

Types & Classifications of Epoxy Flooring Systems

Professional Services by AK Level & Polish

Overview: Epoxy resin systems are engineered compounds formed by combining epoxide resins with polyamine hardeners. Depending on chemistry, thickness, aggregate loading, and application technique, epoxy flooring yields tailored performance characteristics—from decorative high-gloss residential coatings to heavy-duty chemical and thermal-resistant industrial mortars.

1. RESINOUS BASE FORMULATIONS

1. 100% Solids Epoxy

A high-build, solvent-free coating system that cures through chemical reaction without fluid evaporation. Delivers maximum film thickness (10–30+ mils per coat) and exceptional chemical and abrasion resistance.

Primary Applications: Industrial plants, heavy commercial spaces, automotive bays, warehouses.

Key Features: Zero VOCs, high mechanical strength, thick protective barrier, long lifespan.

2. Solvent-Based Epoxy

Formulated with organic solvents that evaporate during curing, leaving a thinner, highly adhesive polymer film (1–3 mils per coat). Excellent penetration into porous concrete subfloors.

Primary Applications: Concrete primers, low-traffic commercial floors, dust-proofing sealers.

Key Features: Superior floor substrate adhesion, gloss finish, requires strong ventilation during application.

3. Water-Based Epoxy

Emulsified in water, offering a low-odor, low-VOC application. Easily penetrates concrete substrates for light-duty protection and sealing while allowing minor moisture vapor breathability.

Primary Applications: Residential basements, light commercial utility rooms, concrete wall coatings.

Key Features: Non-toxic, easy water cleanup, breathable finish, ideal for DIY or tight residential spaces.

4. Flexible / Moisture-Tolerant Epoxy

Formulated with elastomeric modifiers or moisture-tolerant additives, allowing the epoxy to bridge minor concrete hairline cracks and adhere to green or damp concrete subfloors.

Primary Applications: Subfloor waterproofing primers, crack isolation membranes, dynamic stress zones.

Key Features: Elongation capacity, high moisture vapor tolerance, crack mitigation.

2. DECORATIVE & ARCHITECTURAL SYSTEMS

5. Metallic Epoxy

Clear 100% solids epoxy blended with nano-metallic pigments. Swirled during cure to create unique 3D organic movement resembling liquid metal, marble, or riverbeds.

Primary Applications:	Retail showrooms, luxury basements, night clubs, modern foyers, art galleries.
Key Features:	High aesthetic impact, custom multi-tone swirl patterns, high-gloss clear topcoat.

6. Decorative Flake / Chip Epoxy

A multi-layer system where vinyl color flakes are broadcast to refusal into a wet epoxy basecoat, sealed with a durable clear epoxy or polyaspartic finish coat.

Primary Applications:	Residential garages, commercial restrooms, locker rooms, fire stations, workshops.
Key Features:	Hides floor imperfections, excellent slip resistance, extreme impact resistance.

7. Epoxy Terrazzo Overlay

A premium matrix blending clear or pigmented epoxy binder with marble, granite, quartz, or recycled glass aggregate. Ground diamond-flat and polished to a brilliant shine.

Primary Applications:	Airport terminals, hospital lobbies, corporate headquarters, university halls.
Key Features:	40+ year lifecycle, limitless design/color configurations, seamless sanitary finish.

8. Quartz Broadcast Epoxy

Combines clear epoxy resin with ceramic-coated colored quartz granules broadcast in multiple lifts. Finished with clear topcoats for a textured, slip-resistant finish.

Primary Applications:	Commercial kitchens, wet processing plants, pool decks, shower facilities.
Key Features:	Heavy-duty slip resistance, chemical resistant, decorative multi-tone texture.

3. HIGH-PERFORMANCE & INDUSTRIAL SYSTEMS

9. Self-Leveling Epoxy

Applied at 1/16" to 1/8" thickness (60–120 mils), this formulation flows smoothly over uneven or pitted concrete to cure into a seamless, perfectly level surface.

Primary Applications:	Pharmaceutical cleanrooms, manufacturing floors, food processing, warehouses.
Key Features:	Monolithic, non-porous, easy to sanitize, high compressive strength.

10. Heavy-Duty Epoxy Mortar

A high-strength system blending 100% solids epoxy resin with graded silica sand or quartz. Trowel-applied at 3/16" to 3/8" thickness to rebuild severely degraded floors.

Primary Applications:	Heavy industrial manufacturing, forklift traffic zones, chemical loading docks.
Key Features:	Extreme impact resistance, restores damaged concrete, maximum mechanical load rating.

11. Electrostatic Discharge (ESD) / Conductive Epoxy

Formulated with conductive carbon or metallic micro-additives that safely bleed off static electricity charges to grounded connection points, protecting sensitive electronics.

Primary Applications:	Electronics assembly plants, server rooms, munitions storage, cleanrooms.
Key Features:	Precise electrical resistance range (25,000 to 1,000,000 ohms), fire explosion safety.

12. Novolac Chemical-Resistant Epoxy

A specialized highly cross-linked epoxy novolac resin engineered to withstand prolonged exposure to aggressive acids, solvents, and industrial chemicals.

Primary Applications:	Secondary containment dikes, battery storage rooms, chemical processing plants.
Key Features:	Extreme resistance to concentrated sulfuric/hydrochloric acids and solvents.

Professional Concrete & Epoxy Installation Services

Whether you need heavy industrial epoxy mortar restoration, seamless high-gloss metallic flooring, or moisture mitigation solutions, **AK Level & Polish** delivers precision surface preparation and high-performance resinous applications tailored to your facility.

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