



EPOXY OUTPOST

DIY Epoxy Floors

A field-ready guide to planning, preparing, coating, and checking concrete floors like a professional.

Three complete project paths

Garage flake

Basement

Interior decorative

One method, three project paths

Use the shared workflow first. Then follow the page for your floor type. Product data sheets and safety data sheets always control the exact mix ratio, film build, temperature window, recoat window, and cure time.

01

Garage flake

Build for tires, road salts, wet shoes, sunlight at the door, and easy maintenance.

02

Basement

Control below-grade moisture, ventilation, odors, and seasonal slab conditions.

03

Interior decorative

Plan color movement, mock-ups, finish sheen, flatness, and a compatible wear coat.

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Publisher note. Epoxy Outpost created this guide as an educational field reference. It does not replace the current instructions for the exact coating system you buy, an engineer's assessment, or local workplace and disposal requirements.

Protect skin, lungs, eyes, and everyone nearby

Epoxy components can irritate or sensitize skin, and vapors, aerosols, and concrete dust can harm breathing. Read the current safety data sheet (SDS) for every resin, hardener, primer, cleaner, repair product, pigment, and topcoat before the work begins.

Minimum work-zone plan

- ❑ Keep children, pets, clients, and unprotected helpers out.
- ❑ Remove ignition sources when any product or cleaner is flammable.
- ❑ Provide cross-ventilation or local exhaust appropriate to the SDS.
- ❑ Use dust collection on grinders; isolate the area from occupied rooms.
- ❑ Stage clean water, eyewash access, spill materials, and emergency contacts.
- ❑ Keep food, drinks, and phones outside the contaminated zone.

Personal protection

- Wear chemical-resistant gloves selected from the SDS; NIOSH specifically notes thick nitrile or butyl rubber for epoxy work.
- Use splash goggles or other eye protection; wear long sleeves and protective clothing.
- If respiratory protection is required, use the exact type called for by the SDS and applicable rules. A dust mask is not a universal vapor respirator.
- For grinding, use dust controls and respiratory protection appropriate to respirable crystalline silica exposure.

Stop work immediately if...

- You cannot establish safe ventilation.
- The floor is wet, sweating, or actively leaking.
- The slab is unsound, heaving, or showing structural movement.
- The product is outside its temperature or shelf-life limits.
- A mixed batch smokes, becomes unusually hot, gels early, or produces unexpected fumes.
- Anyone develops breathing trouble, dizziness, eye injury, or a spreading skin reaction.

Move to fresh air and follow the SDS first-aid directions. Seek emergency help for severe symptoms.

Exotherm warning. Mixed epoxy can generate heat rapidly. Never leave mixed material massed in a pail longer than the application instructions allow. Spread it promptly, do not alter the ratio, and let unused material cure only as directed by the manufacturer and local disposal rules.

NIOSH warns that epoxy exposure can cause dermatitis and sensitization, with future reactions possible from small exposures. OSHA requires hazard assessment and appropriate PPE in workplaces; business owners must also follow applicable respiratory protection, hazard communication, and silica-control requirements.

Choose a system that matches the slab and the room

Do not start with color. Start with exposure, moisture, substrate condition, and the manufacturer's complete system.

Question	What it changes	Recommended decision
Will cars park here?	Hot tires, fluids, point loads, grit	Use a garage-rated system and compatible wear coat.
Is the slab below grade?	Elevated vapor drive and seasonal dampness	Test moisture; do not assume a coating is a waterproofing membrane.
Is there direct sun?	Many epoxies amber or chalk under ultraviolet light	Select a UV-stable compatible topcoat where the maker requires it.
Will the floor get wet?	Glossy surfaces can become slippery	Specify a compatible slip-resistant aggregate and make a sample.
Is there an old coating?	Unknown adhesion and chemical compatibility	Identify it, test bond, or remove it to sound concrete.
Are joints moving?	Rigid coatings may crack across movement	Honor moving/control joints; use compatible flexible joint treatment.

Inspect soundness, cracks, laitance	Test moisture, sealer, oil, bond	Specify primer, body coat, finish	Prepare profile and repair	Apply within all windows
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A complete system, not a shelf mix

Use primer, build coat, broadcast media, topcoat, repair mortar, and cleaner only where the manufacturer confirms compatibility. Mixing brands can void performance assumptions and makes troubleshooting harder.

When to call a professional

Get specialist help for hydrostatic pressure, persistent efflorescence, widespread delamination, soft or contaminated concrete, major elevation changes, unknown industrial chemicals, or cracks with vertical displacement.

Do not coat over the problem. Efflorescence, dark damp areas, odor, active seepage, or a coating that has peeled before are evidence to investigate—not defects to hide.

Test before you buy the coating

1 Map the slab

Mark cracks, joints, spalls, paint, glue, rust, oil, drains, low spots, and damp areas. Photograph everything before prep.

2 Check moisture

Use the test method and acceptance limit required by the chosen system. A taped plastic-sheet check is only a screening test where the product instructions permit it; professional systems may require ASTM F2170 in-slab relative humidity or ASTM F1869 calcium-chloride testing.

3 Check porosity and sealer

Place small water drops in several cleaned areas. Beading suggests a sealer or contamination; rapid darkening suggests absorption. This is a screen, not proof of coating readiness.

4 Check contamination

Degrease suspect areas, rinse, dry, then repeat. Oil that returns from pores needs further remediation. Never grind oily residue into the slab.

5 Make a bond test

After final prep, apply the actual proposed system to a small, inconspicuous area. Cure fully, then evaluate adhesion as the manufacturer directs.

Record these conditions

- Air temperature
- Concrete surface temperature
- Relative humidity
- Calculated dew point
- Moisture-test method and results
- Age of new concrete
- Locations of every test

Dew-point rule: condensation can form even when the floor looks dry. Many systems require the substrate to remain at least 5°F (3°C) above the measured dew point. Use the exact product limit.

New concrete

Do not rely on appearance. Many products require approximately 28-30 days of cure before coating, plus moisture testing. The selected product data sheet controls.

Go / no-go: proceed only when the slab is sound, dry enough for the exact product, free of bond breakers, properly profiled, and within the environmental window for the full application and early cure.

Create clean, sound, open concrete

The coating bond is only as strong as the surface it touches. Remove dirt, grease, curing compounds, sealers, laitance, weak concrete, and incompatible coatings.



Application looks simple only after the substrate is correctly prepared.

Preferred workflow

1. **Degrease first.** Follow the cleaner directions; collect and dispose of residue properly.
2. **Mechanically abrade.** Diamond grinding or shot blasting creates a uniform profile and removes weak surface paste. Match the concrete surface profile (CSP) to the system.
3. **Edge completely.** Treat corners, door thresholds, around posts, and wall lines to the same standard.
4. **Vacuum, then inspect.** Use suitable dust extraction. The floor should be clean enough that a white cloth shows no loose dust.
5. **Repair after profiling** unless the repair product specifies another sequence.

Profile acceptance

- ☐ Uniform texture with no glossy or sealed patches
- ☐ No soft laitance or loose aggregate
- ☐ No oil sheen, adhesive film, or rinse residue
- ☐ Edges and penetrations fully prepared
- ☐ Repair edges feathered or terminated as specified
- ☐ Vacuumed dust does not return from cracks or joints

Compare the floor with the International Concrete Repair Institute (ICRI) profile standard named in the coating data sheet. Do not guess from sandpaper grit alone.

Silica hazard: grinding concrete can release respirable crystalline silica. Use a shrouded grinder with an appropriate dust-collection system and follow applicable OSHA controls. Dry sweeping or blowing dust around an occupied building is not acceptable.

Acid etching is product-specific. Some consumer kits permit it; many professional systems prefer mechanical preparation. If the product allows etching, neutralize/rinse exactly as directed and let the slab dry completely. Incomplete rinsing can destroy adhesion.

Repair movement correctly and stage every item

Cracks, spalls, and joints

- **Static hairline cracks:** open and fill only with a compatible repair material, following its minimum width and cure requirements.
- **Spalls and pop-outs:** remove unsound edges, clean, prime if required, and rebuild flush with a coating-compatible mortar.
- **Control and expansion joints:** do not bridge known movement with rigid epoxy unless the engineered detail permits it. Continue the joint through the finish or use an approved flexible system.
- **Vertical displacement:** stop. Differential movement can indicate a structural or soil issue.

Project quantity

Net area = length × width - fixed openings

Purchase quantity = net area ÷ stated coverage

Add only the waste allowance justified by porosity, layout, and system instructions.

Coverage varies with concrete porosity, profile, film thickness, and application loss. Never stretch material beyond the published spread rate.

Stage before Part A meets Part B

- ☐ Correct resin/hardener units and lot numbers
- ☐ Primer, broadcast, and topcoat within shelf life
- ☐ Calibrated mixing pails; clean transfer pails
- ☐ Low-speed drill and correct mixing paddle
- ☐ Squeegee or notched tool specified by the system
- ☐ Lint-free rollers, frames, extension poles, brushes
- ☐ Spiked shoes only if permitted by the system
- ☐ Spike roller only if specified
- ☐ Timer, thermometer, humidity/dew-point meter
- ☐ Lighting at a low angle to reveal holidays
- ☐ Masking, clean rags, waste container, barriers
- ☐ Backup roller covers, gloves, and helper

Plan an exit. Mark batch-sized rectangles from the farthest corner toward the door. Keep the wet edge short enough for the published pot life at the actual material and room temperature.

Batch board

Batch	Area	Mix start	Spread by	Material / lot	Notes
1					
2					

Control the clock, the wet edge, and the film

1 Condition and verify

Bring sealed materials into the permitted temperature range for the required time. Recheck air, slab, humidity, and dew point immediately before mixing.

2 Premix components separately

Do this only when the product directs it. Scrape settled pigment from the bottom without whipping in air.

3 Measure exactly

Use complete premeasured kits when possible. If field measuring is allowed, follow the specified ratio by volume or weight—these are not interchangeable.

4 Mix at low speed

Time the mix. Scrape sides and bottom. If the instructions require “boxing,” transfer to a clean pail and mix again so unmixed material is not rolled onto the floor.

5 Cut in narrowly, pour, spread, back-roll

Keep edge work only one batch ahead. Pour ribbons promptly, distribute at the specified coverage, then back-roll in a consistent direction. Do not overwork material that is beginning to set.

6 Broadcast or decorate on schedule

Apply flakes, aggregate, or metallic effects while the receiving coat is in its defined working stage. Use the same motion and density throughout.

7 Inspect, topcoat, protect

Correct defects only within the allowable window. Scrape and vacuum excess flake as specified. Apply the compatible topcoat, barricade the area, and follow foot-, light-, vehicle-, and full-cure times separately.

Pot life is not “time in the can.”

Temperature and batch mass affect working time. A warm, deep pail can shorten it sharply. Discard material that thickens, strings, gels, or no longer levels.

Recoat windows matter. Too early can trap solvent or disturb the coat; too late may require sanding or another treatment. Record start and finish times for every coat.

Garage flake floor



A full-broadcast flake look helps disguise small visual variation; the system still depends on correct film build and a compatible clear coat.

Design brief

- **Exposure:** tire heat, oil, fuel drips, road salts, grit, water, sunlight at the threshold.
- **Finish:** broadcast flake plus a garage-rated clear topcoat; consider UV stability near the open door.
- **Grip:** add compatible texture where wet slip risk is expected. Test a sample for cleanability and feel.

Installation sequence

1. Remove everything and protect drywall, tracks, steps, drains, and door weather seals.
2. Degrease tire paths and old spill areas before grinding.
3. Mechanically profile the entire slab, including the apron edge where included.
4. Repair spalls and nonmoving cracks; honor moving joints.
5. Prime if the system requires it; inspect for pinholes and outgassing.
6. Apply pigmented body coat at the specified rate.
7. Broadcast flakes consistently—light, medium, or to refusal as designed.
8. After cure, scrape in multiple directions and vacuum loose flake.
9. Apply one or more compatible clear coats at the specified film build.

Garage-specific checks

- ☐ No silicone tire dressing or oil residue
- ☐ Door threshold termination is crisp
- ☐ Control joints remain intentional
- ☐ Texture is even in walking paths
- ☐ No puddling at low spots or drains
- ☐ Vehicle return date is posted

Do not park early. “Dry to touch,” “foot traffic,” and “vehicle traffic” are different milestones. Some garage products cite 24-36 hours for vehicle traffic in favorable conditions; other systems require longer. Follow the exact product and ambient conditions.

Useful finish choices

Mid-tone blends hide dust and tire marks better than very dark or very light floors. Heavy texture adds traction but traps mop fibers and dirt. A sample panel settles the trade-off.

Basement concrete floor



Below grade, moisture evaluation and safe air movement are part of the design—not afterthoughts.

Design brief

- **Exposure:** vapor drive, seepage history, sump or drain events, condensation, low ventilation.
- **Finish:** a system explicitly approved for the measured substrate moisture and indoor use.
- **Continuity:** decide how the coating terminates at walls, posts, drains, utility equipment, stairs, and occupied-room transitions.

Basement sequence

1. Trace moisture sources first: plumbing, exterior drainage, wall leakage, slab vapor.
2. Test the slab by the coating maker's accepted method in multiple locations.
3. Plan exhaust without sending contaminated air into living areas.
4. Remove adhesives and coatings using methods compatible with the slab and hazard assessment.
5. Profile, vacuum, repair, and retest conditions.
6. Apply the specified primer/body/topcoat system without unauthorized substitutions.
7. Maintain ventilation and environmental limits through initial cure.

Stop-and-solve conditions

- Active water or damp seams
- Efflorescence or recurring white salts
- Musty odor with unexplained staining
- Moisture result above product limit
- Old adhesive with unknown hazardous content
- No safe exhaust path

Coating is not drainage repair. Epoxy can fail under vapor pressure or hide evidence while moisture continues damaging the assembly. Correct the source or specify a tested moisture-mitigation system.

Occupied-home protocol

Seal return-air pathways if allowed, turn off air-handling routes that would distribute contaminants, post barriers, and keep the area unoccupied for the time required by the SDS and product instructions. Do not improvise ventilation around fuel-burning appliances.

Interior decorative or metallic floor



Metallic movement is intentionally variable. Approve a mock-up, not a tiny color chip.

Design brief

- **Exposure:** furniture, rolling loads, sunlight, cleaners, spills, bare feet, and reflected light.
- **Visual goal:** solid color, sparse flake, quartz, metallic movement, or a layered effect.
- **Wear layer:** compatible clear coat selected for abrasion, stain resistance, sheen, UV exposure, and slip resistance.

Decorative sequence

1. Make a full system mock-up on prepared concrete or the approved substrate.
2. Confirm color under daytime and nighttime lighting.
3. Correct flatness defects; glossy finishes exaggerate waves and patch edges.
4. Map batch boundaries around architectural breaks, not through open sight lines.
5. Apply uniform primer/base color.
6. Mix and place effect coats consistently; keep a written timing recipe.
7. Stop manipulating while there is still enough flow to level.
8. Inspect at low angle, then apply the compatible wear coat.

Mock-up approval

- ☐ Color family and contrast
- ☐ Amount and scale of movement
- ☐ Sheen under room lighting
- ☐ Texture and barefoot feel
- ☐ Edge and wall termination
- ☐ Cleanability after full cure

Metallic floors are not repeatable like paint. Temperature, batch timing, pour pattern, tool path, pigment dispersion, and airflow all influence the result. Define acceptable variation before installation.

Furnishing plan

Wait for the stated light-traffic and full-cure milestones. Use clean, nonstaining furniture pads. Avoid rugs or mats until the coating manufacturer permits them; trapped moisture or plasticizers may affect the finish.

Inspect each coat before the next one

Defect	Likely contributors	Correct response
Peeling / delamination	Sealer, oil, moisture, weak concrete, poor profile, missed recoat window	Stop. Determine the failure plane, remove all unsound coating, correct cause, and rebuild the approved system.
Fisheyes / craters	Silicone, oil, soap, contamination	Do not keep rolling. Allow the coat to reach the repair stage, remove/clean contamination, abrade as required, and recoat.
Bubbles / pinholes	Outgassing, porous slab, aggressive rolling, entrained air	Use the manufacturer's primer and application timing; avoid coating a warming slab when prohibited.
Soft or tacky areas	Wrong ratio, poor mixing, cold cure, unmixed sidewall material	Quarantine the area. Do not topcoat. Consult the manufacturer; uncured material usually must be removed.
Roller lines / lap marks	Lost wet edge, uneven spread rate, late back-roll	Keep batch zones small, use consistent tool pressure, and recoat only after approved preparation.
Cloudy clear coat	Moisture, dew, trapped solvent, incompatible products	Check environmental records and compatibility; do not add another coat until the cause is confirmed.
Uneven flake	Changing throw height, late broadcast, poor lighting	Maintain one broadcast method; for full broadcast, cover uniformly to refusal and scrape consistently.

Hold-point checklist

- ☐ Profile is uniform
- ☐ Repairs are cured and flush
- ☐ Moisture and environment pass
- ☐ Coverage matches material used
- ☐ No holidays, puddles, or dry roll
- ☐ Recoat window is documented
- ☐ Finished area is barricaded

Keep a job record

- Photos before, during, and after
- Product names, colors, and lot numbers
- Data sheets and SDS revisions
- Test results and locations
- Air/slab/RH/dew point readings
- Batch and coat times
- Coverage achieved
- Cure-release times

Cure, clean, and hand off the floor

Before reopening

- ☐ Confirm the appropriate cure milestone for foot, light, furniture, or vehicle traffic
- ☐ Remove masking without tearing the edge
- ☐ Inspect in raking and normal light
- ☐ Check transitions, drains, joints, edges, and vertical details
- ☐ Photograph the finished floor
- ☐ Save labeled touch-up material only if storage is permitted
- ☐ Give the owner cleaning and chemical-exposure limits

Routine care

- Dry mop or vacuum grit before wet cleaning.
- Use a manufacturer-approved neutral cleaner and a soft pad or microfiber mop.
- Blot oil, fuel, dye, and chemical spills promptly.
- Avoid harsh solvents, metal scrapers, and abrasive pads unless the coating maker approves them.
- Use wide, nonstaining furniture pads and clean entrance mats.

Owner handoff card

System: _____

Color / blend: _____

Installed: _____

Foot traffic after: _____

Furniture / light traffic: _____

Vehicle / full cure: _____

Approved cleaner: _____

Installer contact: _____

First-week discipline: a coating can look hard before chemical cure is complete. Keep water, cleaners, rubber mats, rugs, tires, heavy cabinets, and point loads off until the applicable milestone is reached.

Epoxy Outpost standard: the job is complete only when the cure restrictions are posted, the floor is protected, the records are saved, and the owner knows how to maintain it.

Final acceptance

No bare spots, soft areas, fisheyes, trapped debris that creates a hazard, sharp flakes, puddled topcoat, blocked drains, unintended bridged joints, or unexplained color variation. Any repair should follow the original system's written method.

Print-ready field checklist

Before prep

- ☐ System selected for room and exposure
- ☐ All current PDS and SDS collected
- ☐ Area measured; spread rates verified
- ☐ Slab mapped and photographed
- ☐ Moisture method/results accepted
- ☐ Sealer and contamination screened
- ☐ Moving joints identified
- ☐ Ventilation and dust-control plan ready
- ☐ PPE selected from hazard information

After prep

- ☐ Profile matches system requirement
- ☐ Edges and corners complete
- ☐ No glossy, oily, dusty, or weak areas
- ☐ Repairs cured and inspected
- ☐ Bond test accepted where required
- ☐ Area vacuumed and isolated
- ☐ Weather and slab conditions still pass

Before mixing

- ☐ Materials conditioned and within shelf life
- ☐ Lot numbers recorded
- ☐ Batch rectangles and exit route marked
- ☐ Mixing, spread, and broadcast crew briefed
- ☐ Backup tools and covers staged
- ☐ Timer, gauges, and lighting ready
- ☐ Recoat and cure windows posted

Before handoff

- ☐ Every coat inspected
- ☐ Coverage and batch times recorded
- ☐ Traffic barriers remain in place
- ☐ Cleaning instructions supplied
- ☐ Photos and product records saved
- ☐ Touch-up / repair method documented
- ☐ Owner handoff card completed

The non-negotiables

Dry enough

Use the product's accepted moisture test and limit.

Profiled enough

Expose clean, sound concrete to the required CSP.

Measured exactly

Respect ratio, film build, pot life, recoat, and cure.

Technical references

Always download the current product data sheet and safety data sheet for the exact products in hand. Formulations and instructions can change.

1. **NIOSH, Hazard Alert: Epoxy Resin Systems (2023).** Health effects, ventilation, gloves, clothing, eye protection, respirator selection, housekeeping. [View NIOSH record](#)
2. **OSHA, respirable crystalline silica violation detail.** Concrete grinding without required exposure controls. [View OSHA record](#)
3. **Sika, Sikafloor Epoxy Coating Application Guide.** Tools, moisture, slab temperature, dew point, conditioning, preparation, mixing, and application. [View application guide](#)
4. **Sika, Sikafloor 215 Product Data Sheet.** Example professional limits for moisture, in-slab relative humidity, temperature, dew point, and surface profile. These values apply to that product only. [View data sheet](#)
5. **Rust-Oleum, RockSolid Garage Floor Coating Kit Technical Data.** Concrete cure and screening checks, surface preparation, product working time, recoat, coverage, and cure examples. Values apply only to the named product. [View data sheet](#)
6. **Rust-Oleum, RockSolid Pearlescent Installation Instructions.** Sectioning, wet-edge technique, rolling, pot-life examples, joints, and traffic-time examples. [View instructions](#)
7. **Sherwin-Williams, Fluid-Applied Flooring for Concrete specification.** ASTM moisture and preparation references, compatibility testing, new-concrete cure, and manufacturer-directed application. [View specification](#)
8. **ICRI, Field Guide to Concrete Repair Application Procedures.** Surface-profile evaluation, repair inspection, and concrete preparation reference. [View field guide](#)

Standards note. ASTM and ICRI documents may require purchase or professional interpretation. A product manufacturer may set tighter limits than a general standard; follow the complete coating system requirements.

Visual references

Project photos show representative finish types and application context. They are not product endorsements, and they do not replace a physical mock-up.



Garage flake finish

Source image: United Floor Coatings.

[View source image](#)



Basement metallic finish

Source image: M&M Epoxy Coatings.

[View source image](#)



Decorative metallic finish

Source image: Royal Polish Systems.

[View source image](#)



Roller application

Source image: Spruce / how-to guide.

[View source image](#)



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DIY knowledge. Professional discipline.

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