

SECTION 09 67 00

EPOXY FLOORING - RESINOUS FLOORING SYSTEM

DTI ArmorCrete System

PART 1 - GENERAL

1.1 SUMMARY

A. This Section covers resinous epoxy flooring using the DTI ArmorCrete Epoxy Flooring System, installed over mechanically prepared concrete in one of the following build-ups, as scheduled in the project documents:

1. Coating System: DTI PrimeBond primer, DTI ArmorCrete basecoat, DTI ArmorCrete grout coat, and DTI ArmorTop topcoat. Total system build approximately 2 to 3 mm (80 to 120 mils). For general commercial, retail, office, and light industrial floors.
2. Broadcast System: DTI PrimeBond primer, double body coats of DTI ArmorCrete with aggregate broadcast to refusal, DTI ArmorCrete grout coat, and DTI ArmorTop topcoat. Broadcast systems build thicker than coating systems; total system thickness as scheduled. For production areas, shops, and floors subject to impact, abrasion, and wheeled traffic.
3. Decorative Broadcast System: body coats as in the Broadcast System with decorative vinyl flake or colored quartz broadcast to refusal, grout coat, and a clear or pigmented DTI ArmorTop topcoat. An optional DTI Poly Guard polyaspartic topcoat may be substituted where faster return to service or improved color stability is required.
4. Novolac Chemical-Resistant System: DTI PrimeBond primer and DTI ArmorCrete Novolac body and finish coats. For areas subject to chemical splash and spill, including battery rooms, process areas, and containment zones, as scheduled.

B. The work includes surface preparation to CSP-3, crack and joint treatment, integral cove base at the height specified, and the full coat sequence: primer, basecoat, grout coat, and topcoat.

1.2 REFERENCES

- A. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring (surface preparation principles).
- B. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- C. ASTM D4263 - Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
- D. ASTM C1583 / ASTM D4541 - Pull-off adhesion testing of coatings on concrete.
- E. ICRI Guideline 310.2R - Concrete Surface Profile (CSP) designations.
- F. ACI 302.1R - Guide for Concrete Floor and Slab Construction.

1.3 DEFINITIONS

- A. CSP: Concrete Surface Profile per ICRI 310.2R. This Section requires CSP-3 unless otherwise scheduled.
- B. Recoat Window: the time period, stated by the manufacturer for the temperature at the floor, within which the next coat may be applied without additional mechanical preparation.
- C. Telegraphing: the visible transfer of joints, cracks, patches, or substrate texture through the finished

coating system.

1.4 SUBMITTALS

- A. Product data for DTI PrimeBond primer (including the moisture vapor barrier grade where scheduled), DTI ArmorCrete, DTI ArmorCrete Novolac, DTI ArmorTop, and DTI Poly Guard where specified.
- B. System build-up schedule for each area: coat sequence, broadcast media, and total thickness.
- C. Color and decorative media samples for Owner approval.
- D. Installer qualifications: minimum five years of resinous flooring experience and a minimum of 25 completed epoxy flooring projects of similar size.
- E. Mock-up approval record (see 1.6).
- F. Maintenance instructions for the finished floor.

1.5 QUALITY ASSURANCE

- A. Pre-installation conference with the Owner, General Contractor, and flooring contractor to confirm system build-ups by area, cove height, colors, schedule, slab readiness, moisture test results, and environmental conditions.
- B. Moisture limits: do not install the standard system where substrate moisture content exceeds 4 percent by calibrated meter, or where in-situ relative humidity exceeds 75 percent per ASTM F2170, unless the manufacturer approves higher limits in writing for the specific products used. Where limits are exceeded and work is scheduled to proceed, use the moisture vapor barrier grade of DTI PrimeBond as the primer coat.
- C. Environmental limits: maintain substrate and ambient temperatures between 50 and 90 degrees F during application and for at least 24 hours after, and maintain the substrate at least 5 degrees F above the dew point. Cure times lengthen significantly on cold slabs; below 60 degrees F, confirm extended cure times with the manufacturer before scheduling turnover.
- D. Adhesion: the prepared substrate shall be sound and free of bond breakers. Existing coatings that are not fully bonded shall be removed completely under 3.2; coating over unbonded material is not acceptable.

1.6 MOCK-UP

- A. Before production work, complete a mock-up of not less than 100 square feet in an area designated by the Owner, carried through the full specified sequence including cove base where scheduled.
- B. The approved mock-up establishes the standard for color, texture, broadcast density, sheen, and workmanship for the project. Production work shall match the approved mock-up.
- C. Perform one pull-off adhesion test per ASTM C1583 on the mock-up for record. The mock-up may remain as part of the finished floor.

1.7 DESIGN LIMITATIONS AND EXCLUSIONS

- A. Joints and cracks in the substrate will telegraph through resinous systems. Treatment under this Section fills and coats them; it does not eliminate their visibility, and moving joints require a flexible detail outside this Section's standard build-up.
- B. Control joints and contraction joints that are required to remain functional shall not be rigidly bridged unless the Owner accepts telegraphing and reflective cracking in writing.
- C. Existing coatings, curing compounds, and sealers of unknown bond shall be removed by mechanical preparation. The installer cannot warrant adhesion to substrates coated by others.
- D. Epoxy systems amber and chalk under prolonged ultraviolet exposure. For exterior or high-UV areas,

the DTI Poly Guard polyaspartic topcoat or another scheduled finish is required.

E. This Section does not include structural slab repair, sloping or re-pitching of the slab, drain relocation, or moisture mitigation beyond the primer option in 1.5.B. Slabs shall be cured a minimum of 28 days before coating; pour-backs and patches shall cure a minimum of 28 days.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Primer: DTI PrimeBond, a penetrating epoxy primer formulated to wet out and seal the prepared substrate and promote adhesion of the system. A moisture vapor barrier grade of DTI PrimeBond shall be used where moisture conditions in 1.5.B require it.

B. Body and basecoat: DTI ArmorCrete, a high-build epoxy coating resin used for the basecoat and grout coat of the system, pigmented to the scheduled color.

C. Chemical-resistant body: DTI ArmorCrete Novolac, a novolac epoxy resin for the Novolac Chemical-Resistant System, selected for resistance to the chemicals scheduled for the area.

D. Topcoat: DTI ArmorTop, an epoxy finish coat providing the scheduled sheen, color retention within the limits of 1.7.D, and chemical and abrasion resistance for the service intended.

E. Optional polyaspartic topcoat: DTI Poly Guard, a fast-cure polyaspartic finish coat, used where rapid return to service, low-temperature cure, or UV stability is required.

F. Broadcast media: graded silica aggregate for Broadcast Systems; decorative vinyl flake or colored quartz for Decorative Broadcast Systems, broadcast to refusal.

G. Cove base materials: epoxy mortar compatible with the system, formed to a cove profile with a radius at the floor line, in heights of 4 inches or 6 inches as specified.

H. Crack and joint repair materials: epoxy or polyurea repair mortar compatible with the system, capable of being finished flush with the surrounding surface.

I. All components of a system shall come from a single manufacturer and shall be used within their stated shelf life and recoat windows.

2.2 EQUIPMENT

A. Planetary or rotary diamond grinding equipment capable of producing a uniform CSP-3 profile across the full floor, fitted with vacuum dust collection operating at HEPA filtration.

B. Edging equipment capable of carrying the same profile to within 1/4 inch of walls, columns, and obstructions.

C. Mixing equipment sized to mix full kits without partial-batch ratio errors, with spare mixing stations so no coat is delayed past its pot life or recoat window.

D. Application tools: squeegees, back-rollers, spike shoes, and cove trowels appropriate to the scheduled build-up.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify the slab is cured a minimum of 28 days and test for moisture per 1.5.B. Record test locations and results; do not proceed where limits are exceeded except under the primer option in 1.5.B or with written direction from the Owner.

- B. Check existing coatings for bond by adhesion testing or sounding in representative areas. Identify all unbonded areas for removal under 3.2.
- C. Document existing cracks, joints, patches, and slab defects photographically before starting. Defects not documented are presumed to have been caused by the work of this Section.
- D. Verify ambient and substrate temperatures and dew point comply with 1.5.C, and confirm heat, ventilation, and lighting are available for the full cure period, including overnight. Slow overnight cure on cold slabs is a known cause of schedule failure; do not start a coat that cannot cure within the planned window.

3.2 PREPARATION

- A. Grind the full floor area, including edges, to a uniform CSP-3 profile. Remove existing coatings, mastics, curing compounds, sealers, and surface contamination completely. Chemical stripping alone is not acceptable.
- B. Vacuum the surface thoroughly and verify the profile and cleanliness before priming. The surface shall be dry, dust-free, and free of bond breakers.
- C. Protect adjacent surfaces, walls, drains, equipment, and finished work from dust and coating materials for the duration of the work.

3.3 APPLICATION

- A. General: install the system in the following sequence, completing each step over the full area, including cove base, before advancing. Maintain a wet edge, mix full kits, and never apply a coat outside its pot life.
 - 1. Surface grinding to CSP-3 (under 3.2).
 - 2. Cove base installation at the height specified (4 inches or 6 inches): form the epoxy mortar cove integral with the floor system, with a radius at the floor line and a clean termination at the top edge.
 - 3. Basecoat installation: apply DTI PrimeBond primer per the manufacturer's stated coverage and allow it to cure within its recoat window. Apply the DTI ArmorCrete basecoat at the scheduled build; for Broadcast Systems, broadcast aggregate or decorative media to refusal into the wet coat and, after cure, remove excess and apply the second broadcast coat the same way.
 - 4. Grout coat installation: apply DTI ArmorCrete grout coat to fill the broadcast texture, level the surface, and build the system to the scheduled thickness.
 - 5. Topcoat installation: apply DTI ArmorTop topcoat at the scheduled build and sheen. Where DTI Poly Guard is specified, apply it as the final coat in place of or over the epoxy topcoat per the system schedule.
- B. Recoat windows and intercoat preparation: apply each successive coat within the manufacturer's stated recoat window for the floor temperature. Where the window has been exceeded, or where a coat has cured beyond it for any reason, sand the full surface to a uniform dull profile, vacuum, and tack wipe with a manufacturer-approved solvent immediately before the next coat. Skipping intercoat preparation is the leading cause of intercoat delamination and is prohibited; a coat applied over an unprepared, out-of-window surface shall be removed and replaced at no cost to the Owner.
- C. Novolac systems: apply DTI ArmorCrete Novolac coats at the manufacturer's stated build and observe the same recoat window and intercoat preparation requirements.

3.4 JOINTS, CRACKS, AND REPAIRS

- A. Dormant cracks: rout or open as needed, fill flush with compatible repair mortar before the basecoat, and finish flush with the surrounding surface. Expect filled cracks to remain faintly visible per 1.7.A.

- B. Spalls and surface defects: sawcut the perimeter a minimum of 1/2 inch deep where required to obtain a sound edge, remove unsound material, and fill flush with repair mortar before coating.
- C. Control and contraction joints: fill or honor as scheduled. Where joints are filled, fill flush and coat in sequence; where joints are honored, cut the system cleanly at the joint and finish with the scheduled flexible sealant after the topcoat has cured.
- D. Moving or structural cracks are excluded from rigid treatment and shall be reported to the Owner.

3.5 CURING

- A. Protect the installed system from traffic, water, dust, and contamination until it has cured. At 70 degrees F, light foot traffic is permitted at 24 hours; wheeled and service traffic after 72 hours unless the manufacturer states otherwise.
- B. Full chemical and service cure for epoxy systems is approximately 7 days at 70 degrees F. Do not expose the floor to chemical splash, standing water, or washdowns before full cure.
- C. Cold slabs and overnight temperature drops extend all cure times. Verify hardness and tack-free condition before opening the floor; schedule turnover on verified cure, not elapsed time.

3.6 FIELD QUALITY CONTROL

- A. Compare color, texture, broadcast density, sheen, and cove finish against the approved mock-up. Areas visibly below the mock-up standard shall be recoated or replaced.
- B. Check for pinholes, fisheyes, blisters, holidays, and delamination by visual inspection and sounding. Mark and repair defects per the manufacturer's written procedure, including intercoat preparation of repair areas.
- C. Verify system thickness on the mock-up and by wet-film checks during application of each coat.
- D. Adhesion verification: where specified, perform pull-off testing per ASTM C1583 at a minimum of one location per 5,000 square feet. Failure at the coating interface below the manufacturer's stated value is cause for investigation and repair.

3.7 PROTECTION AND TURNOVER

- A. Protect the finished floor from construction traffic, dragging loads, and staining materials until turnover and full cure. Use breathable protective covering only until the floor has cured per 3.5.
- B. Turnover cleaning: sweep and mop with a neutral pH cleaner. Do not apply waxes or topical dressings over the system.
- C. Deliver maintenance instructions: neutral pH cleaning, prompt cleanup of chemical spills (with the chemical resistance limits of the installed system stated in writing), and recoating intervals based on traffic and wear.

END OF SECTION 09 67 00