PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Epoxy floor coating system with integral cove base.

B. Surface preparation.

1.02 REFERENCES

A. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2016a.

B. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

C. ASTM D3363 - Hardness Testing.

D. ASTM D1044 - Resistance of Transparent Plastic Materials to Abrasion.

1.03 SUBMITTALS

A. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns and colors available.

B. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

C. Manufacturer’s Material Safety Data Sheet (MSDS) for each product being used.

D. Upon request, provide 3 inch x 3 inch sample demonstrating floor color, texture and thickness and a six inch long cove base sample of the approved product selection.

1.04 QUALITY ASSURANCE

A. The Manufacturer shall have a minimum of 10 years experience in the production, sales, and technical support of epoxy and urethane industrial flooring and related materials.

B. The Applicator shall have experience in installation of the flooring system as confirmed by the manufacturer in all phases of surface preparation and application of the product specified.

C. A pre-installation conference shall be held between Applicator, General Contractor and the Owner's Representative to review and clarification of this specification, application procedure, quality control, inspection and acceptance criteria and production schedule.

D. Manufacturer of Approved System shall be single source and made in the USA.

1.05 DELIVERY, STORAGE AND HANDLING

A. All components of the system shall be delivered to the site in the Manufacturer's packaging, clearly identified with the product type and batch number.

B. The Applicator shall be provided with a storage area for all components. The area shall be between 60 F and 90 F, dry, out of direct sunlight and in accordance with the Manufacturer's recommendations and relevant health and safety regulations.

C. Store materials for three days prior to installation in area of installation to achieve temperature stability.

D. Copies of Material Safety Data Sheets (MSDS) for all components shall be kept on site for review by the Owner's Representative or other personnel working with or around the material.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Maintain ambient temperature required by manufacturer three days prior to, during and 24 hours after installation of materials.

1.07 WARRANTY

A. Provide 5-year manufacturer's warranty.

B. Warranty: Include coverage against flooring delamination from substrate and degradation of surface finish.

1.08 MAINTENANCE DATA

A. Submit maintenance data.

B. Maintenance Data: Include maintenance procedures, recommended maintenance materials, procedures for stain removal, repairing surface and suggested schedule for cleaning.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Dur-A-Quartz, Epoxy-based seamless flooring system as manufactured by Dur-A-Flex, Inc., 95 Goodwin Street, East Hartford, CT 06108, Phone: (860) 528-9838, Fax: (860) 528-2802

B. Ceramic Carpet #400 as manufactured by Sherwin Williams.

C. Herculan IG as manufactured by Action Floor Systems, LLC.

2.02 MATERIALS

A. Primer: Dur-A-Flex, Inc, Dur-A-Glaze #4 WB resin and hardener.

1.	Percent Solids	56 %
2.	VOC	2 g/L
3.	Bond Strength to Concrete ASTM D 4541	550 psi, substrates fails
4.	Hardness, ASTM D 3363	3H
5.	Elongation, ASTM D 2370	9 %
6.	Flexibility (1/4: Cylindrical mandrel), ASTM D 1737	Pass
7.	Impact Resistance, MIL D-2794	>160
8.	Abrasion Resistance ASTM D 4060, CS17 wheel, 1,000 g	30 mg loss

B. Broadcast and Grout Floor Coating: 100% solids epoxy resin.

1.	VOC	3.8 g/L
2.	Compressive Strength, ASTM D 695	17,500 psi
3.	Tensile Strength, ASTM D 638	2,100 psi
4.	Flexural Strength, ASTM D 790	5,100 psi
5.	Abrasion Resistance, ASTM D 4060	
	C-10 Wheel, 1,000 gm load, 1,000 cycles	29 mg loss

6.	Flame Spread/NFPA-101, ASTM E 84	Class A
7.	Impact Resistance MIL D-24613	0.0007 inches, no cracking or delamination
8.	Water Absorption. MIL D-24613	Nil
9.	Pot life @ 70 F	20 minutes

C. Aggregate: The quartz aggregate shall be Dur-A-Flex, Inc. Q-28 or Q-11 colored quartz aggregate, ASTM D451, manufactured by 3M Company or approved equal; color as selected by Architect from manufacturer's full line.

D. Aggregate: Acrylic color chips. Colors to be selected by the Architect from the manufacturer's full color offering. Chip size shall be as selected by the Architect.

E. Grout Coat: Dur-A-Flex, Inc. Dur-A-Glaze #4 resin and Water Clear hardener.

F. Top Coat - Dur-A-Flex Poly-Thane 2 or Armor Top (Sherwin Williams GP4638 Urethane Seal Coat for the Sherwin Williams system).

1.	Percent Solids	95 %	
2.	VOC	0 g/L	
3.	Tensile Strength, ASTM D 2370	7,000 psi	
4.	Adhesion, ASTM 4541	Substrate Failure	
5.	Hardness, ASTM D 3363	4H	
6.	600 Gloss ASTM D 523	70	
7.	Abrasion Resistance, ASTM D4060	Gloss	Satin
	CS 17 wheel (1,000 g load) 1,000 cycles	4	8 mg loss/grit
		10	12 mg loss without grit
8.	Pot Life, 70 F, 50% RH	2 Hours	
9.	Full Chemical Resistance	7 days	

G. Patch Materials
1. Shallow Fill and Patching: Use Dur-A-Flex, Inc. Dur-A-Glaze # 4 Cove-Rez.
2. Deep Fill and Sloping Material (over ¼ inch): Use Dur-A-Flex, Inc. Dur-A-Crete

2.03 ACCESSORIES

A. Primers and Fillers: Waterproof; types recommended by flooring manufacturer.

B. Expansion Joints/Joint Fillers: Types recommended by flooring manufacturer for specific application.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas and conditions, with Applicator present, for compliance with requirements for maximum moisture content, installation tolerances and other conditions affecting flooring performance.

B. Verify that surfaces are smooth and flat with maximum variation of 1/4 inch in 10 feet, and are ready to receive work.

C. Verify concrete floors have cured a minimum of 28 days, are dry to a maximum moisture content of 7 percent, and exhibit negative alkalinity, carbonization or dusting.

3.02 PREPARATION

A. New and existing concrete surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, and bituminous products.

B. Moisture Testing: Perform tests recommended by manufacturer and as follows.
   1. Perform anhydrous calcium chloride test ASTM F1869. Application will proceed only when the vapor/moisture emission rates from the slab is less than and not higher than 20 lbs/1,000 sf/24 hrs.
   2. Perform relative humidity test using is situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75% relative humidity level measurement.
   3. If the relative humidity exceeds 75% then Dur-A-Flex, Inc Dur-A-Glaze MVP Primer moisture mitigation system must be installed prior to resinous flooring installation. Slab-on grade substrates without a vapor barrier may also require the moisture mitigation system.

C. There shall be no visible moisture present on the surface at the time of application of the system. Compressed oil-free air and/or a light passing of a propane torch may be used to dry the substrate.

D. Mechanical surface preparation
   1. Shot blast all surfaces to receive flooring system with a mobile steel shot, dust recycling machine (Blastrac or equal). All surface and embedded accumulations of paint, toppings hardened concrete layers, laitance, power trowel finishes and other similar surface characteristics shall be completely removed leaving a bare concrete surface having a minimum profile of CSP 4-5 as described by the International Concrete Repair Institute.
   2. Floor areas inaccessible to the mobile blast machines shall be mechanically abraded to the same degree of cleanliness, soundness and profile using diamond grinders, needle guns, bush hammers, or other suitable equipment.
   3. Where the perimeter of the substrate to be coated is not adjacent to a wall or curb, a minimum 1/4 inch key cut shall be made to properly seat the system, providing a smooth transition between areas. The detail cut shall also apply to drain perimeters and expansion joint edges.
   4. Cracks and joints (non-moving) greater than 1/8 inch wide are to be chiseled or chipped-out and repaired per manufacturer’s recommendations.

E. At spalled or worn areas, mechanically remove loose or delaminated concrete to a sound concrete and patch per manufactures recommendations.

F. Vacuum clean substrate.

G. Apply primer as per manufacturer's recommendations.

3.03 INSTALLATION FLOORING

A. Apply floor coating system in accordance with manufacturer's instructions. Form integral ¼ inch radius cove base 6 inches high with same materials as floor coating. Apply four finish coats minimum and spread aggregate uniformly in accordance with the manufacturer's instructions.

B. The system shall be applied in seven distinct steps as listed below:
   1. Substrate preparation
   2. Priming
   3. First broadcast coat application with first aggregate broadcast
   4. Second broadcast coat with second aggregate broadcast
   5. Grout coat application, sand floor (if required)
   6. First topcoat application

7. Second topcoat application

C. Install expansion joints and/or joint filler as per manufacturer's instructions.

D. The finish floor will have a nominal thickness of 1/8 inch.

3.04 PROTECTION OF FINISHED WORK

A. Protect finished work until work is complete. Cure flooring material in compliance with manufacturer’s directions, taking care to prevent their contamination during stages of application and prior to completion of the curing process.

B. Remove masking. Perform detail cleaning at floor termination, to leave cleanable surface for subsequent work of other sections.

C. Barricade area to protect flooring until fully cured.

END OF SECTION