effects.

OSHA's current website on lead health effects states, "Recent studies have provided evidence that lead can cause health effects at blood lead levels lower than those established by OSHA's 1978 Lead standard."

Based on limited evidence, workers may develop stomach cancer and lung cancer following inhalation exposure to lead. Experimental research indicates that rats and mice develop renal tumors following exposure to lead.

On the Horizon

The EPA started a new Intergovernmental Personnel Act (ISA) in 2020 as part of the review of the primary and secondary National Ambient Air Quality Standards

(NAAQS) for Lead (Pb). This could result in the identification of more health effects and could result in subsequent regulatory changes.

3. Blood Lead Levels (BLLs)

Identification of potential health effects and/or the need for intervention, renovation, removal, and medical evaluation have largely been based on the evaluation of BLLs against regulatory thresholds.

If you do lead work under the OSHA Lead Standards (29 CFR 1910.1025 or 29 CFR 1926.62), you provide or are subject to periodic BLL and zinc protoporphyrin (ZPP) testing.

Current Recommendations

OSHA's lead health effects website refers to medical management guidelines for adult lead exposure that was developed by a national expert panel coordinated by the Association of Occupational and Environmental Clinics (AOEC) in collaboration with the National Institute of Occupational Safety and Health (NIOSH) Adult Blood Lead Epidemiology and Surveillance (ABLES) program.

The panel recommends that maintaining BLLs below 20 µg/dL over a 20-year period or below 10 µg/dL over a 40-year period would be sufficient to prevent chronic effects associated with cumulative exposures. OSHA supplies links to these studies and the ABLES website.

On the Horizon

OSHA's 2022 regulatory agenda indicates an intent to reduce allowable BLLs in the current OSHA general industry and construction lead standards. It is expected that this will correspond with current OSHA guidance on maintaining BLLs below 20 µg/dL over a 20-year period or below 10 µg/dL over a 40-year period.

To achieve the expected target BLLs, OSHA will likely need to reduce the current Action Level for lead of 30 µg/m^3 as an 8-hour time-weighted average and the Permissible Exposure Level (PEL) of 50 µg/m^3. Research performed in California indicates that the PEL could be reduced to 2–10 µg/m^3. Additionally, changes to engineering controls and work practices may be necessary.

Various agencies have created target or threshold BLLs for adults and children. These levels have changed dramatically since the 1980s.

Table 5. Blood Lead Levels BLLs micrograms per deciliter microg per dL

	Pre-1980s-1990s	1990-2010	2010-Current	Future
OSHA GENERAL (Medical removal)	>60	No change	No change	Reductions under consideration
OSHA CONSTRUCTION (Medical removal)	>50	No change	No change	Reductions under consideration
OSHA NEP (Serious & Inspection required)	N/A	25	No change	Revisions of NEP under consideration
ABLES (Notification to OSHA)	N/A	>25	>10	Unknown
CDC - Adults	30	10	5	Reductions under consideration
CDC - Children	30 to 25	10 (1991)	5 (2020) 3.5 (2021)	No change expected
DHHS	N/A	N/A	<10	Reductions under consideration

4. EPA

Lead in Ambient Air

The EPA's NAAQS for lead of 1.5 µg/m^3 was set in 1978. In 2008, based on the ISA (discussed previously), the EPA strengthened the NAAQS to 0.15 µg/m^3, not to be exceeded as an average for any 3-month period within 3 years on the basis of lead in total suspended particles. In response to the more conservative standard to lead in air, the EPA revised the ambient monitoring rules to require that any source emitting more than 0.5 ton of lead per year must have a monitor placed nearby. In 2015, the EPA revised the air emissions reporting requirements, which lowered the threshold for reporting lead emissions sources as point sources to 0.5 ton per year of actual emissions.

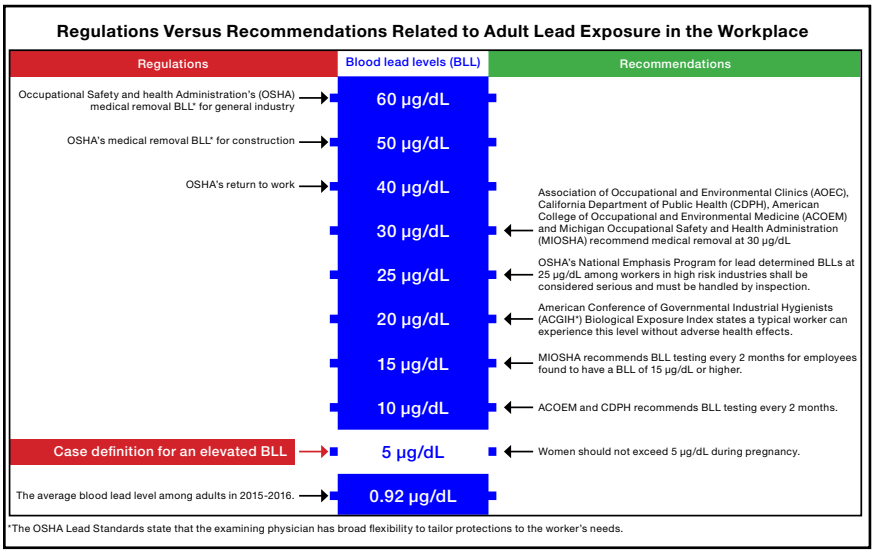
However, most companies in the industrial painting industry never adjusted their specifications and standard to the 2008 thresholds of 0.15 µg/m^3.

Lead in Soil

There is a significant amount of lead in the soil due to the use of leaded gasoline, airline fuel, delamination of lead paint from structures and homes, and the hazardous waste allowed to remain in the soil prior to the introduction of hazardous waste disposal regulations in 1976.

In the early 1990s, no regulations specifically addressed lead in soils in industrial situations. However, an EPA interpretation under the Land

The graphic below outlines the differences between the current regulatory requirements and health-based recommendations:



Ban says that discharges of lead onto soils without a permit (for hazardous waste disposal) can be treated as illegal disposal of hazardous waste or operation of an unlicensed treatment, storage, and disposal facility.

For residential and child-occupied facilities, 40 CFR Part 745, Lead; Identification of Dangerous Levels of Lead — Final Rule (in 2001) established soil clearance levels of 500 ppm lead in play areas and an average of 1,200 ppm (0.12 percent) in the balance of the yard. Many states have established their own residential or general lead clean-up soil levels.

The 2005 EPA ISA on lead identified historic and newly deposited lead in soils (which is re-entrained and redistributed almost continuously) as a significant pathway for airborne lead exposure and contamination.

On the Horizon

EPA started a new ISA in 2020 as part of the review of the primary and secondary NAAQS for lead. The 2005 ISA resulted in the reduction of the ambient air quality limit for lead from 1.5 µg/m^3 to 0.15 µg/m^3.

The EPA Draft Lead Strategy has recommended the following related to air quality:

- Reduce exposure to lead associated with emissions to ambient air.
- Work with lead in non-attainment areas.
- Consider the reduction of NAAQS for lead.
- Review the National Emissions Standards for Hazardous Air Pollutants (NESHAPs) and New Source Performance Standards (NSPS) for lead-emitting sources.
- Reduce lead exposure through enforcement and compliance assistance.
- Support and conduct critical research to inform efforts to reduce lead exposures and related health risks.

The EPA Draft Lead Strategy has recommended the following related to soils:

- Reduce lead in soils.
- Identify and clean up lead-contaminated sites.
- Revise the Soil Lead Policy for contaminated sites to further reduce the potential for exposure to lead in soil.
- Revisit the soil-lead hazard standards (currently related to housing abatement only).

It is also possible that the NAAQS for lead could be reduced. It is possible NESHAPs could be revised or developed around fixed or mobile paint removal operations. Regarding lead in soils, it is likely that the EPA levels will be reduced related to 40 CFR Part 745 and that the regulations could be expanded beyond residential and child-occupied facilities.

Conclusions

There are a lot of potential regulatory changes ahead. Those who are subject to OSHA Lead Standards can get a head start on these regulations, and, more importantly, start reducing potential chronic health effects by evaluating and improving work practices and engineering controls. The goal should be to have workers meet the recommended guidance on maintaining BLLs below 10–20 µg/dL as soon as possible. CP

Alison Kaelin, CQA, is the principal of ABKaelin, LLC, a Women's Business Enterprise (WBE) providing coatings, environmental health and safety, and quality services to the coatings industry. She is a NACE Level 3 Peer Reviewed Inspector and an American Society for Quality (ASQ) Certified Quality Auditor (CQA). Kaelin has worked in the coatings industry for more than 30 years. For more information, contact: Alison Kaelin, www.abkaelin.com.

Resources

[1] *Control of Lead Sources in the United States, 1970–2017: Public Health Progress and Current Challenges to Eliminating Lead Exposure, www.ncbi.nlm.nih.gov/pmc/articles/PMC6522252/*

[2] *EPA Draft Strategy to Reduce Lead Exposures and Disparities in U.S. Communities, www.epa.gov/lead/draft-strategy-reduce-lead-exposures-and-disparities-us-communities*

[3] *OSHA 2021 Regulatory Agenda, www.reginfo.gov/public/do/eAgendaViewRule?pubId=202110&RIN=1218-AD10*

[4] *www.osha.gov and www.epa.gov*

Ergodyne Adds New Storage Bags for Protecting PPE

Ergodyne announced the addition of five new personal protective equipment (PPE) storage solutions to its Arsenal line. The collection is designed to protect the gear that protects workers, with ruggedly constructed respirator and PPE bags designed to make sure expensive gear withstands the daily wear and tear of harsh worksites.

"For all the thoughtful engineering that goes into PPE, there hasn't been much attention paid to solutions for storing and protecting it," said Matt Hahn, product manager. "By focusing on the bags that get PPE to and from the worksite day in and day out, we can keep critical gear operating in tip-top shape for as long as possible."

In addition to protection, the bags are also built for worker convenience with organizational features such as hard hat storage, multiple carrying options, and designated pockets for respirator filters, eyewear, and other accessories. For more information, contact: Ergodyne, (800) 225-8238, www.ergodyne.com.

Class 2 Leading Edge Self-Retracting Lifeline

As part of a fall protection solution, FallTech introduced the FT-R Class 2 Leading Edge 30-foot (9.1 m) SRL (self-retracting lifeline), which is engineered for workers needing the optimal balance of compliance, safety, and efficiency when working at heights. Due to its innovative design, this SRL is optimized for efficient and reliable walking-working speeds, resulting in minimized nuisance lockup. Workers should experience less fatigue moving and setting up the FT-R due to its smaller size than comparable SRLs. By comparison, this product is up to 20 percent lighter in weight and 25 percent smaller, according to the company. As such, the FT-R provides more working time in the field and less time for repairs because of the build quality and its simplified and skillfully engineered internal components. The FT-R is compliant with the updated ANSI Z359.14-2021 Class 2 standard, which takes effect on Aug. 1, 2022. For more information, contact: FallTech, (800) 719-4619, www.falltech.com. CP

Understanding Quality Processes in Specifications

By ***Michael Chambers, FAIA, FCSI CCS***

Quality assurance and quality control are often used interchangeably or combined using the term "QA/QC." In developing specifications, it is critical to understand the differences between the two and to use the terms appropriately. Quality processes in specifications can spell the difference between maintaining or losing control over the design intent of a project.

Quality Expectations

Specification quality processes must focus on what the specifications are trying to accomplish. Generally, specifications contain products, processes, and procedures. Specifications establish quality, methods, materials, and fabrication.

By contrast, drawings show quantities, location, layout, relationships, and dimensions. There is nothing qualitative about drawings. That is why specifications are critical in establishing quality requirements.

Quality is the process of meeting requirements. Specifying is a quality process, and it is important to make certain that specifications are clear about suitable quality standards, procedures, and tests. Quality is determined by product users, clients, or customers, not by society in general. Quality is not related to cost or adjectives such as "high" or "poor."

Best-of-class specifications are the result of a process that documents design intent, levels of quality, and construction processes that are, in the judgment of the design professional, appropriate for the quality and budget prescribed by the owner's building program.

Quality Assurance

QA is the process of specifying standards and tests that are used to ensure that the application or installation meets specific requirements.

Specification quality assurances are procedures that assure that proposed materials, fabrication, and installation strategies meet contract requirements. These are not perceptions or desires but real qualitative processes and procedures that can be tested in the laboratory, factory, or field.

According to Wikipedia, quality assurance is the "systematic measurement, comparison with a standard, monitoring of processes, and an associated feedback loop that confers error prevention." Quality assurance standards are effective only if tested by controlled processes.

Quality Control

QC is the use of procedures for evaluating completed materials, fabrication, and installation for compliance with contract requirements determined by the quality assurance process. According to Wikipedia, quality control is "focused on fulfilling quality requirements." Process outputs include laboratory testing, fielding testing, and manufacturer testing during fabrication.

In short, quality assurance lists a standard to comply with, while quality control is how the material or system is tested to show compliance with the standard.

On a coatings project, for example, listing compliance with NACE standards (now under the Association for Materials Protection and Performance, or AMPP) would be considered quality assurance. Listing the level of substrate cleaning inspection or mil thickness of a coating testing is quality control.

Division 01 Quality Assurance

The ground zero of quality resides in Division 01 — General Requirements.

The Division 01 sections of the spec provide critical quality assurance and control procedures to be used during construction administration. The following are some examples of how Division 01 procedures can provide significant quality assurance for a project.

- Substitutions are often the beginning of quality problems in a project. Substitutions are many times offered to save money or make money for the contractor. Correct procedures can reduce most if not all substitutions and resulting quality problems. Specify standard procedures that keep the designer in charge. Require the contractor to provide side-by-side submittals showing the original specified material and the proposed substitution. Comparing the cut sheets can identify quality problems before they happen on the project.
- Submittals are a subtle but very important quality process for three reasons. 1: Submittals show exactly what the contractor understands about the project. 2: Submittals allow you to see before you buy. 3: Submittals ensure that what is specified is installed. The submittal review can eliminate substitutions offered as a submittal.
- Special project procedures are special sections that provide specific guidance and requirements for special types of construction. Some examples are Special Project Procedures for Healthcare Facilities, Alteration Project Procedures, and Historic Treatment Procedures. These sections contain very specific procedures for maintaining the quality of the environment, care of critical equipment, and related requirements from external agencies.

The quality assurance elements of Division 01 can be quite intense and focused on a range of technical procedures. From a design perspective, a couple of items to track include manufacturer and installer qualifications. Practically, requiring years of manufacturing experience has very little to do with the quality of the manufacturing process. Providing the specific requirements in Part 2 of the specification is much more effective and enforceable. Requiring testing and material certificates from manufacturers using recognized testing agencies, such as UL, Intertek, or Warnock Hersey, provide real quality control.

- Require trained and certified installers. Installer qualifications must be enforceable to ensure control quality. Years of experience are very hard to verify and, again, have very little to do with quality products or processes. Installers trained and certified by manufacturers are very effective and enforce quality control.
- Request mockups. Mockups are one of the most effective quality control processes available. They are an extremely powerful, controllable, and relatively inexpensive quality control procedure. Having clear and enforceable mockup requirements in Division 01 allows each specification section to reference the requirements and then provide specific product or assembly requirements.
- Include cutting and patching in Division 01. While this is not direct quality control, cutting and patching provides quality assurance for a range of project issues that can have real quality impacts. Cutting and patching provides specific requirements for fixing installation errors, mistimed work, and alteration-type work. For example, if a wall is damaged, cutting and patching requires that the entire wall be repainted, not just the damaged area. This is a significant quality control tool and is often overlooked or ignored.
- Pay attention to project closeout. Project closeout affects the ultimate quality of the project by requiring submittals that document the as-built aspects of the construction.

Material care data and directions are critical project closeout and sustainability elements to maintain the quality of the project over time. Project closeout requirements and substantial completion punch lists are very effective QC processes. Project maintenance is critical to sustainability. If the project elements cannot be maintained, the project is not sustainable.

- Include demonstrations and training. These are quality assurance tasks that allow the owners to understand and maintain their projects. As stated above, maintenance is basic to a sustainable project.

Specification Section QC Basics

In a typical three-part specification organized under the Construction Specifications Institute (CSI)'s SectionFormat, each part of the specification has clear QA and QC roles.

Part 1 – General identifies procedures and processes that define the specific administrative requirements unique for these products and activities and their relationship to other products and activities. It is critical to understand that reference standards are not enforceable QA or QC unless they are actively referenced in the specification. Listing standards in the specification does not make the standard enforceable. A standard must be contained in an action item to be enforceable.

For example, listing ASTM C309, "Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete" does not provide any

enforceable quality. Using the sentence, "apply curing compounds in accordance with the requirements of ASTM C309 for Type 1 curing compounds" is enforceable because it directly ties the application of the ASTM standard.

Part 2 – Products identifies the materials and methods of the types and quality of products and assemblies that are required for the project. Performance requirements and system descriptions are highly effective quality control requirements found in Part 2. They help to ensure consistent quality of materials, fabrication, and installation.

Part 3 – Execution describes preparatory actions and how the products are incorporated into the project. There are often very detailed and comprehensive quality control articles listed in this part. How this section is developed can have a significant impact on the quality of the construction. Primarily, this includes how things are prepared to receive products, system, or finishes.

Coatings rarely fail due to bad products. Coatings fail due to poor or inadequate preparation. Preparation is the number one quality control element of Part 3. Quality assurance is understanding what appropriate preparation is and how to specify it.

The Most Effective Quality Tool

Simply put, we must ask more and better questions! The type and extent of the questions we ask can make a significant difference in how we approach quality in the built environment. Quality procedures and processes in specifications can provide the basis for the types of questions that need to be asked and answered in designing and constructing a quality building. Quality assurance corresponds to the questions, and quality control corresponds to the answers. Never stop asking quality questions. **CP**

Michael Chambers, FAIA, FCSI, CCS is a

California architect specializing in specifications, quality control reviews, and product marketing. He is a graduate of the University of Southern California, a Fellow of the American Institute of Architects, a Fellow of the Construction Specifications Institute, and a Certified Construction Specifier (CCS). Chambers is a principal of MCA Specifications located in Elk Grove, Calif. For more information, contact: Michael Chambers, (707) 391-0131.

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What the New U.S. Infrastructure Bill Means for You

By ***Ben DuBose***

With the landmark U.S. infrastructure bill recently being signed into law, Dan Adley, recently retired CEO of engineering consultancy KTA-Tator, Inc., met with Adam L. Christopher, manager of government relations at the Association for Materials Protection and Performance (AMPP), and Staff Writer Ben DuBose to discuss the bill's implications for the corrosion industry.

Topics include a legislative outline of the bill and insight into some of its major topics: what the infrastructure legislation means for the corrosion industry as a whole; what AMPP members can do to prepare themselves; and where people should go to find more information about the bill and any opportunities.

See below for a partial Q&A transcript, and visit www.materialsperformance.com/podcasts to listen to the complete interview.

DuBose: Adam, if you could, please give us an overall legislative outline and just give us a little bit of insight into the major topics in it.

Christopher: Absolutely. This bill is really the culmination of several years of work of policymakers on Capitol Hill, and that extends through many administrations and many different controls of Congress. But this has constantly been one of those issues that both parties have set out to finalize, and it's been the "white whale," so to speak, of finding a way to get this across the finish line and to reinvesting in America's infrastructure systems throughout the country. So I'd say, first and foremost, it's a historic achievement that we haven't seen in generations in terms of investment into the infrastructure systems that are out there.

And when people hear the word infrastructure, and they'll look at this bill, they may consider that it's just something that will pertain to roads and bridges. But I think one of the great things about this legislation is that it's extremely comprehensive. And it touches almost all aspects of the American economy and the industrial life that's out there from, yes, bridges and improving bridge safety throughout the country, but also to drinking water systems to replacing lead pipes to making sure that there's proper corrosion control for water pipes to make sure that lead doesn't leak into the system, like it sadly did in Flint, Newark, and other places.

There's a large investment into public transit, including rail, freight rail, and passenger rail safety issues. I know that's something that our membership has seen in the past on some issues and challenges related to corrosion there. There are investments into waterway infrastructure, such as port improvement programs, throughout the country. There's pipeline safety and repair provisions in there. So there's really a large myriad of investments and historic investments into a lot of different areas that will really transform and improve the infrastructure throughout the country.

So I think the key highlights for me are: 1. We're finally here to that point where we've signed this into law; 2. This is one of the highest, if not largest, investments into the infrastructure system that we've ever seen; and 3. That extends to so many different areas that it's really going to transform how we prepare for the future and make sure that we have the leading technology systems in the world.

DuBose: What does the infrastructure bill mean for the corrosion industry at large?

Adley: This is a $1.2 trillion investment in physical infrastructure. To the best of my knowledge, every dollar of this is to go to physical infrastructure in one of those many categories that Adam

outlined. Highways and bridges ... transit, railroads, the energy grid, water and wastewater ports, maritime and water infrastructures, aviation . . . you can't think of any of them that don't involve materials of construction where AMPP members have a role.

That role might be in making certain that the material selection and the physical design of these infrastructure projects is done in such a way that the asset is protected for as long as possible. Now, it all needs to be done in a sustainable manner. That has AMPP written all over it from the front-end design, the selection of materials, and the specification for the long-term corrosion protection systems.

AMPP has a role in the next step in making sure that the contractors who perform the work and those that observe the quality of the performance are trained, certified, and can perform that work so that these long-term benefits are achieved.

I'm not certain where, but I suspect on the tail end of the long-term operations and maintenance and management of these facilities, that AMPP or AMPP membership will have roles in ensuring the long-term sustainable protection and management of the infrastructure we're going to be investing in.

It's huge numbers — $1.2 trillion overall, some of it over a 10-year [period], but with much of it concentrated in the first five years. There's $550 billion within that in new infrastructure. So it's not even maintenance; it's new projects. I don't see a single aspect of that investment that doesn't create some role or opportunity for AMPP membership.

DuBose: So what can AMPP member companies, or even an individual, do to prepare themselves for this?

Adley: I'll take the first crack at this, and I'll tee it up for Adam to go a little bit deeper. But interestingly, Ben, we just got off of a group committee call of the [AMPP] Advocacy and Public Affairs Committee, and we were talking about goals and objectives for the upcoming years.

One of the overarching things we'd like to see is to motivate and engage AMPP members to be advocates for our association, and more importantly, for our industry. It's what we do as professionals, and I believe this law creates a unique opportunity for every individual member to get engaged.

Now, I'll give you some ideas. One is calling your local and state representatives, be they a congressional representative or a senatorial representative for the district you live in or perhaps where your business is located. Engage them in the conversation, because all of this funding is going to flow ultimately through the states — some of which they have immediate control over and others they have to apply for through grants. Those are going to create opportunities for AMPP membership to participate in.

Reach out to your local representatives, and just ask them simple questions: 'How is our state receiving these funds? What's its vision on how they should be dispersed? And are we incorporating sound corrosion design, management, and oversight provisions in the utilization of these funds to ensure that our investment is sustainable?'

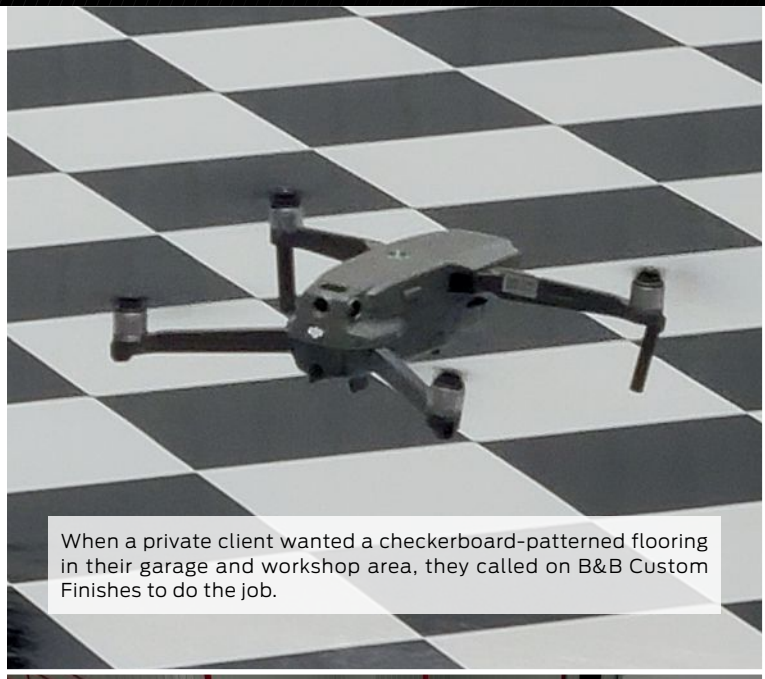
I think it's an easy task. Our legislators at the local level, at least in my experience, seem to be inclined to have conversations with constituents. Because they know it's important to them, and if your business is located there, it's even more so.

It may inspire you. Once you get over the [potential] discomfort of reaching out and talking to a legislator, maybe bump it up, and find your congressional representative or senatorial representative to the U.S. Congress and reach out to their offices. I doubt that you're going to speak to the Congressman directly. Let's not be naïve. But they will have someone within their office who deals with infrastructure. Ask to talk to them, and relay the same message. We want to make sure as AMPP, as an association, that these funds are used in a sustainable, beneficial way to the country. You're there to help. The association is there to help. *CP*

CONCRETE FLOOR EPOXY COMMERCIAL

Mixing Mix-Up: Lessons Learned on a Checkerboard Floor

BY **KAREN D. OSTRANDER**
PHOTOS COURTESY OF **B&B CUSTOM FINISHES**



When a private client wanted a checkerboard-patterned flooring in their garage and workshop area, they called on B&B Custom Finishes to do the job.

It would take 1,250 squares with meticulous taping over the course of three weeks to cover the 10,000-square-foot flooring.

When coatings contractors head to a jobsite, they're often not thinking about how they also become mixologists in the field. Just mix part A with part B, and you get part C, right? Not always! Sometimes there is more involved, and mixing mistakes can be costly and time-consuming.

This is what Mike Baird, co-owner with Spencer Branson of B&B Custom Finishes in Mead, Okla., came upon in the summer of 2020. A contractor before them had made a few mistakes on this checkerboard floor, and, little did they know, B&B was about to do something similar. Was B&B up to the challenge?

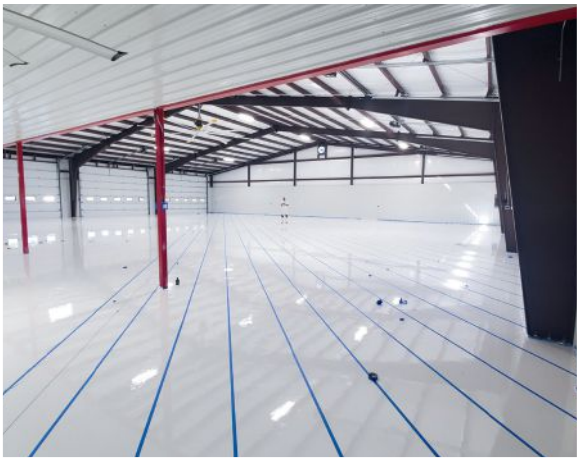
Not the First Contractor

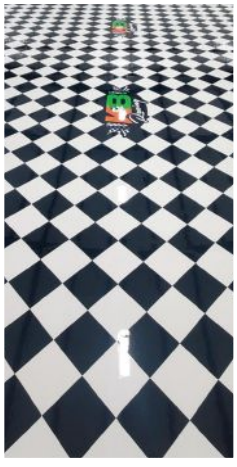
B&B, a largely residential coatings contractor, was hired by Lacey and Diana Weber to create a black-and-white checkerboard pattern on the 10,000-square-foot (929.0 m^2) concrete floor of their garage/workshop in Colbert, Okla. The Webers' son is part of a racing team (thus the checkerboard pattern), so, at times, a huge race car trailer is parked inside. Additionally, the Webers own a sod farm, so the building houses some large farm equipment as well.

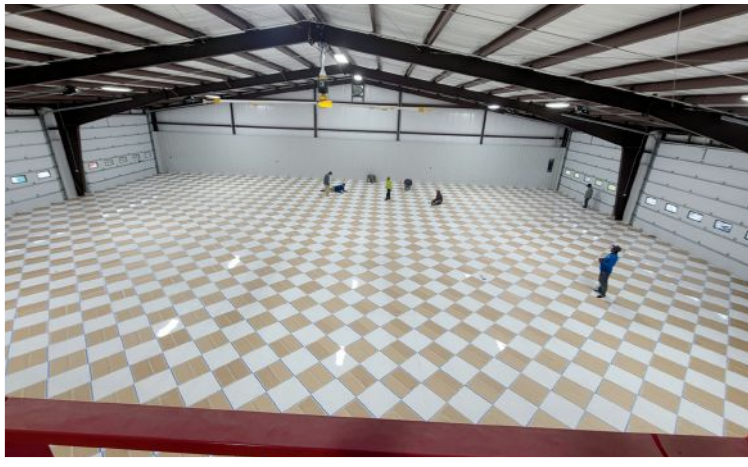
Although B&B had previously done some work for Mr. Weber, B&B wasn't originally hired for the job. Another contractor had already been onsite and had laid down coatings before B&B started on this project in July 2020. Once they got started, though, four crew members were onsite for nearly 3.5 months, with only a little help from the homeowner's farm hands during sanding and cleanup.

Baird described the condition of the floor as it was left by the initial contractor: "He had done the whole floor with moisture barrier," said Baird, "but he didn't put the proper mil [thickness] on it, and he didn't clean the floor properly. He had started the epoxy, but it was real thin, and you could see through it... You could go in with a 5-in-1, and it would

It required 3.5 months for the 4-person crew to finish the job — coating and logo included. And it turned into a showpiece for the client.







Unfortunately, B&B ran into a problem with improper mixing, and so at this point they had to re-strip the floor and reapply the moisture barrier and first epoxy coating.

just scrape off because he didn't clean the floor. He sanded it, but he never cleaned it afterward. If you put [a coating] on dust, it doesn't adhere at all."

As it stood, the entire floor had to be redone by B&B. A 30-inch (76.2 cm) LAVINA ELITE L30GE propane grinder from Superabrasive equipped with polycrystalline diamond (PCD) wear bars and counterclockwise stripping blades was used to strip the existing epoxy. The large grinder was rented from Barnsco Decorative Concrete in Farmers Branch, Texas. The crew also used a DEWALT 7-inch (17.8 cm) variable speed polisher and buffer, to which a 24-segment PCD cup wheel was attached to clean around the floor edges.

Respiratory protection for the workers was, of course, vital during the grinding process, but "because we were able to open the shop, we only used 3M Cool Flow N95 respirators," Baird said. The crew was able to open up the building's large doors to have a constant supply of fresh air inside. "Since the building was open, we ground everything without a collection system but swept it up, then blew it out with a Stihl blower. After this, we rinsed [the floor] multiple times with water using a Viper FANG 24T walk-behind scrubber, which had a self-contained recovery system. Between the first and second clear coats, we sanded with a 220-grit screen using a Nobles 20-inch [50.8 cm] slow-speed buffer."

Baird also said that using the LAVINA grinder was "an eye-opening experience." He explained, "All the epoxy I do is small stuff. I have a small machine that I rent...but it's electric, and I never have to use a machine that is like these, the propane-run machines. That was the first time for me

ever to use any equipment that heavy."

But Baird and his crew at last removed the previous epoxy and moisture barrier and had a fresh surface to start again. They hadn't been trying to achieve a particular concrete surface profile, but rather that the "pores [would] be open in the concrete, something for the epoxy to flow into," he added.

Second Time Around

The first application to the now-bare concrete floor was one coat of Simiron MVB Moisture Vapor Barrier Floor Coating, to which proprietary packs of white tint from Simiron were added. Simiron MVB is a 100 percent solids, two-component, epoxy primer designed for concrete floors with severe moisture vapor transmission problems. In most circumstances, it's applied in its clear form. But Simiron provided a tint pack ideal for this project.

The B&B team followed the manufacturer's recommended thicknesses for all coatings, so the MVB was applied at an average of 16 mils (406.4 microns). That was done using Wooster 3/16-inch (4.8 mm) notched speed squeegees and Purdy 18-inch (45.7 cm) rollers with Wooster ¼-inch (6.4 mm) nap covers. "We applied all coats with a person mixing, two people squeegeeing, and one person backrolling," said Baird. "So four people in the application process." They also used a thickness gage to measure the wet film thickness for each coat.

Baird detailed the process of applying each coat: "We used squeegees, and we could never get it to be where we wanted it with squeegees. That's why we used rollers to push it around afterward, to kind of even everything out. Sometimes the floor had dips in it, and because of that, you would have places that would be bare and then places that would be thick. So we used the rollers to be able to control

Checkerboard Concrete Floor cont. on page 44

The concrete was new and required the crew grind before applying a vapor barrier to an average of 16 mils.

JOB AT **A GLANCE**

PROJECT:
Apply a white-and-black checkerboard-patterned epoxy coating on a garage and workshop floor

COATINGS CONTRACTOR:
B&B Custom Finishes
Mead, OK
(580) 230-0015
FB: bandbcustomfinishes

SIZE OF CONTRACTOR:
8 people

SIZE OF CREW:
4 crew members

PRIME CLIENT:
Lacey and Diana Weber
Colbert, OK

SUBSTRATE:
Concrete

CONDITION OF SUBSTRATE:
New but with peeling epoxy

SIZE OF JOB:
10,000 sq. ft.

DURATION:
3.5 months

UNUSUAL FACTORS/CHALLENGES:
- Due to improper mixing, the contractor had to re-strip and reapply the moisture barrier and the first epoxy coat.
- The checkerboard pattern created 1,250 squares and required meticulous taping, which took three weeks!

MATERIALS/PROCESSES:
- Ground old and new epoxy off the floor using 30-inch LAVINA ELITE L30GE propane grinders as well as a DEWALT 7-inch variable speed polisher and buffer — both with polycrystalline diamond grinding tools
- Squeegeed and backrolled Simiron MVB Moisture Vapor Barrier Floor Coating — to which proprietary packs of white tint from Simiron were added the second time — at an average of 16 mils
- Applied one coat of Simiron 1100SL in white within the recommended thickness range of 10–30 mils using the same equipment
- Ran 5.3 miles' of 3M blue tape to create the checkerboard pattern, cut out the tape so that the corners of all the squares would touch, and then attached brown paper over the squares that were to remain white
- Applied one coat of Simiron 1100SL in black to the uncovered squares, carefully going in sections so that the tape could be peeled up and any bleed-through could be cleaned up with xylene
- Installed the floor logo
- Applied two coats of Simiron 971EPS clear gloss — sanding between coats using a Nobles 20-inch slow-speed buffer — followed by black and white caulking around the perimeter of the floor

SAFETY CONSIDERATIONS:
- Wore 3M Cool Flow N95 respirators during grinding
- Opened the building's large doors to have a constant supply of fresh air

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The crew ran 5.3 miles of 3M blue tape on the edges and attaching brown paper over the squares that were to remain white.

Checkerboard Concrete Floor cont. from page 41

how thick and thin everything was after we had squeegeed it."

A Costly Mistake

After the moisture barrier, the next coat was Simiron 1100SL (self-leveling) in white, applied within the recommended thickness range of 10–30 mils (254.0–762.0 microns). And here is where the coatings contractor realized how important coatings mixology is.

"We laid the first coat of epoxy down, and it would never set up," said Baird. "We could walk across it with sock feet, and it would leave imprints, and then by the time we walked back, they would flow out, but it wasn't wet. It wasn't gummy." It was 10,000 square feet of a coating onto which B&B wouldn't dare apply another layer. What happened?

"What had happened was we misread the instructions — twice," Baird admitted. "The moisture barrier was two parts to one part, which is two buckets to one bucket. The epoxy was two parts to one part by volume, and we just skipped over the 'by volume' part. There were two parts in the bucket already, so we were only putting half the hardener in it."

"We couldn't figure out why it wouldn't set up," continued Baird. "I went to check the stuff in the back — so I could read it and see where we went wrong and why it wasn't setting up. And I rolled the door up, and we had 50 hardeners and 6 buckets, and I was like, 'Oh, no.' Because they delivered us what we needed."

By "they," Baird meant Premier Paint, the local paint store that sells Benjamin Moore products and the Simiron line. Reps from both Premier Paint and Simiron helped the contractor determine that the floor had to be completely stripped — again.

It was a costly mistake that involved a lot of product — and two more workdays to strip the floor back down to bare concrete. "We rented two [grinding] machines, and we had to strip it all off, and that came out of our pocket. It was expensive because it's 10,000 square feet… We had to go back with the moisture barrier again and had to go back with the epoxy again… It was renting two machines and buying blades for both machines and paying labor for it…just to get back to the white, just the basecoat, before we ever started doing the black."

Miles of Tape

Thankfully, only one coat of the white 1100SL epoxy was needed because white tint had been added to the moisture barrier. "We put the moisture barrier down first," said Baird. "Then we put the white epoxy down. Then we taped it, covered it up and put the black epoxy down, the black square down. Then we put two coats of clear on top of that."

Certainly, the mixing error was costly in both time and materials, but what took the most time on this project was taping the floor. It took three weeks for the crew to apply 5.3 miles (8.5 km) of 3M blue tape in a checkerboard pattern.

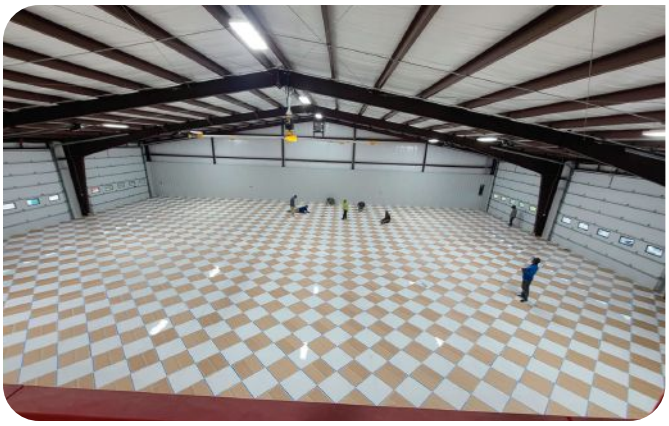
"After having applied the base correctly," Baird said, "we began the monotonous job of taping." This wasn't a straightforward process, either. "You can't just run tape one way then the other. Each square is offset," he said. The crew first had to lay out all 1,250 white squares, then cut out the tape from the soon-to-be black squares so that the corners would touch. All tape was run using strings and rulers. All the squares that were to remain white then had to be covered, and for this they used brown paper. What a feat this was!

Achieving the Look

Finally, the time arrived for the black epoxy (also Simiron 1100SL) to be applied to the floor to finish the checkerboard pattern — another process that was not as straightforward as one might think! Again, the coatings contractor had to be mindful of the mixology — this time, how long it takes for a coating to set before it can't be removed easily. "Because of the time constraint," Baird explained, "we would do a section, peel the tape, and clean up lines from bleed-through. It took four of us over two weeks to finish."

"You couldn't just do the whole floor and then peel everything up," Baird added, "because the epoxy would set up, and when you'd try to pull it, the tape would stick under it. That's what we worried about. I don't know if that would happen or not, but I really felt like it was going to happen, so

For safety, the crew wore respirators, when necessary, and they were also able to open up the large doors to have a supply of fresh air.



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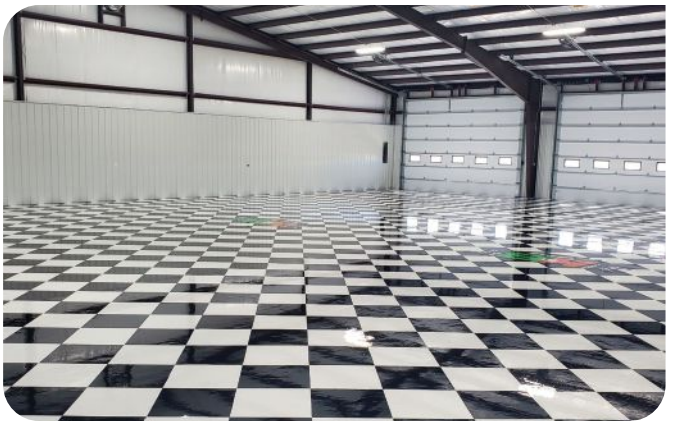
we didn't give it a shot. We did it in sections. We would paint the section, peel the section, and clean the section all at one time. That was another thing that added to the time of it."

All cleanup was done with xylene, obtained from a local Sherwin-Williams store. Baird said, "We would have to soak xylene rags, and everywhere [the black epoxy] bled, we would have to take that rag and painstakingly get down there and wipe it off."

After this, the entire floor was sanded and cleaned, large K&B Racing stickers were placed on the floor. Two coats of Simiron 971EPS clear gloss finished the look. Black Loxon S1 one-component smooth polyurethane sealant from Sherwin-Williams and white Big Stretch paintable latex caulk from Sashco were alternated around the inside perimeter to seal the edges.



The crew finished with two coats of clear gloss, sanding between, followed by black and white caulking around the perimeter of the floor.

Lessons Learned

The final checkerboard floor is a striking look that doesn't quite tell the story of all the work behind it and the lessons that were learned. The entire floor of the building showcases the pattern, including the bathroom! But the floor has held up very well, even with farm and racing equipment on it, and it's a look that people entering the building notice right away.

"It turned out really nice," said Baird, after all was complete. But there is a lesson for all coatings contractors here. "We read the instructions twice to mix it wrong. Just make sure that you read — make sure you catch the 'by volume' words on the cans." After all, coatings contractors are mixologists! *CP*

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STEEL PIPELINE OIL/GAS EPOXY POLYURETHANES INDUSTRIAL

Piping Hot: Coating Pipe at a Facility for Natural Gas Compressor Stations

BY **CLAIRE TRAGESER**
PHOTOS COURTESY OF **M J PAINTING CONTRACTOR CORP.**

One of the largest pipeline companies in North America was installing new carbon steel pipe, fittings, and ball valves for natural gas compressor stations.

The U.S. natural gas pipeline network is a highly integrated network that moves natural gas throughout the country. The pipeline network has about 3 million miles (~4.8 million km) of mainline and other pipelines that link natural gas production areas and storage facilities with consumers. In 2020, this natural gas transportation network delivered about 27.7 trillion cubic feet (~784 trillion m^3) of natural gas to about 77.3 million customers, according to the U.S. Energy Information Administration.

Transporting natural gas from production areas to consumers involves a complicated network that includes small-diameter, low-pressure pipelines that move raw natural gas from the wellhead to a natural gas processing plant or to an interconnection with a larger mainline pipeline. There are also natural gas processing plants that separate hydrocarbon gas liquids, nonhydrocarbon gases, and water from the natural gas before it's delivered into a mainline transmission system.

There are also wide-diameter, high-pressure interstate transmission pipelines that cross state boundaries, and there are intrastate transmission pipelines that operate within state boundaries to transport natural gas from the producing and processing areas to storage facilities and distribution centers. Then there are pumping stations on the pipeline network to keep the natural gas flowing through the pipeline system.

Lastly, local distribution companies deliver the natural gas to consumers through small-diameter, lower-pressure service lines.

The entire process is highly regulated — with good reason. Any small deviation can lead to environmental issues, leaks, hazardous cleanup, and even explosions.

Over the course of 9 months, M J Painting had to abrasive blast and coat the 25,000–30,000 square feet for above- and below-ground areas.

The crew had to work around material shortages and other contractors on site, with COVID-19 parameters and time constraints.

They used two types of software: one to help with estimating the square footage, pipe diameter, sizes, weld and fitting counts, etc., and another one to manage the job.

Into this network is the important work that Mike John Jr. and his company M J Painting does. The company is headquartered in Olean, N.Y., and has 50 years of experience in industrial coating and commercial painting across the United States. The company offers certified, professional, safe, and efficient energy services to the renewable energy industry, oil and natural gas industry, and interior and exterior painting for industrial complexes and commercial buildings.

The oil and natural gas painting contractor has worked on jobs across the country and has a 6,000-square-foot (557.4 m²) in-shop blasting and coating facility that accommodates special coating and blasting projects. In addition, M J Painting offers exterior regional church and hotel painting.

Their expertise in the field and their quality of service helped them land this particular job of abrasive blasting and coating the pipe at a fabrication facility for natural gas compressor stations. It's one of the largest pipeline companies in North America, which wishes to remain unnamed.

"We've been working with this contractor now since 2017," said John, the company's VP. "So this will be five years now of working with this contractor. And we've built up a good reputation with them and the gas company, and we are now their preferred coating applicator. I think it's been with a lot of good management from the office, estimating the projects have been very accurate, and then our field personnel — from our foreman down to the laborers — have done a great job of starting out these projects and seeing them to the end with no issues and no callbacks. So we really do have a great team from the office staff to the field."

John's company put in a bid for the project, and it was accepted. "Our estimating software is very helpful in determining square footage, pipe diameter, sizes, weld and fitting counts for coating, and then just putting the proposal together, which takes weeks to put together for these kinds of projects," he said.

John said they use On Center software for estimating and then Raken for managing the job. "Those create daily reports and pictures, and you can set up tasks for them. It's all just done electronically now," he said. "So it's been a great tool for us to see what is going on live throughout the day. And then the following morning, we get the daily report, which gives us a snapshot of everything throughout the day."

Various Kinds of Coatings

With the job secured, John and his crew got to work. "From start to finish, we have to mobilize several trucks, equipment — from [abrasive] blasting equipment to air compressors — job trailers that hold all of our supplies, and then we get into the field personnel who are qualified to be on these projects, which involve operator qualifications, and they have to be certified to apply the coatings," he said. "And then it goes into the process of protecting sensitive areas on the pipe, on the valves before you blast. A lot of protection goes into that."

Because the jobsite was at a fabrication facility for natural gas compressor stations, all of the work had to be done very carefully. Equipment had to be protected during the blasting and coating process.

"The field crews set up in a tent at our customer's site to perform the [abrasive] blasting and coating of pipe spools as they come off the fabrication line," John said. "Then we follow them into the field to perform tie ins and other services on site at the compressor station."

To protect the equipment, they used flange covers, heavy-duty duct tape from Scotch to protect ID tags, and canvas tarps on the stainless steel gauges.

With everything protected and secured, the crew began abrasive blasting the carbon steel. They were working to achieve

The 20-person crew from M J Painting had to work around sensitive equipment, which meant using containment, canvas tarps, and flange covers.

JOB AT **A GLANCE**

PROJECT:
Abrasive blast and coat pipe at a fabrication facility for natural gas compressor stations

COATINGS CONTRACTOR:
M J Painting
Olean, NY
(844) 977-9700@mjpcontractor
www.mjpaintingcontractor.com

SIZE OF CONTRACTOR:
40 people

SIZE OF CREW:
Average 20 members

PRIME CLIENT:
One of the largest pipeline companies in North America

SUBSTRATE:
Carbon steel pipe, fittings, and ball valves

CONDITION OF SUBSTRATE:
New

SIZE OF JOB:
25,000–30,000 sq. ft.

DURATION:
9 months

UNUSUAL FACTORS/CHALLENGES:
- M J was under a time constraint and had to deal with material shortages.
- The crew had to navigate around other contractors.
- COVID-19 posed additional parameters on the jobsite.
- They were working around sensitive equipment, so coating and abrasive blasting had to be contained.

MATERIALS/PROCESSES:
- Protected equipment with flange covers, heavy-duty duct tape from Scotch to protect ID tags, and canvas tarps
- Blasted substrate using Marco and Bristle Blasters to near-white NACE No. 2/SSPC-SP 10
- Applied SPC SG-2888 RG to below-ground areas at 20–50 mils DFT
- Applied epoxy coatings to above-ground areas at 12–18 mils DFT
- Coated tie ins after equipment was installed

SAFETY CONSIDERATIONS:
- Hot work permits for working on live lines, job safety analysis permits, four-gas monitors worn at all times
- Held tailgate meetings to discuss jobsite hazards
- Wore hard hats, safety glasses, high-impact work gloves, steel-toed boots, high-visibility shirts, flame-resistant clothing, ear protection, respirators, and fall protection, as necessary

The substrates were blasted with equipment from Marco and Montipower to near-white NACE No. 2/SSPC-SP 10.

Below-ground areas received 20–50 mils DFT of SPC SG-2888 RC, and above-ground areas received 12–18 mils DFT of epoxy. Tie ins were coated after the equipment was installed.

a NACE No. 2/Society for Protective Coatings (SSPC) Surface Preparation (SP) 10, "Near-White Blast Cleaning," using Marco equipment.

"That creates the correct profile for the epoxy coatings to go on," John explained. "We also have to use Bristle Blasters to prepare the pipe inside the building, because you're not allowed to create dust inside due to the equipment and the compressors. The Blasters are used for preparing the surface when it's in the piping inside the building."

With all the surfaces prepared, the crew moved on to coating. "We have to follow the customer's specifications as far as the three-coat system, a high-temp coating system, which is for corrosion under insulation," John said. "And then we get into the high-solids, high-gloss urethanes for gloss and color retention. And then we get into the below-ground coatings, which are meant to last 30+ years once it's buried. So it's a very high-end, very thick coating underground for below-ground piping and welds so it prevents corrosion and lasts a long time."

The crew used the Specialty Polymer Coatings (SPC) SP-2888 RG "state-of-the-art" epoxy/urethane hybrid coating, which offers superior protection against severe corrosion and abrasion. It's a two-component coating, and it is environmentally friendly, with excellent abrasion-, chemical-, and impact-resistance. And it has no volatile organic compounds (VOCs) or isocyanates.

To put down the coating, the crew used a plural-component spray rig, an airless sprayer, a pressure pot, and automotive spray guns, all from Graco. The plural-component rig was used for the below-ground coatings, and then the crew used the airless sprayers, pressure pot, and the pressure platinum automotive spray gun to put down the epoxies for the industrial environment.

The below-ground coatings were applied at an average dry film thickness (DFT) of 20–50 mils (508.0–1,270.0 microns), and the above-ground epoxy coatings were applied at an average DFT of 12–18 mils (304.8–457.2 microns).

On the above-ground interior piping, the crew also used brushes and rollers to apply the coating. "That's where the Bristle Blasters come in handy for the surface preparation, and then we brush and roll because we cannot have dust and overspray inside these buildings with all the equipment that they're installing," John said.

"After [the equipment's] installed, we have to do all the tie

The crew was sure to follow safe practices, including wearing safety glasses, respirators, and fall protection, as necessary. They had hot wore permits, used four-gas meters, and held tailgate meetings.

ins, meaning where they connect the pipe or they make a weld from the shop," John added. "You have to blast and coat those according to spec based on what temperature the pipe is at and if it's going to be underneath insulation. And then it comes down to a lot of fine detail inside the buildings with a lot of brush and rolling applications because you cannot spray."

Deadlines, Delays, and Coordination

On the job, safety was of utmost importance, both with COVID-19 precautions and working around sensitive equipment. "One of the most important parts is safety," John said. "So these guys have to attend daily tailgate meetings on site. It also involves hard hats, safety glasses, high-impact gloves, steel-toed boots, and flame-resistant clothing. You have to wear the proper respirators, high-visibility [shirts] because there are a lot of people, and there's a lot of equipment that's moving around on the site." The crew wore hearing and fall protection as needed, too, and used four-gas monitors at all times.

As far as COVID-19, everyone had to keep their distance and wear a 3M mask despite hot and muggy, humid conditions. They needed hot work permits for working on live lines and job safety analysis permits. "Another challenge would be the amount of people and the number of trades that are all trying to do their jobs at once in the same area," John said. "It can be very difficult to bounce from one side of the job to the other."

And then there were the deadlines. "There were weekly milestones we had to meet as far as certain areas that needed to be done so the electricians could come in behind us, and insulators had to come in after us," John said.

They were also contending with a materials shortage. "These certain resins to make the epoxies are hard to get," John said. "So when they tell you, 'Yes, you should expect it in a week,' next thing it turns into two weeks, and then next thing it should be ready next week. And then by the time they make it, make the order, package it, ship it, you're anywhere from three to four weeks. I'm getting certain materials when we used to be able to get it in two days before the pandemic, it's now a month or more before we can get material. So it's very challenging to order enough materials to keep the stock going without over-ordering because a lot of stuff is $125 or more a gallon and you don't want to over-order. You try to manage that and not have a truckload of paint just sitting there."

To manage that difficulty, John would get inventory on a daily basis. "It would give us a good baseline on what we would use weekly," he said. "So then we could try to stay ahead of running low on materials. We would outsource things and get them from anywhere from California to Texas and as far up as Green Bay, Wisconsin."

Reward Is Another Award

The crew of 20 pulled the nine-month job off without a hitch. They coated all 25,000–30,000 square feet (2,322.6–2,787.1 m²), and they got it all done under deadline.

John's company has continued to land jobs with the client, which shows that their work here is valued. "I think repeat business is a good factor," he said. "They don't really say a whole lot. You get the 'thank yous' and 'job well done.' But to be awarded another job with this contractor year after year for five straight years shows that we really know what we're doing." ***CP***

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STEEL TANK EPOXY INDUSTRIAL

Racing to Restore the Novi Water Tower

BY **BEN DUBOSE**

PHOTOS COURTESY OF **HANS NYBERG/TEN MILE MEDIA, PPG, AND PROTECTIVE COATINGS EPOXY SYSTEM**

Located in suburbia just outside Detroit, Mich., the city of Novi looks to its local water tower as an iconic symbol of one of its most famous and beloved innovations. For decades, the tower — initially built as part of a factory — has aesthetically featured the "Novi Special," referring to a race car built there in 1938 with a supercharged V8 piston engine. Known for high speed and power, the engine ultimately became the Novi V8 and powered a series of race cars at the Indianapolis 500 for approximately 25 years.

Over the decades since, the iconic motor and race car has become the legacy logo for many of the city's landmarks, including the water tower and City Hall. While the tower itself is no longer in service, it remains one of the Novi's most visible and front-facing attractions.

As time progressed, the initial rounds of protective coatings applied to the tower's ferrous metal structural steel began to fail. In 2017, the city purchased the property that the water tower is on with the intent of potentially making it a park. But first on the agenda was refurbishing the tower itself. Moderate to heavy corrosion and pitting were evident, and city officials had reason to fear that the integrity of the steel itself could be compromised. Yet, costs and ever-tightening budgets had to be considered as well.

That's where a town resident and the coatings manufacturer PPG collaborated on a creative solution to benefit both parties. Larry Ciancio, the resident and a former PPG employee, initiated the discussion. From there, PPG agreed to donate the requisite materials for a refurbishment at its own cost, along with providing a qualified contractor to apply the product and oversee it. As part of the agreement, the PPG logo was to be placed on the tower.

Turning to 'Mom and Pop'

Mike Moran, a Level 3 NACE-certified Coating Inspector and an SSPC: The Society for Protective Coatings Protective Coating Specialist, Concrete Coating Inspector, and Master Coatings

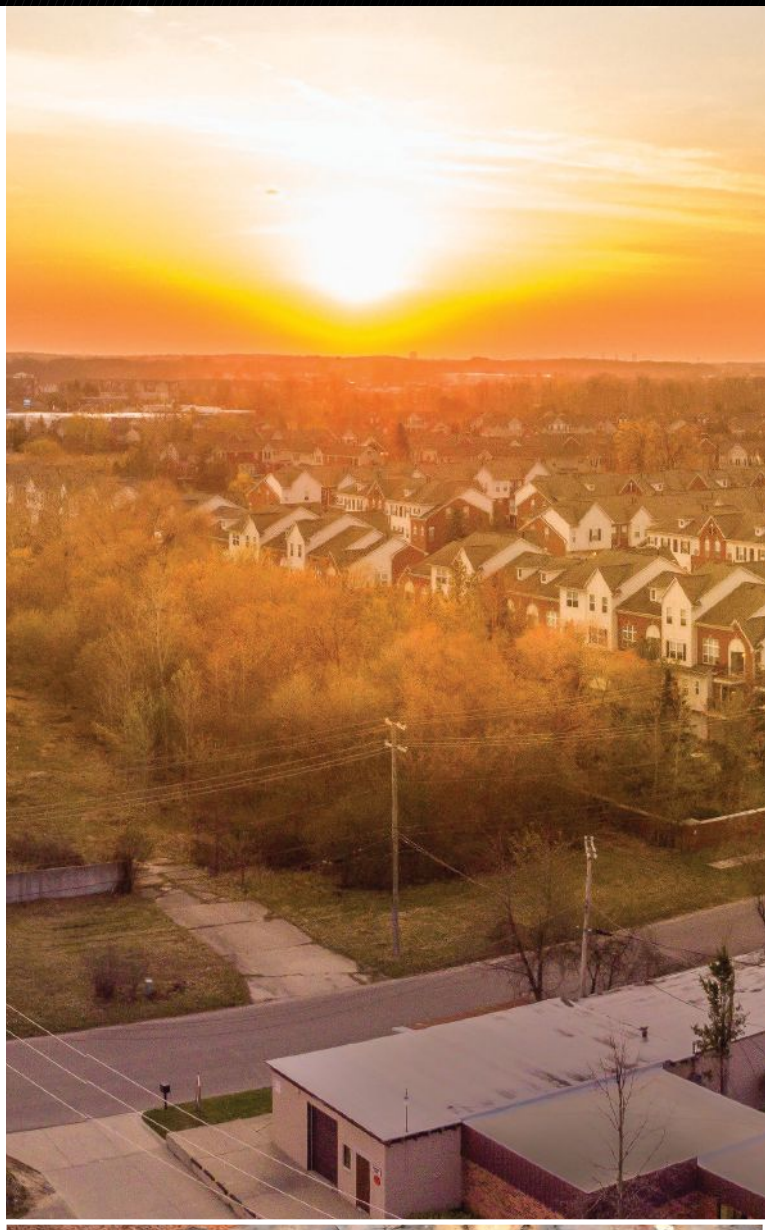


Photo courtesy of Hans Nyberg/Ten Mile Media

The 10,300 square feet of ferrous metal was showing moderate to heavy corrosion and pitting. It would need a NACE No. 3/SSPC-SP 6 in heavily corroded areas.

A historic landmark water tower in Novi, Mich., was starting to experience failing coatings. As a highly visible tank, it needed to be updated, and they needed the right crew to do it.

Inspector, had worked in sales for PPG earlier in his career. Today, he's the president and business owner of Protective Coatings Epoxy Systems in nearby Fowlerville, Mich., and he describes his company as "kind of a mom-and-pop business," with approximately five regular employees.

In many cases, a high-profile job such as the Novi water tower might go to a contractor with a larger brand name. But in this case, based on PPG's relationship with Moran and those numerous certifications, the coating manufacturer trusted the contracting team to carry out its vision.

"When PPG donated the material, they wanted to represent their PSX 700 [polysiloxane] well, and ensure the appropriate quality," Moran said. "They wanted to find a contractor that knew structural steel but who could also do some artistic work and represent the product well. I've installed a lot of logos, and I've had a good relationship with PPG."

With Protective Coatings Epoxy Systems, most of Moran's work is on epoxy floors — as the name suggests. But he knows how to handle structural steel, too, from being an inspector, and PPG was aware of his versatility.

That's how Moran defied the odds as a small contracting company to land the marquee job, and he immediately understood the significance. "This water tower is literally their logo for the city," he said. "It's on shirts and things of that nature. That's why there was a vested interest on both sides to find the right person, the right budget, and the right situation. It was a big job and a big success for a little, tiny company."

A 4-person crew from Protective Coatings Epoxy Systems had to contend with accessibility issues, high winds, and nearby overspray concerns.

Initial specifications called for the job to be completed in the winter, but Moran cited concerns with Michigan's

PPG agreed to donate the materials and provided a qualified contractor to apply the product and oversee it.

They started by working from a 160-foot boom lift, wearing harnesses as well as other PPE.

notoriously frigid winter months and the effects on recoat windows. So their work started in May 2021 after temperatures had warmed, and it continued into the summer.

Scaling Up

One immediate challenge was access since the Novi tower goes as high as 131 feet (39.9 m) above the ground. Surrounding ground areas featured railroad tracks, trees, a hill, and a power grid with electrical lines, which meant the tower was not easily accessible on all of its sides.

Using equipment procured from Sunbelt Rentals, the crew's initial plan was to work out of a 160-foot (48.8 m) boom lift. However, upon arriving, they realized that even a boom lift of that size would have a hard time reaching all areas of the tower. After all, it couldn't be easily repositioned, considering the sensitivity of the surrounding areas. Moreover, a parking lot located approximately 100 feet (30.5 m) away made overspray a concern, so they knew they needed to be very close to the substrate for manual application methods.

Moran raced to come up with an alternative solution

They determined that a crane would allow them to maneuver better around the trees, power lines, and railroad tracks. They had to deal with high winds at times.

— from the top down this time. "What we did was upgrade to a gigantic crane," he said. "With this option, we could reach the work. But we no longer had control of the man basket. We had to call signals in, a few inches at a time, via radio to the inside of an operator's cockpit [run by a sub-contractor] to cable up or down."

"We were lifted so high in the air that we would go over the top of the tower to do the back," Moran recalled. "Then, we would go over the railroad tracks, over the trees, and descend and take hooks and pull ourselves back in [to the tower]. It took a few trips to get used to. It can make you weak in the knees."

At times, high winds caused the crane's man basket to spin, which they had little choice but to ride out. Their strategy was to "grin and bear it," said Moran, who noted that wind conditions at 150 feet (45.7 m) in the air were often more intense than on the ground.

The crew used poles and hooks to grab steel crossmembers, which held them in place for blasting or spraying operations. Cellular antennas on the tower were deconstructed during this time and placed elsewhere.

Understandably, the access challenges added to personal protective equipment (PPE) needs. On this job, PPE for crew members included harnesses, safety glasses, Honeywell North full-face respirators, full Tyvek spray suits, 3M hearing protection, and solvent-resistant gloves.

While the scheduling change avoided concerns due to cold winter weather, the crew did occasionally have concerns related to the summer's opposite extreme. Temperatures reached as high as 108 °F (42.2 °C) during the project, and there was little shade. To combat this, workers used ice cool gel vests beneath their suits. Each crew worker also wore sunglasses, as needed, and consumed between 1 and 2 gallons (3.8–7.6 L) of sports drinks and water per day.

Applicators, Start Your Coating!

With safety and access plans sorted out, crew members methodically worked to restore the iconic structure. Moran recalled the

Areas that didn't have heavy corrosion were blasted to achieve NACE No. 4/SSPC-SP 7. The crew used HoldTight 102 before and after prepping to hold the blast.

The 131-foot-tall tower had cellular antennas that were deconstructed and put elsewhere during the crew's work. The sun, however, had to be dealt with using small batches of the coating.

Novi water tank as having a C3 environment, per ISO 12944, with both uniform corrosion and stress corrosion cracking present at the time. The tank itself had been overcoated with many layers of failed coatings.

As with most jobs, surface preparation for the top dome and its legs was critical. For areas with heavy corrosion and pitting, the crew utilized BlastOne blast pots and Black Beauty Iron abrasives by Harsco to achieve the NACE No. 3/SSPC-SP 6, "Commercial Blast Cleaning" standard of surface preparation. For areas with corrosion not as heavy, they performed a brush blast to reach the NACE No. 4/SSPC-SP 7, "Brush-Off Blast Cleaning," standard. High-output compressors from Doosan helped to power the pressurized equipment.

Crew members treated the structure with HoldTight 102 prior to blasting, which removed any lingering chlorides, nitrates, and sulfates. They later applied HoldTight 102 after blasting, as well, to help hold the blast.

"This job didn't pay to do a commercial blast all the way down to zero," Moran said. "The money just wasn't there. So where we had heavy corrosion, we gave it a commercial blast.

Railroad tracks, trees, a hill, and a power grid with electrical lines surrounded the tank, offering a unique set of parameters.

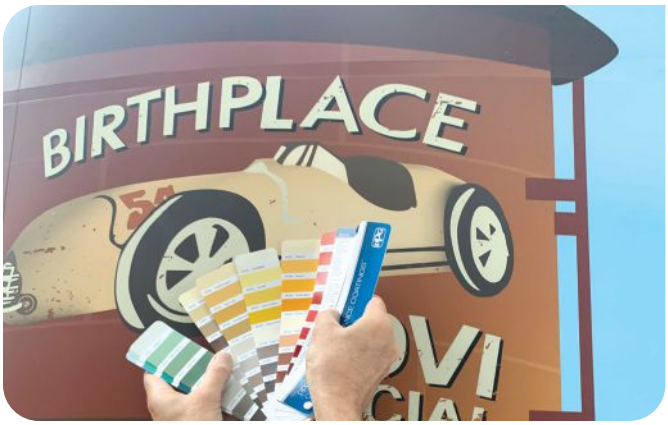
Where it was tight, we did a brush blast, held the integrity, and then buried it with an epoxy mastic primer. Then we did a very heavy recoat, and it worked out."

The coating process for the tank's 10,300 square feet (956.9 m²) of surface area wasn't easy, according to Moran. Despite using thinners and retarders, the potlife and viscosity of the coating materials changed quickly in the sun. As a result, crew members mixed batches as small as 1 gallon and applied it as rapidly as possible due to the short potlife. Another concern was overspray, particularly given the parking lot and cars driving on a nearby expressway. The crew used a spray pump for fluid transfer and occasionally "misted" via the sprayer for any holidays in each layer, but they mainly applied coatings by backrolling with 0.75-inch (1.9 cm) rollers. To determine wind direction, they watched flags and tree leaves while in the air, since those conditions were often different than what could be observed on the ground.

Coating application began with PPG's penetrating AMERLOCK sealer, which went on all areas at an average of 1.5 mils (38.1 microns) dry film thickness (DFT). Moran refers to that as the "pre-prime." According to PPG, the sealer offers low viscosity and excellent wetting properties, allowing it to penetrate rust and discontinuities in existing coatings. In turn, this improves the adhesion of topcoats.

Crew members followed that with the AMERLOCK 2/400 primer at 5–8 mils (127.0–203.2 microns) DFT. Moran chose this product for its fast drying time, since it can be dry to the touch in as few as two hours at 70 °F (21.1 °C) and suitable for recoating in three hours. The surface-tolerant epoxy is low in odor, and it is American National Standards Institute (ANSI)/NSF 61-approved (potable water) for immersion in tanks, pipes, valves, and fittings.

"You can't blast between two pieces of steel that are held together right," Moran said. "So, we chose the epoxy sealer, so that it would weep in between the steel. Then we used an edge-retentive epoxy mastic to coat the steel and give us that build, and we purposely coated it chocolate brown. That way, if



The client's specialized car logo was applied using a 3M vinyl wrap, and then the coating crew installed PPG's logo to finish it off.

there's ever any rust bleed, it would be aesthetically pleasing and not noticeable."

After being fully primed — and giving an extra stripe coat to critical areas near the top of the tank — the recoat windows offered the crew a few weeks' breathing room. "Once we got primed, we could relax some," said Moran, speaking from a logistics and timing perspective. But while the crew could take their time and work section by section, the polysiloxane (PSX 700) topcoat brought its unique challenges.

"When we finished an area, it had to be finished almost completely because you can't recoat PSX very well," Moran said. "The topcoat had to be 'money,' because you have to solvent wipe if you have to recoat it; that's not practical on a water tower. So there's a little bit of stress in making sure you're doing a perfect job every time you 'pull that trigger.'" With extra care in mind, the PSX 700 polysiloxane went down at 3–7 mils (76.2–177.8 microns) DFT, with the client choosing its desired orange and blue color scheme.

"Polysiloxanes have a very high level of corrosion resistance, and the color and gloss retention is phenomenal," said Moran, who noted its superior performance relative to a urethane finish. "It's such a tight film that you can't even recoat it. With that being a high-visibility job in pure UV [ultraviolet] every day, and having high aesthetic value, that's why it was chosen." Coating materials were readily available at the jobsite, since PPG had committed to the donation. Technical support was also available, led by PPG senior coatings representative Dan Perrault.

The finishing touches, of course, were the additions of the classic Novi race car and the manufacturer's logo underneath. The famous race car was originally scheduled to be painted, but high winds at such a lofty location led to the crew changing course and applying it with a 3M vinyl wrap instead. "Most of the industry is doing [vinyl wraps] for high precision," Moran said.

However, PPG's logo was still painted on, which Moran did personally with an artist's brush. "We didn't need to represent

JOB AT **A GLANCE**

PROJECT:
Restore a historic landmark water tower when the protective coatings began to fail

COATINGS CONTRACTOR:
Protective Coatings Epoxy Systems
Fowlerville, MI
(517) 242-4478
FB: 4epoxyfloors
www.4epoxyfloors.com

SIZE OF CONTRACTOR:
5 employees

SIZE OF CREW:
4 crew members

PRIME CLIENT:
City of Novi
Novi, MI
(248) 347-0460
@cityofnovi
www.cityofnovi.org

SUBSTRATE:
Ferrous metal structural steel

CONDITION OF SUBSTRATE:
Moderate to heavy corrosion and pitting

SIZE OF JOB:
10,300 sq. ft.

DURATION:
4 months

UNUSUAL FACTORS/CHALLENGES:
- The crew began working out of a 160-foot boom lift from Sunbelt Rentals before determining that a huge crane was more effective for accessibility.
- High winds sometimes caused the man basket to spin in the air and gave the crew concern of overspray issues to items in nearby areas.
- The project was highly visible, and members of the public were constantly looking at their work, taking photos and videos from drones.
- Despite using thinners and retarders, the materials' potlife and viscosity changed quickly in the sun. Small 1-gallon batches had to be constantly made and applied immediately.
- The 131-feet-tall tower's cellular antennas were deconstructed and put elsewhere during blasting and coating work.

MATERIALS/PROCESSES:
- Used Doosan high-output compressors to power pressurized equipment
- Utilized BlastOne blast pots and Black Beauty Iron by Harsco to achieve NACE No. 3/SSPC-SP 6 for areas with heavy corrosion and pitting
- Performed a brush blast to achieve the NACE No. 4/SSPC-SP 7 for areas without heavy corrosion
- Treated with HoldTight 102 prior to blasting and again after blasting
- Applied AMERLOCK sealer to all areas at an average of 1.5 mils DFT
- Primed with AMERLOCK 2/400 surface tolerant-epoxy at 5–8 mils DFT
- "Misted" via sprayer for any holidays, and used 0.75-inch roller for stripe coating and full coats

SAFETY CONSIDERATIONS:
- Used PPE, including safety glasses, harnesses, Honeywell North full-face respirators, full spray suits, 3M hearing protection, and gloves
- Wore ice cool gel vests and sunglasses to protect from heat and sun's rays
- Consumed 1–2 gallons of sports drinks and water per day per worker

All areas of the tower received AMERLOCK sealer, and the topcoat was PSX 700 polysiloxane in the desired orange and blue color scheme.

Photo courtesy of Hans Nyberg/Ten Mile Media

This was the first water tower that Protective Coatings Epoxy Systems coated, and Moran said the response has been wonderful. And now, they're off to the races!

PPG with a decal," he said. "We needed to represent them with their flagship product, you know?"

Win for the Underdog

Completing this job wasn't easy. In addition to extra access and safety steps, the crew had to dodge occasional summer thunderstorms, and members of the public were constantly looking at their work before it was finished. Some even took photos and videos from drones, which added to the pressure on the Protective Coatings Epoxy Systems team. City of Novi officials had to be kept in the loop on a daily basis as well.

But by August 2021, Moran's crew completed the job on time and on budget, and the early reviews were extremely positive. "It's been wonderful," he said of the response. "The Novi tower was my first one — I had never done one before. I mean, I've done structural steel in tanks, but I never did a water tower."

Best of all, it has since led Moran to another job in 2022 at the Detroit Zoo, which he refers to as the biggest job of his life. "The CEO of the zoo happened to be driving by and saw the [Navi] tower getting painted," Moran said. "They had been looking for a painter for five years and facing similar situations — public scrutiny, cars, parking lots, and the expressway right next to it. They thought I was the perfect fit."

Ultimately, the "little guy" won this race.

"Typically, these jobs are something that you see the big boys get, not the little guys," Moran said. "Really, I'm just a little, tiny company. So, it's cool for a small business to succeed and get something big once in a while, too." ***CP***

VENDOR TEAM

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LI: ppg-protective-and-marine-coatings
www.ppgpmc.com

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WATERPROOFING ROOF ACRYLIC

COMMERCIAL

Pulling a Rabbit Out of a Hat: Leak-Free Roof Despite 40 Rainouts

BY **ANTHONY PUNT**
PHOTOS COURTESY OF **STRATEGIC ROOFING SOLUTIONS**

A ~130,000-square-foot multi-tenant building in Texas was aged and leaking. The crew divided it into sections to get to work.

In 2012, Houston-based real estate company Hicks Ventures purchased a big-box retail building from Sears. The building, formerly known as "The Great Outdoors," was later renamed Block 10 West and received a multi-million-dollar renovation that converted it into Class A office space. For the past several years, Block 10 West has operated as a two-story, mixed-use facility located in one of Houston's most bustling commercial centers. But Hicks Ventures had recently become aware of leaking issues in the building's single-ply polyvinyl chloride (PVC) roof.

"This roof was probably in the 15- to 20-year-old range," said Mike Martin, owner of Houston roofing and waterproofing company Strategic Roofing Solutions (SRS). "It had a lot of leaks at roof penetrations with small pin holes in it [caused by] the deterioration of the roof through the exposure of the weather elements. There were microscopic punctures in this roof that would break enough that it would make tiny holes that you couldn't see."

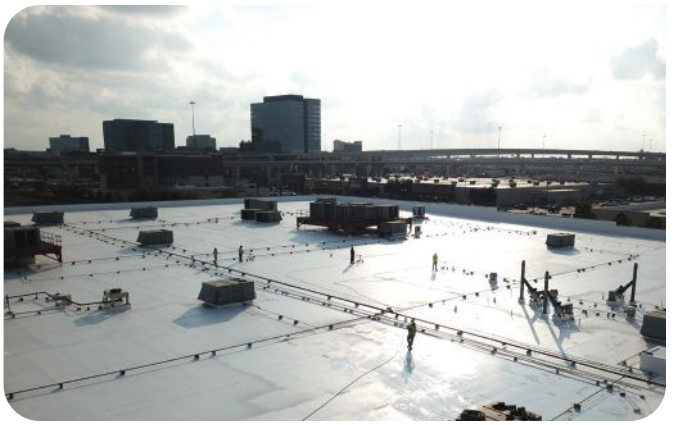
Since a full teardown of the PVC roof wasn't a viable option, SRS was tasked with installing an acrylic coating system over the approximately 130,000-square-foot (12,077.4 m²) roof. The system in question was AcryLink G, a single-component, high-solids acrylic elastomeric roof coating that features an advanced, custom-engineered cross-linking resin. From Martin's point of view, the AcryLink G system was a quality system that had the added advantage of being made by Isothermal Protective Coatings (IPC), a coatings manufacturer headquartered in nearby Pearland, Texas.

"We selected [IPC] for a number of reasons," Martin said. "Number one: They're local, which made them easy to get in touch with. If there was any issue, they'd come out to the

The coatings from Isothermal Protective Coatings had the benefit of reflecting UV light, making it a "cool roof."

It took a 6- to 8-person crew from Strategic Roofing Solutions 30 days to coat the single-ply PVC rooftop.

The crew used an ELD device on each of the roof's sections to identify and chase and leaks, punctures, and penetrations.



Rain and cold weather caused the crew to lose about 40 workdays. Good weather meant good days for rooftop work.

jobsite. And the other main reason is that I've worked with them for about 15 years and have not had any issues with their products."

Leading-Edge Tech

According to Martin, he took a "pretty hands-on" role in the Block 10 West project, particularly in terms of coordinating with Hicks Ventures on process issues, while SRS project manager Miguel Corrales handled the day-to-day operations on the jobsite. Although SRS is a relatively new company, established in 2007, Martin claimed that his 36 employees were "all old souls in the industry with hundreds of years of combined experience." In leveraging this considerable amount of industry experience, including Martin's own 30-odd years, SRS typically doesn't have to solicit new business but rather works with an established clientele that includes Hicks Ventures. SRS had worked with them for the past few years, so when the Block 10 West project came up for bid, the contractor had their existing relationship — along with their proven waterproofing track record — to fall back on.

Before the acrylic roof coating could be applied, SRS's six-to-eight-member crew had to first track the roof's small yet myriad leaks. To accomplish that goal, the crew divided the roof in a grid pattern and monitored each square for leaks. They used electronic leak detectors (ELDs) from Buckley's to do so. In layman's terms, an ELD — which Martin describes as "a piece of equipment that looks like a metal broom" — senses sound frequencies of water and emits a high-frequency alarm once a leak has been detected. While ELDs may not have been effective for other roof systems, such as built-up roof (BUR) or modified bitumen (MB), the single-ply PVC roof of the Block 10 West building presented the ideal conditions for their use.

And it's a good thing, too, because as Martin puts it, the ELDs played an essential role in the success of the project. "Tracking down those leaks was the biggest hurdle; trying to identify those leaks without the ELD devices would have been nearly impossible," he said. "Without them, we would've been just like any of the other roofing contractors who tried to stop leaks out there. We were grateful to be able to present this technology, and we're always looking for the latest and greatest technology out there that can benefit our clients."

SRS's commitment to the "latest and greatest technology" didn't just end with tracking roof leaks with ELDs. A cantilever spraying apparatus known as The Roof Rabbit was employed to

The roof was prepped with pressure washers and walk-behind surface cleaners, followed by a roof membrane cleaner.

apply the AcryLink G coating system at a consistent mil thickness. The Roof Rabbit was recommended to SRS by IPC president Derron Cook, who (according to Martin) suggested that it could be a good match for a large open job that needed to gain some momentum and speed. Roof Rabbit inventor and company president Chad Hedrick provided the SRS crew with first-hand guidance on how to use their apparatuses.

"We were pleased to work with SRS on this project through a networking relationship we had made with IPC," said Hedrick. "The ability to put a Roof Rabbit in the hands of SRS employees and have the confidence to know that they will accurately be applying consistent mils of thickness while increasing the production is what drives our company."

Although they were initially unacquainted with The Roof Rabbit, the crew used this tool to apply the bulk of the AcryLink G coatings. As Martin put it, "We wound up using three — we started with one, then two, then three. And they worked out really well for us."

On this project, the crew tried The Roof Rabbit equipment for the first time, and they liked it so much they ended up with three units!

JOB AT **A GLANCE**

PROJECT:
Waterproof the roof of a multi-tenant office building by installing an acrylic coating system

COATINGS CONTRACTOR:
Strategic Roofing Solutions, LLC
Houston, TX
(832) 243-1413
LI: strategic-roofing-solutions-llc
https://strategicroofing.net

SIZE OF CONTRACTOR:
36 employees

SIZE OF CREW:
6–8 crew members

PRIME CLIENT:
Hicks Ventures
Houston, TX
(281) 579-7889
http://hicksventures.com

SUBSTRATE:
Single-ply PVC

CONDITION OF SUBSTRATE:
Aged and leaking

SIZE OF JOB:
130,000 sq. ft

DURATION:
30 days

UNUSUAL FACTORS/CHALLENGES:
- Rain and cold weather resulted in about 40 workdays lost, including periods when the crew didn't work for an entire week.
- SRS divided the roof into sections and used an ELD device on each section to identify and chase leaks, punctures, and penetrations.
- The crew tried The Roof Rabbit equipment for the first time and ended up with three units!

MATERIALS/PROCESSES:
- Prepped with Mi-T-M 3,000 psi pressure washers and Ramteq walk-behind surface cleaners; followed by a roof membrane cleaner
- Used hook blade knives to remove walk pads
- Made repairs to roof punctures with 3x3-square-inch patches that were welded to the roof using Leister hot-air welders
- Detailed all curbs, flashings, and penetrations with AcryCaulk applied with 4-inch rollers and 3-inch brushes
- Performed adhesion tests to ensure the coating's compatibility with the existing PVC roof
- Used a variety of sprayers to apply two coats of AcryLink G at an average of 15 mils DFT each, and rolled in areas that couldn't be sprayed
- Taped off and installed two coats of a yellow-colored AcryLink G at an average of 40 mils DFT each, with yellow EPDM rubber granules broadcast using a fertilizer spreader into the first coat

SAFETY CONSIDERATIONS:
- Wore gloves, Pyramex safety glasses, and work boots at all times, along with hard hats, ear plugs, and face masks when necessary
- Installed safety flagging where needed
- Were tied off with safety harnesses and lanyards with rope grabs
- Held weekly toolbox safety meetings

User-Friendly Coatings

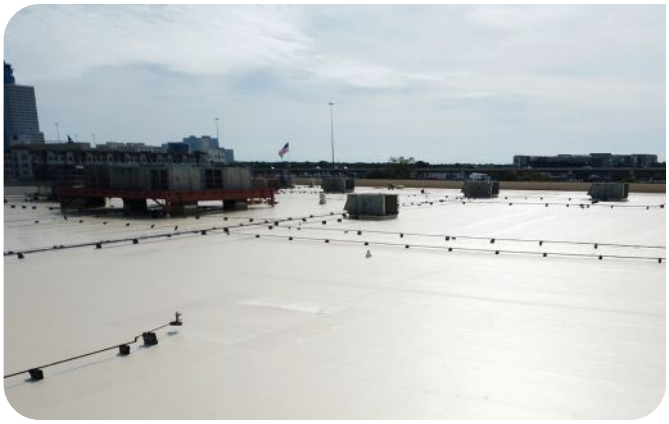
Because the SRS crew didn't have to remove the existing roof, surface prep was both cost-effective and relatively minimal. The crew used Mi-T-M 3,000 psi (206.9 bar) power washers and Ramteq walk-behind surface cleaners across the roof to remove all loose debris. They used hook blade knives to carve out and cut up all existing walk pads, and then they followed that up by applying a flashing grade membrane to the newly exposed surfaces. After applying a membrane cleaner to the entire roof, the crew repaired roof punctures with 3-inch by 3-inch (7.6x7.6 cm) square patches held in place with Leister hot-air welders. Using 4-inch (10.2 cm) rollers and 3-inch (7.6 cm) brushes, they applied AcryCaulk — an all-purpose sealant that readily adheres to a variety of substrates, including thermoplastic roofs — to all curbs, flashings, and other areas per manufacturer requirements. Before any coatings could be applied, the crew performed adhesion tests to ensure that the IPC system was compatible with the PVC roof.

With their trio of Roof Rabbits, along with Graco GH 833 and Titan PowerTwin 8900 Plus hydraulic sprayers, the crew applied two coats of AcryLink G — a beige-colored basecoat and a white-colored topcoat — each at an average of 15 mils (381.0 microns) dry film thickness (DFT). In areas where the sprayers could not reach, the crew rolled on the coatings using 4- and 9-inch (22.9 cm) roller frames.

According to Martin, the distinct basecoat and topcoat colors weren't chosen for aesthetic purposes but rather to help the crew see what they were doing, although he did add that the white topcoat has the added benefit of reflecting the maximum amount of ultraviolet (UV) light, thus making it a "cool roof."

While the coating was still fresh, the crew minimally sprayed down the roof with the 3,000 psi pressure washers to remove any remaining surface dust. From there, they taped off walkway areas and applied a yellow-colored coat of AcryLink G at an average of 40 mils (1,016.0 microns) DFT. Last but not least, they broadcast yellow ethylene propylene diene terpolymer (EPDM) rubber granules into the yellow coat using a fertilizer spreader, and once that layer dried, it was topped off with another coat of the same color and coating thickness.

The crew was tied off with safety harnesses and lanyards, wore PPE, installed safety flagging where needed, and held weekly toolbox talks.



Before coating, the crew made repairs to punctures with AcryCaulk and performed adhesion tests to ensure compatibility with the PVC roof.

SRS project manager Corrales had nothing but praise for the product itself and for the people who manufacture it: "[AcryLink G] is very user friendly. It goes down real easy and smooth, gives you a great finished product. So the quality of the product is very good, as well as customer service from the manufacturer... I mean, we had the owner of the company come out to the roof and walk us through the process. He helped us set everything up, gave us a little tutorial on how everything needed to take place. So all that stuff also comes into play when selecting a manufacturer — knowing that the manufacturer has your back when you're trying to have the client's back."

Weather Delays

Both Corrales and Martin point to weather, rain specifically, as the biggest impediment on this project. The SRS crew began work in late October and wrapped up shortly before Christmas; however, while the project lasted nearly two full months, the crew actually only logged 30 workdays due to extended periods of rain. Martin estimated that the crew had more than 40 rainouts, including an entire week where the crew didn't work at all.

According to Corrales, "The roof had to be completely dry or the coating wouldn't adhere, and we had to give [the coating] enough time to at least skin over before the dew set again, or otherwise it would wash off. It was a lot of observing what the day before did and thinking, 'Well, if we stop by 4 and the dew starts settling at 6, that gets us two hours of dry time.' So every day was a little bit different. Sometimes we had to stop at 3 o'clock. Sometimes we could go to 4 or 4:30, depending on the conditions that day."

Martin added, "Miguel would reach out to me at 7/8 o'clock at night each night to determine what our move was going to be the next day, and there were times where we couldn't make

The crew applied two coats of AcryLink G at an average of 15 mils DFT each, and rolled areas that couldn't be sprayed.

The last step was to install two coats of yellow AcryLink G at an average of 40 mils DFT each with EPDM granules broadcast into the first coat.

a decision until that next morning. Just because — you know how it is here in Houston — the weather is pretty volatile. We've seen three or four seasons inside of a month, you know? That was the biggest challenge we had: the weather."

Aside from unavoidable rain delays, the project went more or less smoothly. Because the parapet walls were only about 3 feet (0.9 m) tall on average, the crew members were 100 percent tied off with harnesses and lanyards with rope grabs, and they used safety flags where needed. Crew members wore Pyramex safety glasses, gloves, and work boots, along with hard hats, ear plugs, and face masks when required. An SRS safety director conducted weekly toolbox safety meetings on various topics related to the project and to verify that U.S. Occupational Safety and Health Administration (OSHA) regulations were met.

Martin emphasized the seriousness with which SRS took safety issues. To underline this, he pointed to the company's 1,982-day streak since opening without an injury or incident, along with a 2021 Certificate of Safety Achievement from the Texas Mutual Insurance Company. He summarized the company's safety philosophy thusly: "We try to make it as comfortable for the crew as we can while still following all the safety protocols and procedures."

Long-Term Satisfaction

Due primarily to Mother Nature, SRS was unable to hit the deadline established by Hicks Ventures. With that said, "They were very understanding and wanted to ensure that the job was done right. So with the additional time they gave us, we were able to get the job done," Martin explained.

As testament to the client's trust and satisfaction with the work performed, SRS was contracted to provide biannual inspections of the Block 10 West roof to guarantee its continued maintenance. Along with a 10-year no-dollar-limit (NDL) warranty from IPC on their AcryLink G coating system, it's a win-win for both parties. With an experienced contractor and a proven coating system on their side, the occupants of Block 10 West should expect a leak-free roof for years to come! **CP**

VENDOR TEAM

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Wet vs. Dry Electronic Leak Detection

*By **Simon B. Dobson**, Managing Director at Buckleys (UVRAL) Ltd.*

Electronic leak detection was first applied to the detection of flammable gas leaks in the 1920s in the petroleum industry. As solid-state electronics became commercially available in the 1970s, they were more generally applied to water leak detection. There are now a number of standards applied across the globe referring to the various techniques available. One of those is for rooftop leak detection.

How It Works

The general principle is simple: If there is a flaw in the waterproof layer — be it a membrane or a coating (and the layer itself is not conductive) — then water and electricity can penetrate that later. Provided there is a ground path and the voltage is sufficiently high, an electric current will be established that can be detected.

The "electronic" part is really two systems: a means of creating the necessary voltage and a means of measuring a current flow to ground. These measurements can be combined in a single instrument or captured separately, depending on the particular product and method used.

The 'Wet' Method

The necessary voltage for the equipment depends on the method used. There are various "wet" methods using voltages as low as 12–48 V; 32 V is typical, but lower voltages may sometimes be necessary for safety reasons.

With the wet methods, it's first important to ensure that the surface being tested is covered with a conductive layer of water and that this has had time to soak into any flaws in the coating. The voltage is applied between a field electrode — a wire laid out around the area being tested — and the building ground. If there are flaws through which water is able to penetrate, a current will flow between these electrodes, and it will be indicated by the generator. The detector uses electrodes similar to ski poles, which the operator touches on the surface to measure the voltage between them. The magnitude and direction of this electric field is used to home in on any flaws. With a little practice, an operator can detect the presence of flaws very quickly and, within a few minutes, determine the precise location of the flaw.

Alternative wet methods, perhaps more suitable for large areas such as geomembranes, rely on direct detection of the ground current, either by use of a high-pressure water lance or by use of hose and roller.

The wet test approach is ideal for surfaces that are substantially level, smooth, and do not have numerous grounded items within the area to be tested. It is also the preferred method to be used when it's raining.

The wet approach offers one capability far superior to the dry method: If the leak path is long and complex, as may result from a multi-layer waterproofing over a thermally insulating layer, the voltage required would be beyond the capability of any instrument on its own. The wet approach can detect such leak paths provided that the water has had time and the opportunity to soak through the waterproof layer and the substrate on which it is applied. Therefore, this approach is often the method of choice where the waterproof layer has been in use for some time.

The 'Dry' Method

The alternative to the wet method is the "dry" approach, which requires much higher voltages, depending on the thickness of the layer under the test. These voltages come in a range similar to automotive spark-plug voltages.

A scanning approach is required for dry methods. A battery-powered high-voltage source is connected to an electrode that is brushed over the entire area to be tested. The instrument is normally carried in a shoulder bag, and the ground wire is connected to the building ground.

The necessary test voltage is defined by the thickness of the layer being tested; various published standards exist that provide this information. Some instruments also provide automatic voltage calculation according to various published standards, based on the thickness of the layer being tested. When a flaw is detected, the instrument will flash an alarm, and the operator can manipulate the test electrode to detect the exact location of the fault.

Dry methods are best used in hot, dry conditions. Trying to keep a large, flat, possibly windswept and sun-baked roof wet would be difficult; therefore, the dry approach is clearly preferable in these conditions. The dry instruments are generally lighter, smaller, and more portable than the instruments required for wet testing because no water supply is required. The electrodes for dry instruments can also be applied to curved, sloped, vertical, and even inverted surfaces.

Importance of Leak Detection

Regardless of the approach used, the detection of leaks on a rooftop substrate before occupation is crucial for the architect, building and roofing material suppliers, and contractors — as well as the clients themselves — to ensure that the building meets and continues to meet the design and specifications. **CP**

Resources

1. *ASTM D6747 describes the main methods of Electronic Leak Detection in detail and provides guidance on the various advantages and requirements of each method.*
2. *Voltage recommendations are available in a range of standards, including NACE SP0188, SP0274 & SP0490, ASTM G62 and D5162, ISO 21809, and BS EN 60052.*

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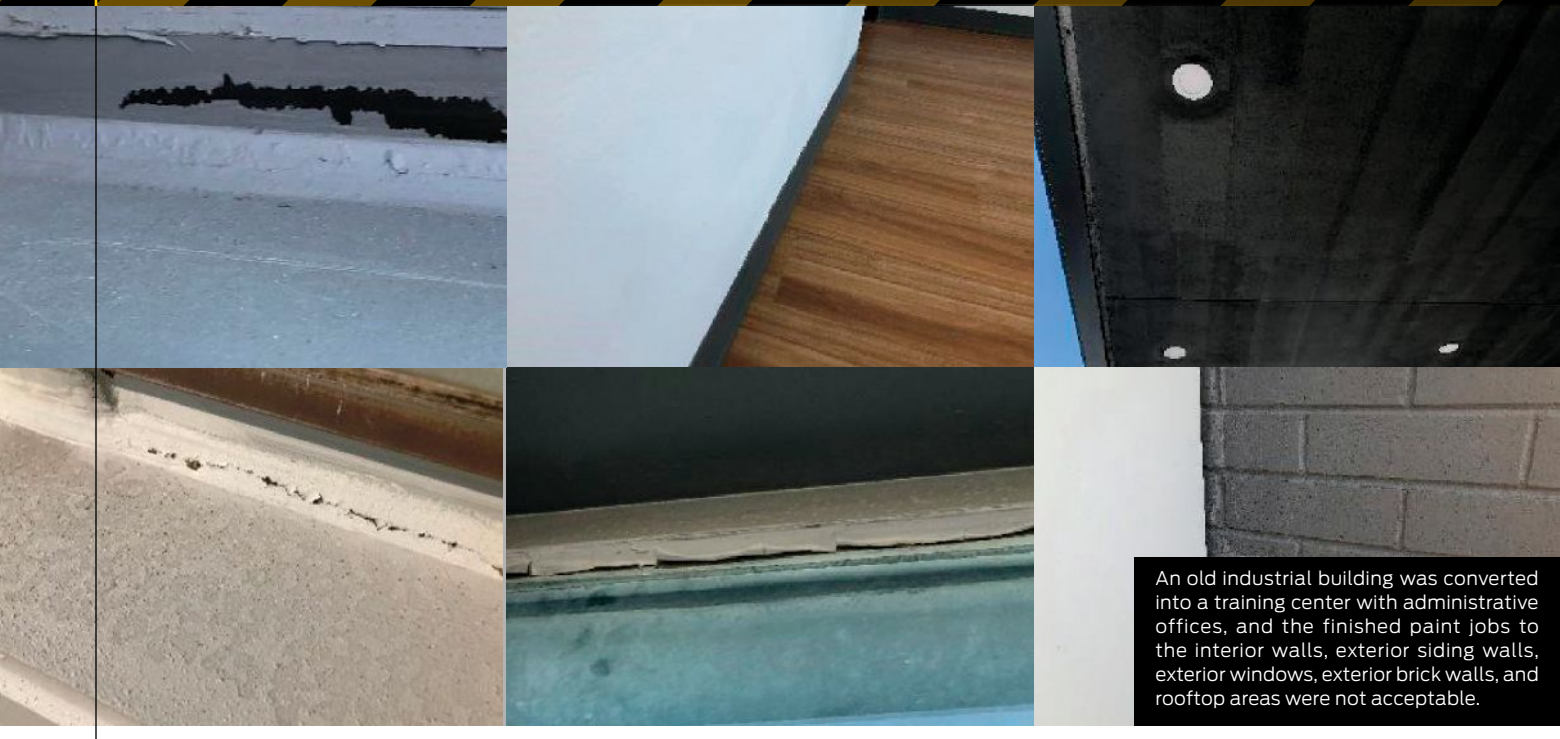


An old industrial building was converted into a training center with administrative offices, and the finished paint jobs to the interior walls, exterior siding walls, exterior windows, exterior brick walls, and rooftop areas were not acceptable.

The Case of the Three Coats That Won't Cover

By ***Brian O'Farrell, Owner of DP Coatings LTD***

Disentangling a project gone wrong can be daunting and reminiscent of a forensic investigation. It entails a lot of back and forth and fingerpointing.

This project was an old industrial building converted into a training center with administrative offices. Owner involvement with the project was constant as the facility was used throughout the renovations.

The Problems

The painting contractor was having trouble with the interior and exterior jobs despite using the specified materials. Both exhibited poor finishes, and additional coats did not improve the appearance of the finishes.

The owner kept rejecting the finished paintwork, calling it poor quality. The painting contractor responded that there was a problem with the paint — not the workmanship. He maintained that they used only the products that the architect specified. In his opinion, he had complied with his contractual obligations.

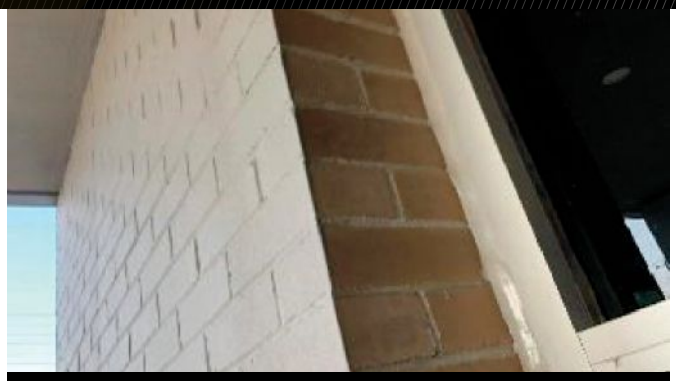
The project reached an impasse when the owner stopped paying the general contractor, pending the resolution of the paint issue. In response, the general contractor hired me, an independent Master Painters Institute (MPI) inspector, to review the paint job.

He maintained that they used only the products that the architect specified. In his opinion, he had complied with his contractual obligations.

The Project Tasks: Interior Walls and Exterior Walls

The interior walls were a combination of new and existing gypsum wallboard. The paint finish on the new walls had no issues. However, sections of the existing walls had exhibited flashing and inadequate coverage. The paint used for

Standing water painted over on windowsill



No stain was seen on the window return

both new and old wallboards was the same brand and color. The contractor stated that a primer and two coats were applied to all surfaces.

The exterior walls had two different substrates: bricks and metal siding. The architect had specified a premium quality stain specifically formulated for the brick, and no substitutions were permitted. The painting contractor had recommended the paint for the metal siding.

Three different paint suppliers were used for the interior paint, the exterior siding paint, and the stain for the exterior brick.

Problems With the Interior Walls

While the new interior wall paint had a very uniform finish, the existing walls had multiple issues. Minor defects in the walls had not been patched before painting because the painting contractor had stated that patching was not their responsibility. However, the specifications clearly stated that minor defects were to be repaired by the painter and were part of the painting contractor's scope of work. The specification further stated that the painting contractor had to inspect all surfaces to ensure that paints were compatible prior to commencing work.

In addition, the tops and bottoms of many of the existing walls had inconsistent finishes. A close inspection revealed that the tops and bottoms of these walls had not been cut in for the second coat. Many minor repairs had also flashed due to a single coat of paint. The inspection further revealed that some repairs had not been performed before painting. After the initial review of the interior walls, the painting contractor agreed to apply an additional coat of paint where needed. This resolved the paint issues with the interior of the building.

Problems With the Exterior Metal Siding Walls

The siding was 24-feet (7.3 m) high and featured the original paint. The siding was repainted to match the existing color. The painting contractor stated that the exterior siding had been cleaned, and two coats of manufacturer-recommended paint had been applied.

A visual inspection from the ground revealed that the paint applied to the siding had an excessive amount of dry spray and runs. This was especially noticeable when the sun was setting. There were multiple areas of exposed chalking, and many bird droppings, cobwebs, and other debris had been painted over.

The painting contractor stood by his claim that the siding had been cleaned and that two coats had been applied. A closer inspection confirmed that the lower 8 feet (2.4 m) of siding had received a second coat of paint. However, I rubbed my fingers over the exposed chalking, and it came off easily. These areas had been missed.

The manufacturer's product data sheet for the exterior siding paint stated that pre-finished siding required a bonding primer before the paint application. This was not done. The painting contractor argued that the product was self-priming and did not require a primer. He further stated that he had a written recommendation from the paint manufacturer to this effect. The painting contractor provided a letter from the paint representative stating that priming was not required because the 50-year-old siding had been cleaned and power washed.

The painting contractor provided a letter from the paint representative stating that priming was not required because the 50-year-old siding had been cleaned and power washed.

The date on the letter was current, but it was never produced prior to the job performance.

I measured the dry film thickness of the paint on the metal siding and found that most areas had less than the minimum dry film thickness recommended for a single coat of paint.

No cleaning or surface preparation done prior to applying the paint

Delaminating paint visible

A few areas had a heavy buildup of paint exceeding the overall recommended thickness. The applied paint had wrinkled in some of these areas, indicating that it had been applied too thickly.

Exterior Window Problems

The exterior anodized aluminum windows had been painted in with the siding paint, and debris had been painted over. The paint was already delaminating from the aluminum windows. The painting contractor stated that he would touch up the windows. I noted that the anodized aluminum required surface preparation and bonding primer before paint application. The paint had to be removed before priming because this was not done.

Problems With the Exterior Brick Walls

The stain for the exterior brick was a specialized product. The exterior brick and cementitious soffits were coated with it. The soffits and upper walls were white, and the lower walls were a dark gray.

Roller and brush marks were highly visible. At a glance, the finish had very poor aesthetics.

The painting contractor was adamant that the product was the problem. The contractor stated that he had applied three coats to many areas, but it did not make a difference to the finish; it was simply a bad product. However, the architect had specified this product based on excellent experience with it on other projects.

I contacted the stain manufacturer to discuss the problem. The manufacturer indicated that they had never had an issue with the product in the past. Their product was designed specifically for aged brick. Product literature, batch numbers, and material quantity were forwarded to me for review. The colors were custom ordered, and out-of-date product issues were excluded.

Further inspection of the gray stain on the brick revealed several issues. The brick was still visible in many areas despite three layers of stain. However, other areas had no stain at all. There was also a distinct shading difference in some areas — as if two different shades of gray had been applied.

Roof Problems

A section of the building had a low roof surrounded by higher walls on three sides. The walls and flashings in this area were to be painted white. The walls were a combination of brick, metal siding, and concrete masonry units. The brick and concrete masonry units were to be stained. The stain on these walls appeared very thin, and debris had been painted over in many areas. There was considerable overspray on the windows and rooftop equipment. There were numerous drips, runs, and misses on the substrates. Old, flaking paint had not been removed prior to application, and standing water on the windowsill flashings had been painted over. It appeared as though everything had been painted with the same paint product.

The manufacturer recommended 4–5 mils (101.6–127.0 microns) of stain per coat for a two-coat system on brick and masonry walls. The product data sheet recommended priming old, aged brick prior to applying the stain to obtain a uniform finish. However, the contractor stated that the brick was in good shape; hence, there was no need to prime it.

I calculated the area of the brick that was stained. The quantity of material required to apply three coats of stain was higher than the amount purchased. In fact, the quantity of stain purchased was not enough to properly apply even a single coat per the manufacturer's recommendation.

The Remedy

The general contractor had no option but to bring in a different painting contractor to repaint the metal siding.

The contractor stated that he had applied three coats to many areas, but it did not make a difference to the finish; it was simply a bad product.

There was an extensive amount of rework required on the exterior siding and brick to rectify the problems. The original paint contractor only offered to perform touch ups. The general contractor could not find another painting contractor to complete the stain work on the exterior brick. The owner ended up accepting the stain work as is simply to close out the contract.

The owner's concerns on this project were justified. The problems with the finished products were a result of poor quality workmanship. The painters had not cut in the tops and bottoms of the walls on the final coat of paint to the interior walls. Patches and repairs had not been sealed prior to being painted. The touch-ups had flashed and were very noticeable.

The exterior metal siding had not been properly cleaned prior to painting. The paint contractor's repair procedures were inadequate and would only prolong imminent failures.

The brick should have been primed as recommended by the stain manufacturer. The quantity of stain applied was considerably less than required to obtain a uniform finish. The contractor's insistence that three coats had been applied was difficult to believe as the substrate was visible through the stain in most areas that were inspected.

When an owner is specifying premium quality products, it usually means that he/she wants a first-class job. In the end, the paint work took longer to do and cost more to complete than doing it right the first time. This is a classic case of what it costs to cut corners. ***CP***

Brian O'Farrell is a certified coating inspector

with more than 30 years of experience in the coatings industry. His certifications include NACE Coating Inspector Program (CIP) level 3, SSPC: The Society for Protective Coatings Protective Coatings Inspector (PCI) level 3, SSPC Concrete Coating Inspector (CCI) level 3, SSPC Master Coatings Inspector (MCI), ICorr level 3, and a certified MPI inspector. O'Farrell is an SSPC Coating Application Specialist, SSPC Protective Coating Specialist, and a NACE Certified Coating Applicator with multiple red seal trade certificates from the Ontario Ministry of Training Colleges and Universities, including Commercial Painter and Industrial Painter. For more information, contact: Brian O'Farrell, brian@dpcoatings.ca.

Send information and photos (transparencies, prints, or high-res JPG digital files at 300dpi) to Editor, ***CoatingsPro Magazine***, 4501 Mission Bay Dr., Ste. 2G, San Diego, CA 92109 or by e-mail with attachments to ***editor@coatingspromag.com***

BrandSafway Engineers New Truss Frame System

Building upon its work with Flatiron-Aecon's joint venture on a road project in Alberta, Canada, BrandSafway was selected to design and build an under-bridge traveling platform to provide access for the final construction stages of the Bow River Bridge twinning project. The unique, triangle-shaped Truss Frame System solution was custom-designed for Flatiron-Aecon to provide safe access to the underside of the bridge for several workers at a time. Using retractable extensions, the solution allows the system to travel around piers without having to dismantle the platform. Patent-pending launching extensions, which are now available to the bridge market, will allow the entire 112-foot (34.1 m) length and 32-foot (9.8 m) width C-frame structure to move back and forth along the 1,542-foot (470.0 m) length of the bridge.

The platform consists of two half-truss frame platforms mounted securely to the manually operated top bridge deck carriages. Each half-platform is equipped with launching triangular trusses, which are extended and retracted manually. A Traditional Systems scaffold, located on each half of the fixed truss platform, provides access to the underside of the bridge segments. For more information, contact: BrandSafway, (800) 558-4772, www.brandsafway.com.

CRW Consulting & Distribution Releases Corr-Ze 200 Gel

CRW Consulting & Distribution, LLC, in partnership with Corrosion Innovations, has released the Corr-Ze 200 Gel surface treatment product. According to the company, this gel meets the SSPC: The Society for Protective Coatings Surface Preparation (SP)-8 pickling standard and is applied directly to prepared, rusted metal surface areas. Once the gel has been applied and allowed to dwell on the corroded site, users can rinse it with Corr-Ze 100 for optimal results.

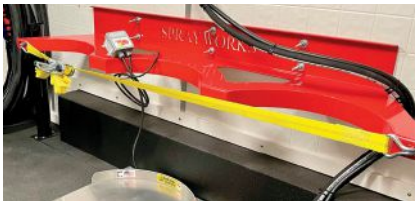
This two-step process pristinely cleans the metal at a microscopic level to remove surface impurities, including water-soluble contaminants such as chlorides, sulfates, and nitrates as well as non-water-soluble contaminants such as sulfides, flash rust, and blast media. The result is a passive surface that provides superior coating adhesion. The non-toxic and biodegradable gel improves coating performance while reducing carbon footprints, which it does by eliminating the need for repeat surface preparation and same-day coating in most environments. Corr-Ze products are water-based and dry quickly without leaving any film or residue at any concentration, and they will not damage blasting equipment. For more information, contact: CRW, (713) 623-1894, www.crwusa.com.

ZipWall Announces New ZipDoor Magnetic Door Kit

ZipWall introduced the ZipDoor Magnetic Door, described as its most versatile door kit. The door can be used for sealing a doorway or creating a self-closing entry in a plastic barrier. According to the company, it is quick and easy to set up with ZipWall double-sided tape, which is specially designed not to damage the doorframe. Powerful magnets ensure the door maintains a tight seal while providing easy access. The magnetic door panel is flame retardant and fully reusable.

The ZipDoor kit is ideal for both residential and commercial dust containment applications. Sealing a doorway of up to 46 by 86 inches (116.8x218.4 cm) takes only one minute, and creating a self-closing entry in a plastic barrier is easy, too. Simply make a doorframe with duct tape and attach the magnetic door panel to your newly created doorframe. The kit comes in a sturdy, reusable box and contains one self-closing magnetic door panel, three rolls of double-sided tape for four installations, and a special ZipWall plastic sheeting cutter. The magnetic door panel is made of high-tech fabric impervious to dust and features a clear plastic window. For more information, contact: ZipWall, (800) 718-2255, www.zipwall.com.

SprayWorks Improves Barrel Blazer



SprayWorks Equipment, a leading specialist in single- and plural-component equipment, training, rigs, and parts, has redesigned the Barrel Blazer — a 55-gallon (208.2 L) drum heater for polyurethane and polyurea materials. Given recent price increases in materials, SprayWorks was looking for a way to keep its prices down. As such, adding fabrication to in-house services allowed outsourcing costs to decrease. Additionally, material use has been significantly reduced, which resulted in decreasing the Barrel Blazer's weight by 9 lb. (4.1 kg). With improved design and decreased material use, heat circulation also improved.

"Material surcharges have been a real challenge over the past year," said Jeremy Davidson, vice president of production. "The last thing we wanted to do was raise the end cost for our customers, so we came up with a solution that kept the cost level and delivered a better quality product." For more information, contact: SprayWorks Equipment Group, (330) 587-4141, www.sprayworksequipment.com.

Sto Corp. Launches Redesigned Website

Sto Corp., described as an innovative world leader in claddings, air barriers, coatings, and restoration systems, announced the launch of the company's completely redesigned website. According to Keri Tolar,

digital manager, the overhauled website is consistent with Sto's increased embracement of aesthetics in recent years.

The redesigned website features two new tools engineered to assist designers with their creative visions. The StoInspire tool aids designers in the visualization stage by allowing them to apply selected Sto aesthetic surfaces and colors to building models. This provides them with a view of Sto's aesthetic capabilities and how various products can be combined on a building's façade. Designers can save their project renderings and even order material samples. Meanwhile, the Aesthetic+Product Selector tool allows users to choose a desired aesthetic look and see the product and system options that Sto offers for achieving that look. It provides an easy and intuitive way for designers to find the appropriate aesthetic and system for their needs. For more information, contact: Sto Corp., (800) 221-2397, www.stocorp.com.

Polyglass Announces New PolyBrite 47PR Coating

Polyglass USA, a leading manufacturer of roofing and waterproofing technologies, announced the release of PolyBrite 47. According to the company, it is formulated for hot and dry climates while extending the lifecycle of new and existing roof systems by protecting them from the ultraviolet sun and other weather conditions. PolyBrite 47 has an initial solar reflectance index (SRI) of 0.87, an initial SRI of 110, and an initial thermal emittance of 0.9. Its highly reflective properties keep the roof surface cool, which results in reduced building energy costs in high temperatures.

Intended for use across many roofing substrates, PolyBrite 47 affords remarkable flexibility and tensile strength when cured, easily accommodating natural roof expansion and contraction in high-temperature environments without damage. As a water-based, stearate acrylic elastomeric coating, PolyBrite 47 is low-VOC (volatile organic compound), non-flammable, and environmentally friendly, according to the company. Roofing professionals will appreciate the ease of application thanks to its excellent product flow and leveling characteristics, superior wet hide application, and dry hide upon curing. For more information, contact: Polyglass, (800) 222-9782, www.polyglass.us.

CFI Introduces WearCOAT 440FS Epoxy Floor Coating

To help avoid amine blush, Coatings for Industry, Inc. (CFI) now offers WearCOAT 440FS, a fast-setting epoxy floor coating in a blush-resistant formula. Amine blush, a common issue with cool-temperature floor coating jobs, is an oily surface imperfection caused by moisture or dew settling on uncured epoxy. While not fatal to the job,

cleaning that blush slows projects from on-time completion.

According to the company, contractors report that WearCOAT 440FS is easy to apply evenly and consistently. Most importantly, the high-grade formula has proven superior in enabling projects through winter months, which is when higher humidity and cooler concrete substrates can yield this unwelcome problem. A 100 percent solids epoxy mid-coat or topcoat, WearCOAT 440FS is formulated to cure fast in temperatures as low as 40 °F (4.4 °C). Its fast-cure characteristics make it dry to the touch in 2–3 hours, and it can be recoated in as little as 4 hours, which helps it to resist amine blush. The coating is also ideal for use on floors in refrigerated, cold storage areas. For more information, contact: CFI, (215) 723-0919, www.cficoatings.com.

Wagner SprayTech Announces Availability of Spray Shelter Series

Wagner SprayTech, a market leader in advanced paint applicators, announced the availability of Wagner Spray Shelters in three sizes. These shelters are described as tent-like structures that provide a contained space for spraying paint and stain on objects of all sizes, ranging from small crafts to large pieces of furniture. They help to protect the surrounding area from potential overspray when using airless and HVLP (high volume, low pressure) paint sprayers or aerosol cans. While items are drying, the shelters also prevent dirt and debris from coming into contact with the wet paint or stain. Portable and lightweight, the shelters have three sides and integrated floors to protect tabletops and floors, and it takes just minutes to set them up and take them down. Each shelter comes with a fabric storage bag for convenient storage between projects. For more information, contact: Wagner, (800) 328-8251, www.wagnerspraytech.com.

Belzona Adds First Epoxy Structural Adhesive to Polymeric Portfolio

Since Belzona's inception in 1952, the company has been committed to pioneering innovative protective coatings and repair composites that meet the maintenance demands found across numerous application areas in a variety of different industries. Built on this extensive experience and knowledge, the company is now expanding its product offering with a new high-performance structural epoxy adhesive: Belzona 7311.

This cold-bonding adhesive is specially optimized for structural bonding applications subject to cyclic and repeated load where high mechanical strength, cleavage, shear, and fatigue resistance are required. Thanks to its combination of high-performance properties and ease of use, Belzona 7311 is a valuable asset for any engineer looking for bonding solutions. The product can be used in a variety of application areas including equipment support brackets, handrails on steel substrates, plate bonding, internal and external vessel furniture, staircases, and ladders. For more information, contact: Belzona, Inc., (305) 594-4994, www.belzona.com.

Solvay Launches Reactive Water-Borne Emulsifier for Solid Epoxy Resins

Solvay has developed Reactsurf 0092, an alkylphenol ethoxylates-free and non-ionic reactive water-based emulsifier for solid epoxy resins mainly for use in industrial

coatings and paints or binders. According to the company, its unique and versatile Reactsurf 0092 technology allows for the formulation of high-performance, water-borne, epoxy-based coatings, which can match or exceed that of solvent-based coatings but with an appreciably lower level of volatile organic compounds.

Solvay strives to continuously develop and supply products to meet the sustainable development challenges and regulatory requirements that its customers are facing for cleaner, healthier paints, as well as coatings formulations. According to the company, this cost-effective, environmentally and processing friendly emulsifier offers easy handling by combining both external and internal emulsification phases with no additional chemical modification required. For more information, contact: Solvay, (713) 525-6000, www.solvay.com.

Dur-A-Flex, Inc. Offers New Custom Design Tool

When ordering items such as curtains or furniture, a lack of vision may not be a deterrent. But when making choices for longer-lasting fixtures, such as flooring, it can delay or even stop the decision process. As such, resinous flooring manufacturer Dur-A-Flex, Inc. has installed a new web-based solution. "We are excited to launch Design-A-Floor," said Ken Barnum, vice president of marketing. "This tool removes the guess work from design."

Users can choose from 13 preset images of rooms, or they can upload their own picture. From there, they can pick from several different styles of resinous flooring, including chip, quartz, metallic, or solid colors. In addition to choosing from Dur-A-Flex's standard blends and colors, users can design their own custom blends of chip or quartz and order samples.

"We've loaded over 140 vinyl chip colors and our standard 23 quartz colors — designers can create any number of color combinations," Barnum said. Design-A-Floor is optimized for mobile use as well to benefit users in the field. "Our flooring contractors can upload a picture of their customer's facility while the customer is there and show different flooring and colors." For more information, contact: Dur-A-Flex, (877) 251-5418, www.dur-a-flex.com. CP

Coatings, Corrosion, and Building Enclosures

AMPP Annual Conference + Expo 2022

AMPP™ ANNUAL CONFERENCE + EXPO
MARCH 6–10, 2022 | SAN ANTONIO, TEXAS

The Association for Materials Protection and Performance (AMPP) is the world's leading organization focused on the protection of assets and performance of materials. AMPP was created when NACE International and SSPC: The Society for Protective Coatings united after more than 145 combined years of corrosion control and protective coatings expertise and now provides service to members worldwide. Today, AMPP is active in more than 130 countries and has more than 40,000 members. AMPP is headquartered in the United States with offices in Houston, Texas, and Pittsburgh, Pa. Additional offices are located in Brazil, China, Malaysia, Saudi Arabia, and the United Kingdom, with a training center in Dubai, UAE.

The AMPP Annual Conference + Expo is a five-day conference that combines the former CORROSION and Coatings+ events into one joint event. Scheduled for Sunday, March 6, through Thursday, March 10, 2022, the inaugural AMPP Annual Conference + Expo will be held at the Henry B. Gonzalez Convention Center in San Antonio, Texas. This event will feature a robust program of technical symposiums, forums, workshops, standards and administrative meetings, student poster session, networking events, and a full exposition with a large equipment display, including:

- Understanding the Proper Use of Coatings Inspection Equipment: Sunday, March 6, 8:00 a.m.–12:00 p.m.
- Coating Failure Investigations: Monday, March 7, 1:30–3:30 p.m.
- Coating Application: Tuesday, March 8, 8:00 a.m.–5:00 p.m.
- Coatings 101: Wednesday, March 9, 8:00 a.m.–12:00 p.m.
- *CoatingsPro's* Contractor Awards Program Presentation: Wednesday, March 9, 12:00–12:30 p.m.
- Bridge Coatings: How to Address a Coatings Program From Design, Inspection to Maintenance: Thursday, March 10, 8:00 a.m.–5:00 p.m.

Full registration for the annual conference event is $960 for AMPP members and $1,130 for nonmembers. For students with an active student membership, registration is $100. One-day registration is $450 for AMPP members and $550 for nonmembers; two-day registration is $620 for members and $750 for nonmembers.

For more information, contact: https://ace.ampp.org.

2022 IIBEC International Convention and Trade Show

IIBEC International Institute of Building Enclosure Consultants
Formerly RCI, Inc.

The International Institute of Building Enclosure Consultants (IIBEC) is an international association of professionals who specialize in roofing, waterproofing, and exterior wall specification and design. From sprayed polyurethane foam (SPF) to cedar shakes, and from parking garages to air barriers, IIBEC has a member expert for any building enclosure issue in the world today. Founded in 1983 as RCI, Inc., IIBEC currently has more than 3,600 members with an international consistency residing across the United States, Canada, Australia, the West Indies, Europe, and Asia.

The 2022 IIBEC International Convention and Trade Show will be held at the Rosen Shingle Creek convention center in Orlando, Fla., from Thursday, March 17, to Tuesday, March 22, 2022. The six-day event features 17 hours of live, in-person educational seminars, live product demonstrations, and a two-day trade show. Registrants to the in-person convention and trade show must present proof of COVID-19 vaccination or a negative COVID-19 test within 72 hours before arrival. In addition, all 24 educational presentations and a digital copy of the proceedings will be available on demand from Tuesday, March 29, through Saturday, April 30, 2022. Attendees to IIBEC's live and virtual events can earn 1.5 IIBEC continuing education hours (CEHs) and American Institute of Architects (AIA) health, safety, and welfare (HSW) learning units (LUs) for each presentation completed.

Single-day, full, and student registration to this year's convention and trade show includes access to the virtual edition. Registration fees for this year's convention and trade show are as follows:

- Single-day reservation: $260 for members, $310 for nonmembers
- Full registration: $520 for members, $620 for nonmembers
- Student registration: $150 for members and nonmembers*
- Virtual-only registration: $399 for members, $499 for nonmembers

**NOTE: To be eligible, you must be a full-time student of an engineering, architectural, or construction management program, or you must be enrolled in a program with a similar discipline. You must also provide a copy of a valid student ID or other proof of full-time student status.*

For more information, contact: https://iibec.org/2022-iibec-international-convention-and-trade-show. CP

The information for these events was accurate at the time of publication.

Nathan Gray's Winding Road to the Top

ProFile: Nathan Gray

By ***Jim Cook***

Whether it's quitting home school as a high school freshman to start his own painting business or hanging out with a millionaire artist on top of a water tower, the paths Nathan Gray has taken in his career have been anything but conventional.

For Gray, co-founder and president of TankSpek, Corp., the unusual is the every day, and the every day is doing a job that he knows makes a difference in the health of folks around the United States.

Train Wrecks to Water Towers

TankSpek is an Arkansas-based company specializing in water tower inspection and refurbishment. Gray was born in El Dorado, near the Louisiana border. His family eventually settled in Berryville, where Gray still resides.

An independent-minded group, the Grays educated Nathan and his siblings at home. His parents' independent streak ran true in Gray; in the ninth grade, he decided to quit home school and start his own painting company. "At that point, my mom was exhausted with putting up with me and said, 'You're going to do what you're going to do; you've always been that way and always will,'" Gray said.

After a short time as an entrepreneur, Gray decided to complete his high school education by correspondence. He later spent a semester at College of the Ozarks in Point Lookout, Mo., before deciding it wasn't the right fit.

Gray spent the next few years adrift — a period of his life he described as a "conglomeration of bad decisions and train wrecks" — until losing just about everything he owned following a vehicle accident and

Photo courtesy of Nathan Gray

a subsequent break-in convinced him that something had to change. After leafing through the phonebook, Gray cold-called a company and talked a manager into giving him a job interview.

Gray began work at a company specializing in water tower inspection and maintenance, and his leadership skills quickly made him a *de facto* leader on work crews. He always turned down the opportunity to be a foreman, saying that the modest bump in pay wouldn't be worth the added responsibility. But he jumped at the opportunity to take charge of the company's sales efforts, eventually becoming vice president.

Creating a Business Identity

Eventually, the owner of Gray's company passed away, and Gray decided it was time for a change. He and his then-supervisor founded TankSpek together in 2016. Today, the company employs three people full-time, subcontracts work out to various crews, and had revenues of $1.2 million in 2021.

Gray and his partner, James Brookshire, had trouble building a customer base at first as they had to build their own independent identity. They accomplished this in part by plugging away and developing a good professional reputation. Another ingredient was the help of a marketing company, and a third, vital, piece of the puzzle was their willingness to take on unconventional jobs, such as the restoration of a historic water tower in Deep Ellum, Texas (*CoatingsPro*, January 2022, "Artistic Tools Help Preserve Dallas Water Tank").

After refurbishing the water tower, TankSpek had to work with the coating manufacturer to prepare the tank for artwork by a team lead by Shepard Fairey, a renowned artist. Gray had just two weeks to get the water tower ready for Fairey and a team from Goldman Global Arts. The job was difficult and required some unique solutions to ensure the artists had safe access to the tower. TankSpek rose to the occasion, though, winning the praise of Peter Tunney, a millionaire artist and one of the leaders of Goldman, who trusted TankSpek's work so much that he rode the rigging up to the top of the tower to meet with Gray.

Solutions Focused

Gray's work isn't all hobnobbing with the arts crowd. Most jobs are more like the one in which he discovered that buzzard carcasses were contaminating a municipal water tower. Gray went above and beyond to sanitize the tower, and he even offered to drink a cup of water from it when the job was done.

Gray said his greatest pride in his work is providing solutions that help ensure that residents of the municipalities his business serves have safe access to drinking water. "I'm happy that I don't have to be a salesman," he said. "I provide these communities with the information they need and help them come up with solutions they can afford." **CP**

Upcoming Events

MARCH 17–22 2022 IIBEC INTERNATIONAL CONVENTION AND TRADE SHOW

Rosen Shingle Creek — Orlando, FL

Sponsored By: International Institute of Building Enclosure Consultants (IIBEC)

Features: IIBEC's premier annual event features more than 17 hours of live, in-person educational seminars, a two-day trade show, and live product demonstrations. Proof of COVID-19 vaccination or negative COVID-19 test within 72 hours before arrival is required for in-person registrants. All 24 educational presentations and a digital copy of the proceedings are available on demand and included with every in-person full registration, every student registration, and with every virtual-only registration.

More Info: https://iibec.org/2022-iibec-international-convention-and-trade-show

APRIL 22 COATING SOCIETY OF THE HOUSTON AREA TRADE SHOW 2022

Pasadena Convention Center — Pasadena, TX

Sponsored By: Coating Society of the Houston Area

Features: The Coating Society of the Houston Area Trade Show 2022 grants admission to access the more than 70 exhibits, a technical program, and a free live band. Adjacent to the Trade Show is a Demo Fair where visitors can discover the latest coating industry technologies and see products, services, and equipment in action. Door prizes such as Yeti coolers, fishing poles, and more will be given out throughout the event. Door prize tickets will be available for $30 and include lunch provided to exhibitors and early arrivals.

More Info: www.coatingsocietyofhouston.org/tradeshow

JUNE 12–15 ACE22

Henry B. Gonzalez Convention Center — San Antonio, TX

Sponsored By: American Water Works Association (AWWA)

Features: After two years, AWWA is thrilled to be returning to an in-person format where water sector professionals can come together and learn, connect, and be inspired to solve today's global water challenges. And for those who are not able to be physically present, the event will include a hybrid feature where content from the most essential tracks is streamed. Annual Conference and Expo (ACE) '22 provides opportunities to connect with global water experts in every segment of the water sector with events such as the Water Industry Luncheon or pre-conference workshops that provide hands-on learning experiences.

More Info: www.awwa.org/ace

JUNE 22–25 AIA CONFERENCE ON ARCHITECTURE 2022

McCormick Place South — Chicago, IL

Sponsored By: American Institute of Architects (AIA)

Features: Every year, the AIA Conference on Architecture travels to an iconic city to explore what's new and now in architecture and design. In 2022, the conference returns to Chicago — one of the most design-forward, sustainable cities in the United States.

More Info: https://conferenceonarchitecture.com

JULY 17–20 INTERNATIONAL BRIDGE CONFERENCE

David L. Lawrence Convention Center — Pittsburgh, PA

Sponsored By: Engineers' Society of Western Pennsylvania

Features: The International Bridge Conference (IBC) is the preeminent area for the bridge industry in North and South America, Europe, Australia, Asia, and Africa. The IBC annually attracts more than 1,000 bridge owners and engineers, senior policy makers, government officials, bridge designers, construction executives, and suppliers from the United States and abroad. The event is planned by an all-volunteer group and provides continuing education and networking opportunities to members of all facets of the bridge industry.

More Info: https://eswp.com/bridge/bridge-home/

JULY 19–22 FLORIDA ROOFING & SHEET METAL EXPO

Ocean Center — Daytona Beach, FL

Sponsored By: Florida Roofing and Sheet Metal Contractors Association (FRSA)

Features: The Florida Roofing & Sheet Metal Expo is the largest regional show of its kind in the country. The expo is held in conjunction with FRSA's annual convention. In 2021, more than 4,000 roofing and sheet metal contractors, building officials, architects, and industry suppliers attended the show, along with more than 240 exhibiting companies offering the latest products and services. In 2022, FRSA will celebrate its 100th year with four days of education, family fun, sports, and networking, along with expo hours from July 20 to 22.

More Info: www.floridaroof.com/frsa-expo

The information for these events was accurate at the time of publication.

Cotton Layers

*By **Jack Josephsen, Founder of Epoxy School***

People frequently use disposable latex gloves while working with high-performance coatings. They can be thrown away, and they keep the coatings off your hands while mixing, pouring, spraying, rolling, and brushing. This is particularly important when working with coatings that can cause sensitization. But your hands sweat, which makes it hard to pull on that protective material. What if there was another layer that could help keep your hands free of debris?

Wearing cotton gloves under the latex gloves just may be the solution. The cotton absorbs the sweat on your hands, which makes it easier to pull on the latex gloves. The cotton also makes it more comfortable to hold your tools as they offer a bit of additional padding. Cotton: the fabric of our guys. ***CP***

Photo courtesy of Epoxy School

***From the archives**: This trick was originally published in the March 2016 issue of* CoatingsPro. *Does it still hold up?*

20 YEARS
2 DECADES OF COVERAGE

CoatingsPro MAGAZINE

ADVERTISER INDEX

Overcoming Pain Points and Adapting to a Changing Market

By ***Bob Chalker, CEO of AMPP***

One of the pain points we're all dealing with is this ongoing COVID-19 crisis and the impact that it's having on our workforce and on our companies, businesses, and customers. It's the uncertainty of not knowing, frankly, 'Am I going to be able to work on the project that day? Am I going to have enough workers? Is the facility that I'm working at going to be open, or will it be shut down because of COVID?'

The other big thing, today, is the supply chain issue. One of the things I heard over and over at Coatings+ [conference and trade show] was that as challenging as COVID-19 has been, most people can see ways to address that it was somewhat within their control. 'If I need more employees, or I need to change a pattern of work, or I've got to reassign because a jobsite isn't open, I can control that,' they say. But the supply chain issue is something else. They're not able to get the materials they need to do their work, and they're not able to do anything about it. That seemed to have a higher level of frustration.

Both are equally impacting us negatively. But the frustration level [at Coatings+] seemed to be with the supply chain issue, and it was throughout. It didn't matter if you were talking to a contractor, a paint manufacturer, or an asset owner. That issue ran throughout the industry.

Those are immediate things that are facing us today. But there are some changes that are longer term. Some are positive, and some are going to change the way we work. Here in the United States, our country is going to be making a major investment in infrastructure over the next several years.

Photo courtesy of the author.

That should have a very positive impact on our industry.

I think that's where some of the optimism is coming from — that we are going to see money being spent on maintenance and new assets, and on taking care of and updating those that we already have. The big infrastructure investment is going to be a positive for us.

I think the other impact is going to be changes in technology, and that's one thing I've seen challenging people who I know, personally, in our industry. You really need to be looking at the work you're doing and understanding how technology is going to affect you — and then making adjustments, getting training, or staying up to date with your skill sets so that your work and what you do will be relevant in the future.

Technologies like drones, artificial intelligence, robots, and all of these things that are coming at us are going to significantly change the work that's done in our industry and how it's done. There are some real positives to that. Safety is going to become better, and we'll be more effective and more efficient.

But it's also a threat to our members if they're not staying up to date with their skill sets. Jobs are going to change with every industrial revolution, and they are considering what's happening here an industrial revolution. With each of those changes, there is a major change in the work. New jobs are created, and older jobs go away. The proverbial buggy whip manufacturer — if you're a buggy whip manufacturer, you're not going to have much work in the future. So I think one of the things that all of our members need to be paying really close attention to is how technology is going to change how they work and what skill sets they need to have to move forward.

One of the best books I've ever read is *The World Is Flat*. It's dated, and now it's 15 years old or so. But the message is still, in fact, more timely today than it was even at that point. The book has real examples of how technology is changing our economy and how we work — and the role that each of us has or the responsibility that we each have — to stay current and to stay, frankly, employed and meaningful.

What we do is not exempt from that. Our members are going to have to deal with it. So we've got these short-term, immediate crisis activities that are impacting us, but we can't let that take our eyes off of the longer-term positives and changes that are coming to the industry. ***CP***

This article comes from an anniversary-related podcast interview. The full interview is available online at www.coatingspromag.com/podcasts.

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