



INSTALLATION GUIDE

NOTE TO INSTALLER

ROCK-TRED does not warrant the performance of this product unless the instructions of this document and other related ROCK-TRED documents are adhered to in all respects. Installation procedures contained in this guide are as specific as possible but do not attempt to cover all variations in field conditions. Questions concerning topics not covered in this document should be discussed with a ROCK-TRED representative.

DESCRIPTION:

The DURA-FLAKE Decorative Flooring System is a highly decorative multi-product system that includes a 100% solids pigmented epoxy basecoat, decorative colored chips or flakes [either partially or completely broadcast into the wet epoxy], and a 'water-clear' protective topcoat. This system produces a 25 to 50 mil thick / seamless flooring system that has excellent chemical and abrasion resistance. The DURA-FLAKE Decorative Flooring System can provide a variety of surface texture options. It is suitable for commercial, industrial and institutional flooring applications that are prone to traffic abuse and subjected to light to medium impact.

TEXTURE:

The DURA-FLAKE Decorative Flooring System [in either the Partial & Full Broadcast methods] can be installed in a variety of textures by the installer, depending on method, installation technique, application tools, and use of slip-resistant aggregates.

COLORS:

The DURA-FLAKE Decorative "Flake" Flooring System is available in six (6) standard multi-colored blends of the 'FULL BROADCAST' method and six (6) standard blends of the 'PARTIAL BROADCAST' method, and they are also available with a gloss or "satin" finishes.

EQUIPMENT LIST:

Safety Equipment

- Commercial exhaust fans or air movers (to maintain OSHA PEL's)
- Protective Gloves
- Safety glasses, ear plugs and dust masks
- Water-based cleaners
- Protective covering such as Visqueen, caution tape

Surface Preparation Equipment

- Surface and ambient temperature thermometers
- Steel shot blasting equipment with dust collection system and rolling magnet to collect excess steel shot
- (Other preparation methods may be used – See ROCK-TRED's Surface Preparation Guide)
- Industrial vacuum(s)
- Medium and stiff bristle brooms, shovels, wheelbarrow, empty drum(s)
- Masking tape

Mixing and Installation Equipment

- High intensity, temporary lighting with extension cords
- Masking tape and drop cloths
- Variable speed drill mixer with a spiral or Jiffy blade
- 9" to 18" wide roller cages, 9" to 18" wide - 1/4" (short) nap lint-free or mohair roller covers, extension handle, straight AND/OR notched rubber squeegees - depending on thickness of basecoat desired, and a steel trowel (for some applications).

PRE-INSTALLATION:

Prior to starting the installation:

- Review the DURA-FLAKE Decorative Flooring Systems Data Sheet and Specifications.
- Review ROCK-TRED's Surface Preparation Guide and all component Data Sheets.
- Inventory all materials (see Components section of this Guide).
- Determine surface preparation requirements.
- Check that all necessary equipment is on the job site and that adequate electrical power is available for all power equipment.
- Select, set up and clearly designate an appropriate mixing area at least 50 feet (15.2 m) from all sources of possible contamination.
- Determine slab and air temperature, as well as Relative Humidity.
- Brief all installation personnel on application procedures and safety requirements.
- Review Material Safety Data Sheets (MSDS) and have available at the job site.

SURFACE PREPARATION:

The substrate must be clean, dry and sound with new concrete cured for at least 30 days at 70°F (21°C). Remove dust, laitance, grease, curing compounds, waxes, paints and loose coatings, foreign particles, and disintegrated or soft base materials. Create a surface profile on concrete by either steel shot blasting or acid etching. Repair cracks and joints with ROCK-TRED's POXI-ROCK® Flooring or ELASTI-POXI® Joint Fill and refer to ROCK-TRED's Floor Patching and Joint Repair Guide. For additional preparation information and methods, refer to ROCK-TRED's Surface Preparation Guide.

EXISTING CONCRETE:

Chemical Method:

1. Traces of oils, grease and other contaminants may be removed by power scrubbing with a strong detergent such as Trisodium Phosphate, Oakite NP220, a 10-15% solution of caustic soda, or equivalent. Follow this scrubbing with a heavy water rinse.
2. After an existing concrete surface has been cleaned in accordance with the above instructions, it should be etched with 10% muriatic (hydrochloric) acid to completely remove all laitance. Commercial muriatic acid will require dilution with water, usually 1 part acid to 1 or 2 parts water. For example, if 20% acid is obtained, dilute with an equal volume of water to achieve a 10% concentration.
3. Apply the diluted acid at the rate of 50 square feet per gallon (1.23 m²/L). Scrub using a rotary scrubber with a stiff brush. Allow the acid to remain on the floor for 10 to 20 minutes. Then rinse thoroughly with clean water. If the acid does not freely bubble and froth in contact with the concrete, there is indication that oils, grease, waxes, or curing membranes still remain on the surface, and the scrubbing operation must be repeated.
4. Follow the water rinsing with a Neutralizing rinse to bring the concrete's pH back to 6-8 with a thorough scrubbing with ROCK-TRED's ROCK-POWER® diluted 10 to 1 with water. Rinse the floor again with water.
5. If a dense, smooth surface still remains, laitance has not been completely removed and the acid etch must be repeated. When laitance is completely removed, the floor should have the appearance of medium grit sandpaper.
6. After the cleaning and etching operations are complete, remove excess water with a broom, squeegee, or wet-dry vacuum. Allow the floor to dry completely. Fans, space heaters, hot air guns, etc., may be used for speed drying.

Mechanical Method:

1. An alternate method of preparing existing concrete is to completely remove the surface mechanically by means of shot-blasting, or other mechanical methods. Grind all edges.
2. Then use a power vacuum cleaner to remove all loose debris. The acid etching may be eliminated if clean concrete is exposed.
3. However, if fats, grease or oils remain on the floor, a thorough chemical cleaning (as above) is still necessary.

EXISTING COATINGS/PAINTS:

Although ROCK-TRED recommends that this system be applied directly to concrete, it is possible to apply over existing coatings, as long as there is no doubt regarding their adhesion to the substrate. All questionable surfaces should be shot-blasted, or sanded (to remove any gloss or loose materials), vacuumed, degreased with ROCK-TRED's ROCK-SOLV®, or xylene if necessary, and cleaned with a solution of ROCK-TRED's ROCK-POWER®, the environmentally safe heavy duty liquid cleaning detergent. Thoroughly flush the floor with clean water after the detergent or chemical cleaning.

NEW CONCRETE: should have a "float" or smooth trowelled finish with a minimum compressive strength of 3000 psi (20685 kPa). The concrete should be cured for a minimum of 30 days.

1. Chemical or resin curing agents are not recommended. However, if used, they must be completely removed by steel shot blasting or other environmentally appropriate means.
2. Laitance must be removed by acid etching, steel shot blasting, or other mechanical means as described above.
3. Large or deep holes should be primed and pre-filled with POXI-ROCK Flooring, or other compatible patching materials from ROCK-TRED.
4. When installing DURA-FLAKE Decorative Flooring System over existing concrete that has been subjected to acidic or alkaline conditions, a pH test is recommended. The floor should be in the range of pH 7-10 after the surface preparation is complete.

COMPONENTS:

1. Primer: AGUA-ROCK, a two component, 52% solids, water-based epoxy, as manufactured by ROCK-TRED Corporation, Skokie, Illinois. Recommended for concrete surfaces over 20 years old, or those without moisture barrier, or those that are oil and grease saturated. Not to be used with the low temperature version.
2. Pigmented Basecoat: DURA-TRED is a 100% solids, low viscosity "water clear" epoxy mixed with the appropriate / selected colorant – can be used for the basecoat application. OR, CHEM-ROCK Seal/Coat LV may be used in place of DURA-TRED for this type application.
3. Colorants: ROCK-TRED Colorants, a field dispersion pigment for the basecoat, as manufactured by ROCK-TRED Corporation, Skokie, Illinois.
4. Decorative Chips: DURA-CHIPS, a decorative acrylic chip or flake broadcast partially or completely into the wet basecoat epoxy.
5. Clear Topcoat: DURA-TRED, a two component, 100% solids "water-clear" epoxy coating manufactured by ROCK-TRED Corporation, Skokie, Illinois. OR, CHEM-ROCK Seal/Coat LV may be used in place of DURA-TRED for this type application.
6. (Optional): ECO-POXI, a two component, 100% solids, epoxy coating manufactured by ROCK-TRED Corporation, Skokie, Illinois.
7. (Optional): CHEM-ROCK LT Seal/Coat, a two-component, 100% solids, epoxy coating that cures down to 35F (1.7°C). May be used in place of the DURA-TRED Top Coat for Cold Temperature or Fast Cure Applications.
8. (Optional): NOVO-BRITE, a 100% solids, "water clear" Novolac epoxy. May be used in place of DURA-TRED for applications requiring high heat and extreme chemical resistance.
9. (Optional): CHEM-THANE SB or WBU Urethane (Gloss or Satin), as manufactured by ROCK-TRED Corporation, Skokie, Illinois. Recommended as an additional topcoat for added abrasion resistance. Do Not Use with NOVO-BRITE or CHEM-ROCK LT Seal/Coat.
10. (Optional): ELASTI-POXI Joint Fill, a 100% solids, thixotropic elastomeric joint filler, as manufactured by ROCK-TRED Corporation, Skokie, Illinois.

ESTIMATING:

Usage Rates (Approximate):

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| AGUA-ROCK (Primer)..... | 200 sq. ft/gal (4.91 m ² /L) |
| DURA-TRED or CHEM-ROCK LV (basecoat) | |
| Partial Broadcast | 150 sq. ft. / gal. (3.68 m ² /L) |
| Full Broadcast | 140 sq. ft. / gal. (3.43 m ² /L) |
| ROCK-TRED COLORANT | see Data Sheet |
| DURA-CHIPS Decorative Flakes | |
| Partial Broadcast | 0.015 lbs. / sq. ft. (0.073 kg/m ²) |
| Full Broadcast | 0.12 lbs. / sq. ft. (0.586 kg/m ²) |
| DURA-TRED or CHEM-ROCK LV (clear top coat) | |
| Partial Broadcast | 150 sq. ft. / gal. (3.68 m ² /L) |
| Full Broadcast | 120 sq. ft. / gal. (2.94 m ² /L) |
| DURA-TRED or CHEM-ROCK LV (2 ND clear top coat – RECOMMENDED WITH 'Full' Broadcast Method) | |
| Full Broadcast | 180 – 200 sq. ft. / gal. (4.42 – 4.91 m ² /L) |
| (Optional) ECO-POXI as a Slurry..... | 200 sq. ft. / gal. (4.91 m ² /L) |
| (Optional) CHEM-ROCK LT Seal/Coat (Smooth Finish)..... | 50 sq. ft/gal (1.25m ² /L) |
| (Optional) CHEM-THANE SB or WBU Urethane..... | 350 sq. ft/gal (8.59 m ² /L) |
| (Optional) ELASTI-POXI Joint Fill | see data sheet |
| (Optional) NOVO-BRITE (Smooth Finish)..... | 50 sq. ft/gal (1.25m ² /L) |
| (Optional) CHEM-ROCK Slurry (Smooth Finish)..... | 50 sq. ft/gal (1.25m ² /L) |

Note: All spread rates and quantities listed above are approximate and will be affected by job conditions, substrate conditions, substrate & air temperatures, and installation technique. ROCK-TRED will not be responsible for actual coverage rates achieved.

MIXING AND APPLICATION OF AGUA-ROCK (Primer):

1. Pour entire contents of AGUA-ROCK Hardener container into AGUA-ROCK Resin container. DO NOT change the ratio of Hardener to Resin (2:1 by volume). Do not mix more than 3 gallons (11.4 L) at one time.
2. Blend thoroughly for a minimum of 2 minutes with a spiral-mixing blade (available from ROCK-TRED) attached to a low-speed (400-600 RPM) electric drill. If the blade recommended is not used, with complete movement throughout the container, the blend will not properly catalyze or "set up" once applied.
3. Take care not to induce air into the material when mixing. This will cause "bubbles" in the coating when applied.
4. Immediately pour the mixed AGUA-ROCK onto the prepared concrete substrate in a "ribbon" pattern. Spread evenly with a 24" (61 cm) stiff rubber squeegee and back roll using a high quality long nap (1-1/4" (3.175 cm)) paint roller.
5. Do not puddle the AGUA-ROCK, but be certain that all areas are coated with the AQUA-ROCK.
6. Suggested coverage rate is 300 square feet per gallon (7.36 m²/L). Working time is 40 to 50 minutes at 70°F (21°C). Allow primer to cure 3 to 4 hours before recoating.

MIXING AND APPLICATION OF ELASTI-POXI Membrane (Optional-For water proofing and to reduce reflective cracking):

1. Into a five gallon (19 L) pail, pour one part ELASTI-POXI Membrane Hardener into the container, then add one part ELASTI-POXI Membrane Resin. DO NOT change the ratio of Hardener to Resin (1:1 by volume). Do not mix more than 3 gallons (11.4 L) at one time.
2. Blend thoroughly for a minimum of 2 minutes with a spiral mixing blade (available from ROCK-TRED) attached to a low-speed (400-600 RPM) electric drill. If the blade recommended is not used, with complete movement throughout the container, the blend will not properly catalyze or "set up" once applied.
3. Take care not to induce air into the material when mixing. This will cause "bubbles" in the coating when applied.
4. Immediately pour the mixed ELASTI-POXI Membrane onto the prepared concrete substrate in a "ribbon" pattern. Spread evenly with a 24" (61 cm) stiff rubber squeegee and back roll using a high quality long nap (1-1/4") paint roller, making sure that all areas are coated with the ELASTI-POXI Membrane.
5. Suggested coverage rate is 150 square feet per gallon (3.68 m²/L). Working time is 40 to 50 minutes at 70°F (21°C). Allow to cure 8 to 10 hours before recoating.

MIXING AND APPLICATION OF DURA-FLAKE "PARTIAL" Broadcast Method :

1. Pre-Blend ROCK-TRED Colorant. Pour the Colorant (per Data Sheet) into DURA-TRED Resin and blend for 1 minute.
2. Pour the entire contents of the DURA-TRED Hardener container into the DURA-TRED Resin container with the blended ROCK-TRED Colorant. DO NOT change the ratio of Resin to Hardener – [DURA-TRED has a 2:1 mix ratio by volume].
3. Blend thoroughly for a minimum of 1 ½ to 2 minutes with a spiral mixing blade (available from ROCK-TRED) attached to a low-speed (400-600 RPM) electric drill. If the blade recommended is not used, with complete movement throughout the container, the blend will not properly catalyze or "set up" once applied.
4. Take care NOT to induce air into the material when mixing. This will cause "bubbles" in the coating when applied.
5. Immediately pour the pigmented DURA-TRED (Basecoat epoxy) onto the prepared concrete substrate in a "ribbon" pattern. Spread evenly with a 12" (30.5 cm) to 24" (61 cm) stiff rubber squeegee and back roll using a lint free or mohair ¼" (.64 cm) short nap roller cover.
6. Suggested coverage rate is 150 square feet per gallon (3.68 m²/L) – depending on substrate conditions. Working time is 30 minutes at 75°F (24°C). While the Basecoat is still 'Wet', by hand, immediately broadcast the DURA-FLAKE Decorative colored flakes into the wet epoxy (the flakes should be thrown UP in the air) at a rate of approximately 0.015 lbs. per square foot (0.073 kg / m²) Allow material to cure 6 to 8 hours.
7. After the DURA-TRED basecoat has cured sufficiently, make a visual inspection for any imperfections and/or unevenness; make any "cosmetic" repairs as needed. If necessary the entire surface can be lightly sanded before the application of the next coat.
8. A clear topcoat of DURA-TRED can be applied in the same manner as above at a spread rate of 150 square feet per gallon (3.68 m²/L) for a smooth surface, or a slip-resistant aggregate (such as white Aluminum Oxide) can be broadcast into the wet topcoat and then back-rolled to "lock-in" the aggregate.
9. (Optional): CHEM-ROCK LT may be used in place of DURA-TRED for cold temperature or fast cure applications.
10. (Optional): NOVO-BRITE may be used in place of DURA-TRED for high heat and extreme chemical resistance applications.
11. (Optional): CHEM-THANE SB or WBU Urethane (Gloss or Satin), may be added as an additional topcoat for abrasion resistance.
12. (Optional): ELASTI-POXI Joint Fill (see data sheet for coverage rate, and note below for application).

MIXING AND APPLICATION OF DURA-FLAKE "FULL" Broadcast Method :

1. Pre-Blend ROCK-TRED Colorant. Pour the Colorant (per Data Sheet) into DURA-TRED Resin portion and blend for 1 minute.
2. Pour the entire contents of the DURA-TRED Hardener container - into the DUR-TRED Resin with the blended ROCK-TRED Colorant. DO NOT change the ratio of Resin to Hardener – [DURA-TRED has a 2:1 mix ratio by volume].
3. Blend both components together thoroughly for a minimum of 1 ½ to 2 minutes with a spiral-mixing blade (available from ROCK-TRED) attached to a low-speed (400-600 RPM) electric drill. If the blade recommended is not used, with complete movement throughout the container, the blend will not properly catalyze or "set up" once applied.
4. Take care NOT to induce air into the material when mixing. This will cause "bubbles" in the coating when applied.
5. Immediately pour the pigmented DURA-TRED Basecoat epoxy onto the prepared concrete substrate in a "ribbon" pattern. Spread evenly with a 12" (30.5 cm) to 24" (61 cm) stiff rubber squeegee and back roll using a lint free or mohair ¼" (.635 cm) short nap roller cover.
6. Suggested coverage rate is approximately 140 square feet per gallon (3.43 m²/L) – depending on substrate conditions. Working time is 30 minutes at 75°F (24°C).
While the DURA-TRED Basecoat is still "Wet", immediately broadcast the DURA-FLAKE Decorative colored flakes into the wet epoxy (the flakes should be thrown UP in the air) and broadcast to the point of "rejection" at a rate of approximately 0.12 lbs. per square foot (0.586 kg/m²) – or until the entire surface looks like dry flakes and no wet spots are exposed. Allow material to cure 6 to 8 hours.
7. After the DURA-TRED "Full" broadcast basecoat has cured sufficiently, make a visual inspection for any imperfections and/or unevenness; make any "cosmetic" repairs as needed, and sand the surface lightly before the application of the next coat.
8. Apply the clear topcoat of DURA-TRED over the sanded / broadcast flakes in the same manner as described above. Apply at a rate of approximately 120 square feet per gallon (2.94 m²/L) for an "orange peel" texture. A second coat maybe required to achieve a smooth surface, or a slip-resistant aggregate (such as white Aluminum Oxide) can be broadcast into the second topcoat to add slip-resistance.
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10. (Optional): CHEM-ROCK LT may be used in place of DURA-TRED for cold temperature or fast cure applications.
11. (Optional): NOVO-BRITE may be used in place of DURA-TRED for high heat and extreme chemical resistance applications.
12. (Optional): CHEM-THANE SB or WBU Urethane (Gloss or Satin), may be added as an additional topcoat for abrasion resistance.
13. (Optional): ELASTI-POXI Joint Fill (see data sheet for coverage rate, and note below for application).

JOINT REPAIR NOTE:

Joints that have already cracked and have no potential for movement can be pre-filled before the flooring system is installed. However, joints that may have the potential for movement, may transfer through the finished floor. The safest way to address a potentially moving joint is to saw cut through the finished floor, and fill joint with ELASTI-POXI Joint Fill blended with the DURA-FLAKE blend.

- Cure time for foot traffic is 12+ hours.
- Cure time for heavy traffic and chemical exposure is 48 hours.
- USE SIGNS AND BARRIERS to keep traffic out of the area.

CLEAN-UP:

Hand tools and power equipment can be cleaned with a water-based industrial cleaner (ROCK-TRED's ROCK-POWER) prior to material hardening. Material that has partially cured can be removed using solvents such as xylene. Material that is fully hardened may require mechanical removal.

LIMITATIONS:

- Materials must be stored in a cool, dry area at 55°F to 85°F (13°C to 29°C), away from direct sunlight, flame or other hazards.
- Movement of sub-floor cracks may transmit through cured flooring material.
- An effective vapor barrier is required beneath substrates at or below grade.
- Adequate air movement must be ensured during preparation, installation and joint sawing phases (per OSHA standards).
- Heat resistance limits of the cured system are 140°F (60°C) continuous and 200°F (93°C) intermittent, or if NOVO-BRITE is used then 180°F (82°C) continuous and 212°F (100°C) intermittent.
- See DURA-TRED Flooring System Chemical Resistance Guide for chemical resistance limitations.

SAFETY:

This system should only be installed by qualified personnel for recommended applications in accordance with this installation guide. Review all MSDS sheets for detailed information prior to placing any material and/or for product specific health and safety information.

RELATED DOCUMENTS:

DURA-FLAKE Installation Guide
DURA-FLAKE Decorative Flooring System Data Sheet
DURA-FLAKE Chemical Resistance Guide
DURA-FLAKE Color Guide Data Sheet
AGUA-ROCK Data Sheet
CHEM-ROCK LT Seal/Coat Data Sheet
CHEM-ROCK Slurry Resin Data Sheet
ELASTI-POXI Membrane Data Sheet
ELASTI-POXI Joint Fill Data Sheet

CHEM-THANE SB or WBU Data Sheet
NOVO-BRITE Data Sheet
ROCK-TRED Colorants Data Sheet
All ROCK-TRED Appropriate Material Safety Data Sheets
ROCK-TRED Crack and Joint Repair Guide
ROCK-TRED Surface Preparation Guide
ROCK-TRED Floor Maintenance Guide
ROCK-TRED Seamless Flooring Reference Guide