



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:

Conduroc® Conductive Coating is a multi-product system that is based on using an insulating water-based epoxy primer, then a “conductive” primer called Conduroc CD-Primer in combination with an ESD-Top Coat. The combination of the highly conductive primer and the ESD Top Coat results in a combined system that will give a surface resistance of 25,000 to one million ohms. Conduroc Conductive Coating Flooring System is used on surfaces that need to be conductive and/or “non-sparking”. Formulated to be chemically and abrasion resistant, this system possesses excellent ESD properties. Generally used in facilities that require critical “static” control in the “conductive” range. Typically used in electronics manufacturing and assembly facilities along any area where sensitive electrical components are used.

TEXTURE:

The CONDUROC Conductive System can be finished in either a smooth or “orange peel” finish, depending on the tools and installation techniques used.

COLORS:

The CONDUROC Conductive System is available in 21 standard colors. Special colors are also available.

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 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
- Long handled 18" (45.7cm) paint rollers, 3/8" (.95cm) nap lint-free roller covers, straight and notched rubber squeegees

PRE-INSTALLATION:

Prior to starting the installation:

- Review the CONDUROC Conductive System Data Sheet and Specifications.
- Review ROCK-TRED's Surface Preparation Guide.
- Review the AGUA-ROCK Data Sheet.

- ❑ 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.
- ❑ Determine slab and air temperature, as well as Relative Humidity.
- ❑ Select, set up and clearly designate an appropriate mixing area at least 50 feet (15.2 m) from all sources of possible contamination.
- ❑ 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. 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 (1.23m²/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 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.
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. 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.
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.
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:

All questionable surfaces should be shot-blasted, or sanded (to remove any gloss or loose materials), vacuumed, degreased with ROCK-TRED's ROCK-SOLV® 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 or steel shot blasting as described above.
3. Large or deep holes should be primed and pre-filled with POXI-ROCK Flooring.
4. When installing CONDUROC Conductive 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. Sealer: AGUA-ROCK, a two component, 52% solids, water-based epoxy coating manufactured by ROCK-TRED Corporation, Skokie, Illinois.
2. Primer: CONDUROC CD-Primer, a two component, conductive epoxy primer manufactured by ROCK-TRED Corporation, Skokie, Illinois.
3. Epoxy Coating: CONDUROC ESD Top Coat, a two component, 100% solids, epoxy coating manufactured by ROCK-TRED Corporation, Skokie, Illinois.
4. (Optional) Epoxy Coating: CONDUROC CR ESD Top Coat, a two componenet, 100% solids, High Chemical Resistant and/or Heat Resistant epoxy coating manufactured by ROCK-TRED Cordporation, Skokie, Illinois.

ESTIMATING:

Usage Rates (Approximate) for a total Film Thickness of 25 mils (0.61mm):

AGUA-ROCK	300 sq. ft./gal (7.36m ² /L)
CONDUROC CD-Primer	300 sq. ft./gal (7.36m ² /L)
CONDUROC ESD Top Coat.....	100 sq. ft./gal (2.45m ² /L)
(Optional) CONDUROC CR ESD Top Coat.....	100 sq.ft./gal (2.45m ² /L)
(Optional) ELASTI-POXI Joint Fill.....	See Data Sheet
(Optional) ROCK-TRED Colorants.....	See Data Sheet

Note: All quantities are approximate and will be affected by job conditions, suitable substrate condition and workmanship. ROCK-TRED will not be responsible for actual coverage rates achieved.

MIXING AND APPLICATION OF PRIMER:

1. Mix 2 parts of AGUA-ROCK Hardener with 1 Part AGUA-ROCK Resin. Never mix more than 3 gallons (11.4 L) at one time. DO NOT change the ratio of Hardener to Resin (2:1 by volume), and DO NOT thin the AGUA-ROCK. Many of ROCK-TRED's kit sizes for this product are already pre-proportioned for proper mixing.
2. Blend thoroughly for 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 immediately back roll using a 24" (45.7 cm) high quality, lint free, medium nap (3/8" or 0.95 cm) paint roller. Try to get all material on the floor as quickly as possible to increase working time, and DO NOT turn the buckets upside down to get the last of the material, as this could cause unmixed material to hit the floor that may never cure.
5. Suggested coverage rate is 250 to 300 square feet per gallon (6.13 – 7.36 m²/L).
6. Allow material to cure 4 to 5 hours, or until tack-free.
7. If humidity is above 70% R.H., use large industrial fans to create air circulation away from the coating and help the curing process.

MIXING AND APPLICATION OF CONDUROC CONDUCTIVE SYSTEM:

1. Pour entire contents of CONDUROC CD-PRIMER Hardener container into CONDUROC CD-PRIMER Resin container. DO NOT change the ratio of Hardener to Resin (1:2 by volume).
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 CONDUROC CD-PRIMER 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" (3.25cm)) paint roller.
5. Do not puddle the CONDUROC CD-PRIMER, but be certain that all areas are coated with the PRIMER.
6. Suggested coverage rate is 300 square feet per gallon (7.36m²/L).
7. Working time is 40 to 50 minutes at 70°F (21°C). Allow primer to cure 3 to 4 hours before recoating.
8. Apply a three inch wide wire mesh grounding strip, achieving intimate electrical contact with the Conduroc CD Primer, i.e., embed directly into the wet Conduroc CD Primer. Connect free ends of grounding mesh, via a grounding wire, to an installed grounding bus that terminates at a permanent earth ground. **Note:** Determination of lengths, quantity, and spacing of wire mesh required is based upon specific requirements of the electrical properties of the project.
9. Pour entire contents of ESD Top Coat Hardener container into the ESD Top Coat Resin container. DO NOT change the ratio of Hardener to Resin (See Data Sheet for Specific Mix Ratios). If adding ROCK-TRED Colorant to the ESD Top Coat, add the appropriate amount to the resin portion first, mix thoroughly, then add the hardener portion.

10. 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.
11. Take care not to induce air into the material when mixing. This will cause "bubbles" in the coating when applied.
12. Immediately pour the mixed ESD Top Coat onto surface in a "ribbon" pattern. Spread evenly with a 24" (61cm) stiff rubber squeegee and back roll using a high quality medium nap (3/8" (.95cm)) paint roller.
13. Coverage rate is 100 square feet per gallon (2.45 m²/L). **Note:** If the top coat is applied at a different coverage rate than 100 square feet per gallon (2.45 m²/L), the conductivity of the finished floor will vary out of specification.
14. Allow material to cure for a minimum of 7 hours, or until tack-free.
 - Working time is 25 to 30 minutes at 70°F (21°C).
 - Cure time for foot traffic is 12 hours.
 - Cure time for heavy traffic and chemical exposure is 48 hours.

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 or ROCK-TRED's Tool Cleaner. Material that is fully hardened may require mechanical removal.

LIMITATIONS:

- Material 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.
- See CONDUROC Conductive 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:

CONDUROC Conductive System Data Sheet, Chemical Resistance Guide, and Specification
Surface Preparation Guide
Material Safety Data Sheets