CASE STUDY: A POLYASPARTIC COATING MADE A COMMERCIAL BAKERY FLOOR LOOK REALLY SWEET

Presented by: covestro

LEARNING OBJECTIVES

Upon completion of this course the student will be able to:

1. Review the flooring needs of SpringHouse bakery and why the existing flooring had to be replaced.
2. Discuss polyaspartic coatings technology and their benefits when being used as a polyaspartic floor coating.
3. Identify the proper steps to prepare a floor for application of a polyaspartic floor coating.
4. Describe how contractors planned for and executed the application process.

CONTINUING EDUCATION

AIA CREDIT: 1 LU/HSW
AIA COURSE NUMBER: ARJAN2017.2

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By Steven Reinstadtler, Construction Market Manager, Coatings, Adhesives and Sealants Covestro LLC Pittsburgh, Pa., U.S.A.

The SpringHouse Country Market and Restaurant has been a local icon in the southwestern Pennsylvania region for over 40 years. In 1975, the Sam and Bev Minor family, complete with five children twelve and under, started milking cows, processing and bottling the hormone-free milk, and running the country store that is the original part of today's SpringHouse Country Store, Creamery and Eatery. Today, three generations of the Minor family continue to milk the herd of Holsteins and Jerseys on the farm covering 420 acres of land in North Strabane Township, Washington County, Pennsylvania. Over the years, the business has grown to include a buffet style restaurant, a from-scratch bakery, a larger kitchen, a smokehouse, catering, ice cream concoctions, and farm fresh milk in an old-time country setting.

One of the more heavily used areas of the building is the roughly 1000 ft^2 commercial bakery. The area is used daily to bake a variety of pies, cakes, and pastries. Because of this daily use, the floor is cleaned with a variety of disinfecting chemicals like detergents and bleach. It also experiences the abrasion from wheeled carts and shelves, and cleaning equipment.

The bakery floor had been covered for years with a commercial sheet vinyl that was applied directly to the concrete slab-on-grade substrate. The main issue the owner experienced was that the sheet vinyl would fail in spots due to the infiltration of water and cleaning materials at the seams during the cleaning process. This disbonding created a void underneath that could hold contaminants. Additionally, as the seam started to fail, the problem was exasperated by additional trapped water, cleaning agents, and contaminants which caused further adhesion issues. Eventually, this required repairs to the damaged seams in the sheet vinyl by cutting out the section adjacent to the failure and installing a new piece of vinyl. After several repairs, this process created a patchwork quilt look as well as additional seams that could disbond. The owner finally made the decision to renovate the area which would include new wall coatings and a new floor option.

The owner reached out to a professional flooring contractor to discuss renovation ideas that would remediate the current area. One of the primary requirements was a long-lasting, durable flooring option that would hold up to common contaminants from the baking process, abrasion from foot and wheel traffic, staining from spilt materials, and resistance to the cleaning process. Another requirement was a surface with superior cleanability that was seamless and would resist dirt in order to minimize scrubbing. The owner also wanted a good looking floor since customers will be able to see the bakery area from multiple points in the facility and aesthetics was important to their brand image.

The requirement that posed the biggest challenge for the flooring contractor was the need for the whole renovation process to be installed in a two-and-a-half day timeframe since the baked goods are a significant revenue stream for the owners. This meant the contractor would need to remove the existing sheet vinyl, clean and profile the underlying concrete, and perform moisture vapor testing. Then the contractor would need to install a new floor system, whether it would be another sheet vinyl system or a high performance coating system, all in a span of about two days, allowing for some time for cure if a coating system was employed.

After inspecting the area and taking samples, the flooring contractor suggested removing all existing sheet vinyl and replacing it with a multiple layer, high performance floor coating system. After careful consideration and managing all of the owner's expectations, the flooring contractor determined a resinous floor coating system incorporating a topcoat of polyaspartic coating technology would meet the requirements. This solution would address long term durability, abrasion resistance, seamless design, and aesthetics as well as enable the contractor to meet the stringent return to service requirements that the owner sought. This recommended floor coating system would also eliminate future sheet good bonding problems and would be easier to maintain.

POLYASPARTIC COATINGS TECHNOLOGY OVERVIEW

Polyaspartic coatings were invented in the 1980's and have been used for more than 25 years in high-performance industrial protective applications such as bridge, water,

This floor coating was completed in the summer of 2007, demonstrating the long term durability of this technology.

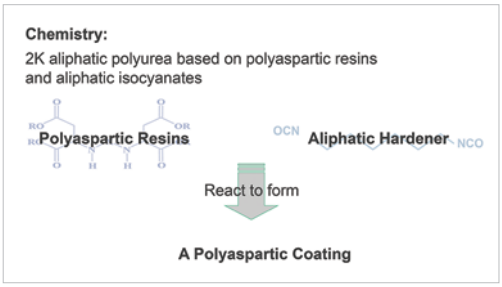
and wastewater infrastructure, as well as transportation. These types of coatings also have proven performance in commercial and architectural applications due to end users' desires to protect their architectural infrastructure while maintaining a high degree of aesthetics and beauty. The technology enables architects and specifiers to recommend a solution with fast return-to-service time to alleviate timing issues at the end of a build when a project may be behind schedule. Commercial and decorative flooring is one area where polyaspartic coatings have successfully addressed the industry's key unmet needs.

There are a variety of reasons that a building decision maker would choose a polyaspartic based floor coating over another technology such as epoxy or acrylic. For example, architects and construction professionals in the commercial and residential markets seek durable and beautiful coatings to protect the concrete floors of their clients. They have a fiduciary obligation to their clients and want to ensure a long lasting investment, so coated floors have often become a design element of a renovated space. When asked what property matters most, the response is often, "It needs to look better longer." Flooring contractors and applicators are looking to utilize high-performance materials with low volatile organic compounds (VOCs), low odor and a fast return-to-service time to improve their productivity and avoid possible disruptions. Contractors applying the coatings are often under pressure to accomplish excellent work cost effectively in a limited timeframe.

Whether for residential garage floors or game rooms, or commercial applications such as hotel lobbies, cafeterias or retail space, polyaspartic coatings provide durable, aesthetically pleasing floor finishes with minimal downtime and faster return to service that meet contractors' and end users' needs. So, for multiple points in the value chain, the polyaspartic coating technology attributes are a good match for those unmet needs.

Polyaspartics are in a class of polymers called polyureas. Typical polyureas that one may be familiar with are thick film, fast reacting, flexible, spray-applied systems similar to a spray-in truck bedliner. However, while a polyurea, polyaspartics are very different than the typical polyurea coating. They are a two component system consisting of:

- Polyaspartic resin blend on the A side which is a blend of resins, additives and possibly a pigment
- Aliphatic hardener on the B side which is typically provided as-is or with a small amount of thinning solvent for low VOC systems



A 2K aliphatic polyurea, based on polyaspartic resins and aliphatic hardeners

Unlike typical polyureas, polyaspartic technology usually has a fairly high hardness, a property preferred for floor coatings to resist scratches, scrapes, and chips. They are also applied at a thinner film thickness, typically in the 5–20 mils range suitable for flooring topcoats. Polyaspartics are based on aliphatic hardeners which impart excellent long term color and gloss retention and are most often used as a topcoat due to their non-yellowing properties. In addition, they can be formulated to cure slow enough to be applied using conventional manual coating methods rather than high pressure spray equipment.

The chemistry of polyaspartic coatings has a unique, adjustable reactivity with the capability

for fast curing that offers high gloss retention and excellent abrasion resistance. Traditional two component aliphatic polyurethanes, the bastion of durability, typically cure enough to accept light foot traffic on the order of 6 to 12 hours, whereas polyaspartic coatings typically cure in 1 to 4 hours. This ultra-low VOC 100% solids coating technology allows formulators the flexibility to control the rate of reaction and cure by a combination of fast and slow resins rather than the use of heavy metal catalysts. The coating technology provides the option to formulate a mixture with a working time ranging from ten minutes to more than an hour.

This leads to increased productivity as well as reduced labor costs for contractors. One drawback is that polyaspartic reactivity can be affected by very high humidity during application. The humidity acts like a catalyst, speeding up the reaction and shortening the working time slightly. A contractor familiar with using polyaspartic coatings will stage their work differently to accommodate this change in working time.

Depending on the commercial floor coating system chosen, polyaspartics have a range of benefits and limitations. A good comparison can be found in the sidebar below.

There are many floor coating manufacturers who offer commercial systems that optimize ease of installation. For example, polyaspartic coatings can be formulated to achieve a 1:1 or 2:1 (by volume) mix ratio, which are two preferred ratios since they are easier to proportion out in cans or pails on the jobsite. The formulator can accomplish these mix ratios by adding a higher molecular weight hardener or lower molecular weight reactive diluents, solvents or plasticizers to the formula. Newer formulas employ the next generation of polyaspartic resins that offer very low viscosity, allowing the final can of coating to have less or no solvent and plasticizers. One limitation for polyaspartic coatings for some applicators is that they are a two component (2K) system. This necessitates the mixing of the A and B components in the field. Some floor coating contractors are not experienced in using two component systems.

Polyaspartic coatings can be applied at temperatures below 50°F as well as in high-humidity environments, which extends the application season for commercial and residential projects. Therefore, many building decision makers specify their use as an 'insurance policy' for unforeseen circumstances at the end of the build cycle such as cold weather or project delays. These coatings can be applied by simple brush and roller and do not require special application equipment. Typical polyaspartic coatings can be applied from start (base coat) to finish (top coat) in an eight-hour work day which can make up for time if a project is delayed since the floor coating process is usually one of the last tasks to complete.

PREPARATION OF A CONCRETE FLOOR

A successful concrete floor coating application is much like baking a cake. The desired recipe is reviewed and laid out, the equipment, utensils, and ingredients are prepared, then all the necessary ingredients are combined and the recipe steps are followed. Just like baking a cake, leaving out one ingredient puts the whole cake at risk. That is why proper inspection and surface preparation is such a crucial part of a long-lasting floor coating project.

That said, it is important to go about methodically creating a great recipe to follow to prepare the concrete surface for a successful coating application. There are several steps in the surface preparation process to consider for every concrete floor surface:

- Survey and inspect
- Repair
- Clean
- Profile

The contractor can use several industry references to determine the best course of action for the specific substrate once the observations are completed. Two excellent sources of information are:

- ICRI Guideline Number 310.2R
- NACE No. 6/ SSPC—SP 13 Joint Standard

ICRI 310.2R discusses surface preparation method selection, definition of common terms, mechanics behind each method, concrete surface profiles and a method selector process. It also contains a thorough method summary and several helpful summary charts.

NACE No. 6/ SSPC—SP 13 covers the definition of industry terms, inspection procedures before surface preparation, surface preparation, inspection and classification of prepared concrete surfaces, acceptance criteria and safety and environmental requirements. The appendix covers suggested acceptance criteria and surface preparation methods.

As with any floor coatings project, the coating system manufacturer should be a prime resource for recommendations on repair and preparation of the substrate specific to their coating and possible surface issues.

Application of an epoxy mortar to cracks and large defects.

Repair

If the concrete floor has significant spalling, flaking, cracks or other structural issues, it will need repair prior to further preparation. Small damaged areas can be cut out and repaired with cementitious or polymer-modified mortars and concrete. For larger areas with more superficial damage, a cementitious or polymer-modified overlay may be applied. This step gives more assurance that the surface will be sound and homogenous for the subsequent steps of cleaning, profiling and coating application. It is important to follow the cure time for coating along with recommendations from the mortar, overlay and coating manufacturers, as premature coating application can result in disbondment and defects due to alkalinity and moisture issues.

BENEFITS AND LIMITATIONS

Benefits:

- Excellent durability
- Fast return-to-service time
- High build per coat
- VOC compliance
- Extends application season
- Excellent 'color pop' on decorative stained floors

Limitations:

- Difficult to downgloss
- Smaller batches must be mixed
- Two component requires a mixing step

The repair process should also address cracks and joints. Small cracks, like those found in the floor at SpringHouse after the removal of the vinyl sheet good, may be addressed by filling them with a cement- or polymer-based material. However, larger cracks may need to be chased or enlarged, in order to be filled with a suitable crack repair material.

Cleaning

If the concrete surface to be coated is sound, free of undesired cracks, and has the desired profile but has topical issues such stains, mold, organic contaminants, or residual concrete-curing compounds, the surface may need cleaning. Several common methods of surface cleaning include air blast, steam cleaning, scrubbing with detergents or solvent by manual or pressure washing and low pressure water jetting. The appropriate cleaning method depends on the nature of the contaminant. For example, a detergent solution or steam cleaning might be used for removing oil, grease or glycol contamination as was the case in this project. For removing loose materials, dirt and dust, a contractor may employ pressure washing, vacuum cleaning or air blast cleaning.

After cleaning with liquids, the surface can be wet vacuumed to remove any remaining water. Allow the surface to dry completely after any cleaning procedure that involves liquids. This drying process can be facilitated with heaters and fans. It cannot be stressed enough—cleaning solution or solvent that has not been removed or allowed to evaporate from the concrete surface can greatly effect the proper adhesion and long-term durability of the floor coating.

Profiling

Depending on the coating system and final system thickness, there are industry-wide recommendations for the corresponding surface profile necessary for good adhesion. The International Concrete Repair Institute has established guidelines for measurement of the concrete surface profile, or CSP. The scale ranges from a fairly smooth finish at CSP 1 up to a very coarse finish at CSP 10. Sealers and thin film floor coatings typically require a profile in the CSP 1–3 range. Thicker high-build floor coatings need a profile in the 3–5 range. Since the coating system that was used for the SpringHouse bakery floor was a multi-coat system in excess of 20 dry mils, a CSP of 3–4 was needed.

QUIZ

1. Which of the following was a factor in choosing a floor coating at SpringHouse bakery?
   a. Long term durability
   b. Abrasion resistance
   c. Fast return-to-service
   d. Aesthetics
   e. All of the above

2. Which floor coating system was chosen?
   a. Polyurea
   b. Polyaspartic
   c. Epoxy
   d. Acrylic

3. True or False: Polyaspartics are a 3-component system.

4. What are the two components of a polyaspartic coating?
   a. Polyaspartic resin
   b. Polyurea resin
   c. Aliphatic hardener
   d. Anaphalactic hardener

5. True or False: Polyaspartic coatings can be formulated to cure slow enough to be applied using conventional manual coating methods rather than high pressure spray equipment.

6. Polyaspartic coatings typically cure in _____ hours.
   a. 1 to 4
   b. 4 to 10
   c. 10 to 15

7. True or False: Polyaspartic coatings can be applied at temperatures below 50°F as well as in high-humidity environments, which extends the application season for commercial and residential projects.

8. Which of the following profiling methods was used at Spring House bakery?
   a. Grinding
   b. Acid etching
   c. Shot blasting
   d. Dry abrasive blasting
   e. Ultra-high pressure waterjetting

9. Since the coating system that was used for the SpringHouse bakery floor was a multi-coat system in excess of 20 dry mils, a CSP of _____ was needed.
   a. 1–2
   b.3–4
   c. 4–5

10. True or False: At SpringHouse bakery the finished floor was put back into service in 4 days from start to finish.

SPONSOR INFORMATION

Covestro LLC is one of the leading producers of high-performance polymers in North America and is part of the global Covestro business with 2015 sales of EUR 12.1 billion. Covestro manufactures high-tech polymer materials and develops innovative solutions for products used in many market segments such as automotive, electrical and electronics, construction, medical and sports and leisure industries.

This article continues on http://go.hw.net/AR117Course2. Go online to read the rest of the article and complete the corresponding quiz for credit.

Many methods exist for creating the desired concrete surface profile on new or existing concrete. The method chosen requires several considerations such as the initial floor inspection, desired CSP, owner aesthetic expectations, project timing, coating manufacturer recommendations and age of the substrate, just to name a few. Each method has its benefits and drawbacks to consider before surface preparation begins.

For a surface profile in the range of CSP 1–3, grinding or acid etching can be used to create a profile. Grinding offers the advantage of being a dry process and shortens the preparation time. It is a relatively easy process that doesn't cause 'bruising,' an undesirable effect associated with micro-fracturing of the surface. Grinding can remove small amounts of leftover adhesive but care should be taken so it doesn't melt from the grinding process and clog the grinding wheel. Drawbacks include removing residual dust and undesired patterning effects.

Acid etching involves applying an acid solution to the concrete to attack alkali constituents of the concrete such as carbonates, calcium hydroxide and limestone. The process produces a uniform surface, is fairly easy to perform with portable equipment and eliminates bruising. However, drawbacks include correctly carrying out the added neutralization step and the health and safety considerations of the acid solution. Additionally, it is a wet process that requires wet vacuuming followed by a drying period. For this project, grinding was preferred since the concrete substrate was old and there was risk of bruising the surface.

For surface profiles in the CSP 2–5 range, there are a variety of common mechanical abrasion methods including, in order of aggressiveness, needle scaling, dry and wet abrasive blasting, shot blasting and scarifying. Dry abrasive blasting is a standard form of mechanical abrasion that involves directing a stream of blast media such as aluminum oxide, silicon carbide or garnet in a high-pressure air stream at the substrate to erode the surface. In the hands of a skilled contractor, the process typically yields a uniform surface profile. The contractor can adjust technique and media size to impart a light brush-blast profile up to a moderate profile.

This method minimizes surface micro-fracturing and requires no drying because there are no liquids involved. Dry abrasive blasting can also remove old coatings from the concrete as long as they are not soft and resilient. The process will generate considerable dust and a dry waste stream. New equipment has focused on mitigating environmental dust contamination and containment/reuse of the blasting media.

Shot blasting is another popular method that imparts a coarser profile and is typically used for high compressive strength concrete. This method uses larger media, such as steel shot, accelerated to high speeds and then impacted on to the surface to pulverize the concrete. The advantages of shot blasting include rapid material removal, a dry process and recyclability of the media. The machinery vacuums the steel shot media and is effective at containing the dust generated in the process. Drawbacks include possible inconsistent patterning resulting in a striping effect and limitations on the removal of soft or resilient compounds such as elastomeric coatings and adhesives. Also, some bruising can occur depending on the size of the steel shot that may necessitate an extra, less-aggressive abrasion step to get to sound concrete.

Additionally, high and ultra-high pressure waterjetting is a more aggressive wet profiling method to achieve a CSP 3+. Water pressure at

THE LOW DOWN ON LOW-VOC

There are several factors to consider when specifying a coating, including film thickness, percent solids, and volatile organic compound (VOC) content. When coatings are applied, two thickness measurements are taken, wet film thickness (WFT) and dry film thickness (DFT). The paint is measured before it has dried and again after.

The percent solids affects the paint thickness that remains after the paint has finished drying, or the difference between the WFT and DFT. A 50% solids coating requires two coats at 20 mils of thickness to achieve a DFT of 20 mils, whereas a 100% solids coating only requires a single coat because they maintain the same thickness between the time they are applied and the time they have dried, hence the name 100% solids.

Note that this course has centered around a 100% solids, zero-VOC coating. A 100% solids polyaspartic or urethane contains no VOCs. Loss of thickness between WFT and DFT in lower solid coatings is due to the evaporation of solvents into the atmosphere as the coatings cure. These evaporating solvents (VOCs) can create dangerous environments in confined spaces and health hazards for workers.

Please note that when specifying low- or no-VOC, this does not mean that you are specifying no odor. Coatings can still have solvents that are exempt from VOC regulations, and they may have a smell. This is important to note because such smells are disruptive to operations when floor coatings are being installed.

The current landscape of federal, regional and local VOC regulations is bumpy, especially as they pertain to architectural coatings. The rules and regulations are updated and amended often and there are different VOC-limits, which tend to move from most lenient at the Federal level to more strict at the local level. In addition, architects are often seeking certification under one or more "green" programs with different VOC requirements among the various programs themselves, as well as VOC limits that differ from federal/regional/local levels. Therefore, the problem must be considered holistically. Essentially, the most stringent VOC regulations should apply and it is always recommended that you consult with the manufacturer to discuss your specific project before making final product selections.

California has the most stringent markers for current VOC limits and as you know, what happens in California tends to move East. When VOC limits go down on the West Coast, they are eventually lowered on the East Coast. California's Legislature established the California Air Resources Board (CARB) in 1967 to improve and maintain healthy air quality and conduct research into the causes of and solutions to air pollution in the State. CARB has authority to identify and set control measures for toxic air contaminants such as VOCs and has established much stricter regulatory requirements than most of the U.S. regarding VOC emission levels in hundreds of consumer products, including architectural coatings. www.arb.ca.gov

South Coast Air Quality Management District (SCAQMD) is the air pollution control agency for Orange County and the urban portions of Los Angeles, Riverside and San Bernardino counties, the most smoggy region of the U.S. SCAQMD develops plans and regulations designed to improve air quality by reducing VOC emissions, which are then submitted for approval to the EPA and CARB to ensure compliance with their respective Clean Air Acts. www.aqmd.gov

The Ozone Transport Commission (OTC) is a multi-state organization created under the Clean Air Act (CAA). It is responsible for advising the EPA on transport issues and for developing and implementing regional solutions to the ground-level ozone problem in the Northeast and Mid-Atlantic regions. If a project is located within the OTC region, one must comply with the applicable VOC standards since each of the OTC states adopt their own rule. www.otcair.org

In 1998, the US EPA issued a nationwide Architectural and Industrial Maintenance (AIM) Coatings rule limiting emissions from VOCs pursuant with the Clean Air Act. The purpose of this rule was based on the EPA's determination that VOC emissions from the use of architectural coatings had the potential to contribute to ozone levels. This rule requires products to meet the VOC limits for the defined AIM coating categories. www.epa.gov.

5,000 psi to upwards of 40,000 psi can rapidly remove old coatings and adhesives as well as profile the top layer of the concrete. Consider the water and mist produced in the work environment and address the waste stream in addition to the drying time of the concrete before the coating application.

PLANNING AND EXECUTION—THE RECIPE FOR SUCCESS

When the SpringHouse bakery was originally built 40 years ago, the floor was constructed as slab-on-grade with no vapor mitigation membrane. More recently, the bakery floor has been covered with a commercial vinyl sheet good adhered directly to the concrete using a latex based adhesive and heat welded seams. Two factors exasperated the failure of the vinyl that caused its removal. First, hard rain years ago caused some water to come in and flood the floor. Additionally, the heat from the bakery ovens over time caused the heat welded seams to fail. Due to these factors as well as daily cleaning and wear, the floor needed repairs several times during the life of the product. This was accomplished by cutting out the affected vinyl sheet area or seam and gluing in a patch of vinyl sheet that was cut to size. Over the years, this increased the amount of seams and possible failure points on the floor.

Once the surface preparation, surface profile, desired coating system and timeline was agreed upon, the flooring contractor, Seman Flooring, got to work. The contractor used a power scraper to remove most of the existing sheet vinyl and adhesive. Any remaining adhesive was removed using scrapers and solvent as needed. The floor was then cleaned thoroughly with a commercial degreaser to remove years of contamination that had crept underneath the seams and into the porous concrete surface. Following the cleaning step, the floor was prepared with a planetary grinder with 1820 grit diamonds. This left the final surface with a profile of ICRI CSP 3 and removed any small amounts of residual adhesive. The surface was vacuumed clean. By first cleaning then grinding the floor, the contaminants were not ground into the substrate which can affect long term adhesion of the coating system.

The inspection revealed some smaller cracks in the floor that needed to be repaired. Since they were relatively small, the contractor chased them with a fast curing epoxy mortar which was sanded similar to the concrete.

A beige pigmented ultra-low VOC polyaspartic basecoat was applied at 15 mils thickness. The basecoat was squeegeed then backrolled.

Color chips in a five color blend were broadcast into the wet basecoat to create a finished, high-end terrazzo look.

The next steps involved the application of the floor coating system. Due to the slab-on-grade concrete substrate and the past water issues, a clear vapor mitigation epoxy layer was first applied at 12 to 15 wet mils. It was applied using a squeegee and then back rolled. The vapor mitigation layer was allowed to cure overnight. Next, a beige pigmented ultra-low VOC polyaspartic basecoat was applied at 15 mils thickness. During the application of the polyaspartic coating, the contractor wore long-sleeve shirt and long pants, closed toe work shoes, safety glasses, a respirator and appropriate gloves.

Color chips in a five color blend were broadcast into the wet basecoat to create a finished, high-end terrazzo look. Every contractor has their technique for evenly applying these color chips and the process is affectionately referred to as 'feeding the chickens.' Once the basecoat cured sufficiently, about 90 minutes due to the fast return-to-service properties of the polyaspartic coating, the excess color chips were vacuumed up. After the base coat cured further for approximately 2 hours, two thin layers of a clear ultra-low VOC polyaspartic topcoat, the proverbial icing on the cake, were applied at 6 to 8 mils thickness using a 3/8" nap roller.

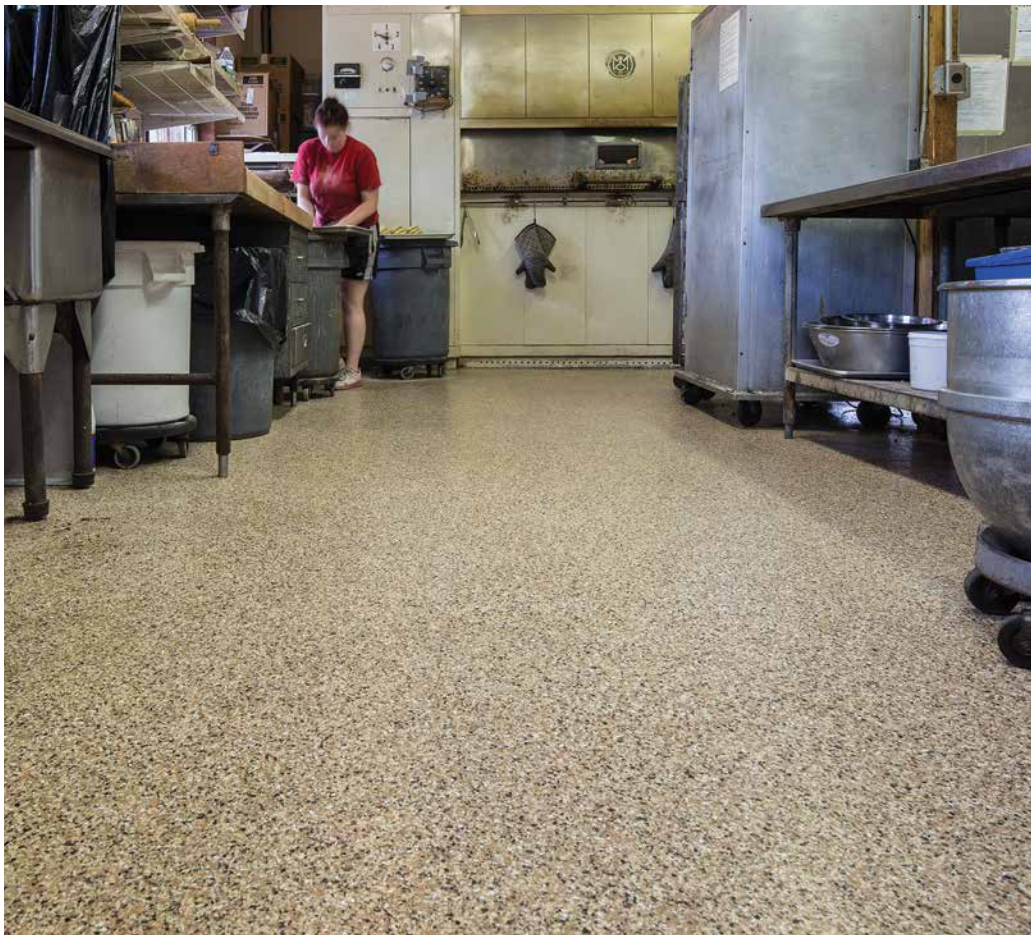
Polyaspartic coatings are water clear, which results in an eye-catching color pop over color chip or decorative stained floor systems. Two thin coats were applied to ensure the roughness of the color chips was not lost since

this texture imparts non-slip characteristics to the floor surface.

These products can be used and applied safely when the recommendations on the supplier's safety data sheet (SDS) are followed. The specific types of needed PPE will vary based on the raw materials and method of application. Refer to the supplier SDS for additional information.

SWEET SUCCESS

The finished floor was put back into service the morning after completion, meeting the owner's tight timeline of 2 to 2.5 days from start to finish. The end result is a seamless floor with a visually appealing finish that can handle the daily demands of a commercial bakery. The new floor provides a joint-free, tight surface that is much easier to clean for employees. Compared to other floor coating systems, the polyaspartic coatings provided a fast return-to-service time and allowed the bakery to reopen quickly so the owner did not have to lose revenue due to an extended shutdown. The floor can withstand heavy equipment, wheeled traffic and frequent cleaning without significant wear and tear. It offers a great balance of abrasion, chemical and scratch resistance while providing excellent long term color and gloss retention. I guess you could say that, for this project, the polyaspartic coating was the icing on the cake. ■



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