Related Bulletins:
Technical Data
Specification Bulletin

Master Builders Technologies
Polymer Floors & Walls
INSTALLATION PROCEDURE

3.22I

CEILCOTE® 682 FLOORING

IMPORTANT: READ THIS FIRST

Master Builders does not warrant the performance of this product unless the instructions of this document and other related Master Builders documents are adhered to in all respects.

APPLICATION FOR CEILCOTE 682 FLOOR PROTECTION

Installation information contained in this procedure is as specific as possible, but cannot cover all variations in field conditions. Supervisors experienced in installing CEILCOTE® materials may sometimes deviate slightly from published procedures. This is done to give a better installation by using the most-up-to-date methods to fit field and service conditions.

JOB SET UP

Prior to starting installation you should:

- Inventory all materials received from Master Builders.
- Determine surface preparation requirements (blasting, scarifying).
- Have all tools and equipment available at jobsite or readily available for use.
- Select and set up appropriate mixing areas.
- Brief all personnel on application procedures and safety requirements.

EQUIPMENT CHECKLIST

Surface Preparation

- Muriatic acid, abrasive blasting equipment or scarifying equipment.
- Brooms/wire brushes.
- Buckets (plastic for acid solution).
- Water hose to rinse down floor after etching, floor squeegee.
- Fans (for faster drying after etching).
- Heaters (for faster drying after etching in cool environments.

Installation Tools

- FINISH Trowel - For spreading topcoat in tight areas.
- Serrated Trowel - Notched 1/8" x 1/8" deep on 1/8" centers for spreading base coat saturant.
- Short Nap Paint Rollers - For priming, rolling out 600 reinforcing, application of CEILCOTE 682 flooring grit coat.
- Roller Handle Extensions - Use with ribbed rollers, paint rollers, 600 serrated squeegee, and 600 spiked roller.
- Floor Sander - For smoothing seams, wrinkles, high spots in cured base coat prior to application of topcoat (on small jobs under 1,000 sq. ft. hand belt sander is adequate; large jobs over 1,000 sq. ft. use walk behind floor sander - 60 to 100 grit paper).
- Disc Sander - Touch up grinding.
- Paint Brushes - 3" to 4" for touch up work.
- Cleaning Solvent - T-410, T-430, lacquer thinner, MIBK or MEK.
- Rags.
- Gloves.
- Wet Film Thickness Gauge - For checking thickness of topcoat (30 to 50 mils).
- 600 Ribbed Roller (order from Master Builders).
- 600 Serrated Squeegee (order from Master Builders).
- 600 Spiked Roller (order from Master Builders).

CEILCOTE 682 Mixing Equipment

- 30 lb. scale - to weigh proper proportions of CEILCOTE 682 materials for partial batches (household scale graduated in ounces).
- 1/2" drill motor and plaster whip.
- Stirring sticks.
- Plastic or metal buckets - 5 gal. and 5 qt. sizes.

Surface Preparation
(Refer to CP-14)

NOTE: NEW CONCRETE - Hi-Early concrete and standard concrete must be completely cured. All concrete should have a minimum of 3,000 psi compressive strength and 200 psi tensile strength (at the surface). **IF CONCRETE CONDITION IS QUESTIONABLE, MASTER BUILDERS SHOULD BE CONTACTED BEFORE PROCEEDING.**

Acid Etching - Mix one part muriatic or concentrated hydrochloric acid with two parts water (a gallon of this solution should etch about 80 sq. ft.). Pre-wet concrete with clean water, leaving no puddles. Broom acid over the concrete and leave until foaming stops. Before acid starts to dry, rinse thoroughly. A properly etched surface should have a texture like 60 or 80 grit sandpaper and may have a few loose sane grains. If this texture is not achieved, repeat etching. Let concrete dry for 24 hours. This time can be reduced in certain cases but first consult Master Builders.

CAUTION: Wear goggles and protective clothing. Do not breath vapors of concentrated acid. Protect stainless steel equipment. Some steels may rust from vapors of hydrochloric acid. Electrical controls can also be corroded.

Sand or Grit Blasting - This is an excellent method, particularly if drying conditions are poor for acid etch method or if the laitance is too thick to be removed by etching. If there is a dust problem, wet blasting may be used. Protect equipment in the area by covering with plastic sheeting.

Scarifying - This mechanical preparation is most desirable for rush jobs when time is not available for acid etching to dry.

Determine Dryness - Concrete on a grade may be on wet soil or on a vapor barrier where etching water cannot escape except by surface evaporation. The major problem with curing concrete is the water content, therefore a thorough moisture test must be done on the substrate. This can be checked by ASTM D-4263, which calls for taping an 18"x 18" square of polyethylene or other clear film to the floor. If condensation appears on the underside of the film or if the concrete becomes visibly damp within 8 hours, the concrete is not dry enough to place the CEILCOTE 682 FLOORING materials.

OLD CONCRETE - IF CONCRETE IS IN DOUBTFUL CONDITION OR HEAVILY CONTAMINATED, CONTACT MASTER BUILDERS FOR SPECIFIC INSTRUCTIONS BEFORE PROCEEDING.

CONCRETE SLOPE - The CEILCOTE 682 topcoat liquid is semi-self leveling. If the floor, over which CEILCOTE 682 material is to be installed, exceeds 1/4" per foot in slope, consult Master Builders before proceeding.

ENCLOSED CONCRETE SLABS - If water is unable to drain from a concrete slab, over which CEILCOTE 682 material is to be installed, due to a membrane beneath the slab, caution should be taken to ensure that the slab is thoroughly dry before application of CEILCOTE 682 material. Entrapped water can cause blistering in the CEILCOTE 682 flooring during thermal changes of an enclosed concrete slab.

PRODUCT PREPARATION

Storage

All materials are stable for one year if containers are kept closed and dry and stored below 75°F(24°C). Prior to installation, materials should be kept at an ambient temperature of 70°F to 75°F(21°C to 24°C). to maintain workability and cure time. Keep from freezing.

Application

CEILCOTE 682 flooring materials can be applied at temperatures between 50°F and 90°F(10°C and 32°C). Approximate recoat times at 73°F (23°C). are listed below:

	@ 73°F(23°C)
CEILCOTE 680 primer	4 to 6 Hrs.
CEILCOTE 680 patch materials	5 to 7 Hrs.
CEILCOTE 682 topcoat	8 to 10 Hrs.
CEILCOTE 682 grit coat	5 to 8 Hrs.
Final System (Before placing in service)	24 Hrs.

NOTE: At lower temperatures, cure time will be longer.

Mixing Instructions

- A large plaster mixing whip powered by a 1/2" drill motor is recommended for mixing. All CEILCOTE 682 liquids should be mixed 1 to 2 minutes until the material is completely color uniform.
- Mixing instructions for each CEILCOTE 682 component are following.

Primer

Before primer is applied, the concrete should be dry.

Mixing Ratio

3 parts CEILCOTE 680 primer:1 part No. 9 Hardener by volume.

1 GALLON UNIT

CEILCOTE 680 primer	3 qts. (7 lbs.)
Hardener No. 9	1 qt. (2 lbs.)
T-471	30 fl. oz.

4 GALLON UNIT

CEILCOTE 680 primer	3 gal. (27 lbs.)
Hardener No. 9	1 gal. (8 lbs.)
T-471	1 gal. (120 fl. oz.)

Coverage

175-200 ft^2/gal. (4.3-6.1 m^2/liter)

Working Time

45 min. @ 70°F(21°C). (Unthinned)
1-2 hrs. @ 70°F(21°C). (Thinned)

Application

The primer should be applied with a short nap paint roller to completely wet the concrete. If most is absorbed, resulting in a dull appearance, another coat may be applied. On dense concrete a lesser amount will be required. Be sure to add and mix hardener to the liquid BEFORE adding thinner.

NOTE: DO NOT THIN PRIMER FOR METAL OR WOOD APPLICATIONS.

PATCHING

All holes, honeycombs, or irregularities in the concrete surface must be filled. After priming, trowel the 682 patching compound into these voids. If the areas are large or the floor requires resloping, contact Master Builders for specific instructions. If no patching of holes or other irregularities is necessary, proceed to the base coat section.

BASECOAT

- Mixing Ratio: 3 parts CEILCOTE 680 primer:1 part No. 9 Hardener by VOLUME.
- Example batch size (for saturating only) - DO NOT THIN:

1 GALLON UNIT	
CEILCOTE 680 primer	3 qts (7 lbs)
Hardener No. 9	1 qt (2 lbs)

4 GALLON UNIT	
CEILCOTE 680 primer	3 gal (27 lbs)
Hardener No. 9	1 gal (8 lbs)

Coverage
35 sq ft/gal

Working Time
45 minutes @ 70 degrees F

APPLICATION

1. Precut the 600 reinforcing as needed by measurement or actually unrolling it on the dry, primed concrete surface. Reroll carefully, making sure edges are kept straight. Store cut rolls in a dry, clean area. Do not stack rolls on top of each other or stand rolls on end.
2. Apply a uniform coat of saturant to the floor spreading it with a serrated trowel or paint roller, thick enough to saturate the reinforcing (approximately 40 mils). Apply the saturant only as far as you can reach.
3. Unroll and lay mat, as wrinkle free as possible, in saturant liquid.
4. Use a paint roller to wet out the mat after placement. Apply additional resin only in trouble areas (dry, white spots) that are difficult to wet out. Excess saturant resin may cause the mat to wrinkle. The base coat should be rolled until mat is completely wet out (uniform color) and lies smooth and flat.
5. As adjacent pieces of mat are applied, they must be lapped a minimum of 1 inch.
6. Roll the mat using a ribbed roller to aid in removing air and to level the mat surface.
7. Allow to harden until the base coat can be sanded (approximately 16 hrs. @ 70°F(21°C)).

TOPCOAT

Before topcoat application, the base coat must be checked for levelness and air pockets. Seams and glass fibers sticking up must be sanded flat. Air pockets larger than 1 inch in diameter must be cut out and patched. Sanding should be done with a belt sander. On jobs over 1,000 sq. ft., a walk behind floor sander should be used. A disc grinder can be used on small areas but must be kept from tipping to avoid gouges in the base coat.

MIXING INSTRUCTIONS
The CEILCOTE 682 topcoat liquid should be mixed prior to adding hardener to bring any settled material off the bottom of the container. CEILCOTE 682 topcoat hardener is premeasured for the CEILCOTE 682 topcoat liquid.

Mixing Ratio
3.25 parts CEILCOTE 682 topcoat Resin: 1 part CEILCOTE 682 topcoat Hardener by volume.

Batch Size

Batch	CEILCOTE 682 topcoat liquid	CEILCOTE 682 topcoat Hardener
100 sq. ft. unit @ 50 mils (.61m^2/liter)	43 lbs	8 lbs

Working Time: 50 min. @ 70°F

Application

1. Pour catalyzed CEILCOTE 682 topcoat liquid onto floor.
2. Spread topcoat with the 600 serrated squeegee uniformly on the floor. Do not steeply angle the blade; keep it perpendicular to the floor. Proper thickness is 50 mils. A wet film thickness gauge should be used to periodically check topcoat thickness. The serrated squeegee should be checked periodically for wear and build up of gelled material as this will affect thickness of topcoat. Replace approximately every 4,000 sq. ft., or as needed.
3. In tight working areas where the serrated squeegee is too large, the topcoat should be hand troweled or a spare squeegee cut smaller. When using a trowel to put down the topcoat a wet film thickness gauge must be used to maintain proper 50 mil thickness.
4. Roll the freshly applied topcoat with the 600 spiked roller. The spiked roller removes trapped air, squeegee marks, and other uneveness. The spiked roller should be kept clean. Allow topcoat to cure - usually 16 hrs. @ 70°F (21°C), longer at lower temperatures.

LAST COAT
NOTE: This is the last coat and will be either a GRIT COAT or a FINISH COAT, NOT BOTH.

GRIT COAT

CAUTION - Before walking on freshly cured CEILCOTE 682 topcoat, tie clean rags around feet or clean off footwear frequently on a wicker mat to avoid tracking dirt. Footprints on the CEILCOTE 682 topcoat may show through the grit coat.

All lumps, glass fibers sticking up, or waviness should be sanded smooth before the grit coat is applied. Small lumps should be hand sanded. Large waves must be flattened with a belt sander.

After sanding, vacuum or sweep dust off the topcoat surface. Wipe the surface with a clean cloth dampened with T-410 solvent prior to grit coat application.

Special Mixing Instructions
The CEILCOTE 682 grit coat should be mixed prior to adding hardener to bring any settled material off the bottom of the container.

Mixing Ratio
1.8 parts CEILCOTE 682 grit coat liquid:1 part CEILCOTE 682 grit coat Hardener by volume.

Coverage
200 ft^2 unit

CEILCOTE 682 grit coat liquid	8 lbs.
CEILCOTE 682 grit coat Hardener	3 lbs.

	wt./100 sq. ft.
Grit No. 1/2*	5 oz.
Grit No. 1	11 oz.
Grit No. 2	1 lb.
Grit No. 3	1 lb., 6 oz.

***NOTE**: Grit No. 1/2 is the same size as Grit No. 1. Amounts are based on using half as much per sq. ft. of area.
Working Time: 60 min. @ 77°F.

Application

1. The CEILCOTE 682 grit coat should be applied with a short-medium nap paint roller at approximately 10 mils (proper thickness to firmly secure grit particles but also provide surface texture profile).
2. A paint roller pan will aid in loading the roller with grit and liquid. Add some of the grit directly to the liquid in the pan.
3. WHEN APPLYING CEILCOTE 682 GRIT NO. 1/2 AND NO. 1, stir the CEILCOTE 682 grit coat with the roller each time it is dipped into the bucket. This will keep the grit particles suspended in the grit coat liquid. The grit coat should be rolled until grit particles are spaced in a uniform pattern.
4. WHEN APPLYING CEILCOTE 682 GRIT NO. 2, first roll catalyzed CEILCOTE 682 grit coat liquid on floor, then broadcast the grit onto floor. Reroll until grit particles are evenly spaced and completely encapsulated in the CEILCOTE 682 grit coat liquid.
5. To avoid roller marks, roll in different directions over the same area and overlap roller strokes.
6. Allow to cure overnight (16 hrs. min. @ 77°F[25°C]) before foot traffic, 24 hrs. for cart traffic. If equipment placement is required, temporarily protect the new flooring surface by using cardboard or plywood sheets. Consult Master Builders if use of the grit coat will be at lower temperatures.

CEILCOTE 682 FLOORING SMOOTH FINISH COAT

All surface protrusions or waviness should be sanded smooth before the sealer coat application. Small lumps should be hand sanded. Large waves must be flattened with a belt sander.

After sanding, vacuum or sweep dust off the topcoat surface. Wipe the surface with a clean cloth dampened with T-410 solvent prior to finish coat application.

Mixing Instructions:
CEILCOTE 682 flooring smooth finish coat consists of two components. CEILCOTE 682 flooring smooth finish liquid (Part A) must be mixed prior to catalyzation to bring any settled material off the bottom of the container. Part A shall be catalyzed in the 2 gal. container in which it was shipped and premeasured. Add the proper amount of Part B which is also premeasured. Mix thoroughly.

Part A	Part B
2 gal. (11 lbs.)	1/2 gal. can (3 lbs. 4 oz.)

Working Time: 60 minutes @ 70°F

Cure: 16 hrs. @ 77°F for foot traffic
24 hrs. @ 77°F before exposing to chemical service or cleaning

Mixing Ratio For Partial Batches {3 1/3 parts (Comp. A) to 1 part (Comp. B)}
Add the 3 lbs. 4 oz. of Component B to the 11 lbs. of Component A. Mix well.

APPLICATION:

1. The CEILCOTE 682 flooring smooth finish coat should be applied with a short nap paint roller to approximately 6 to 8 mils thickness. Before using the roller, it is good practice to soak the roller cover in some T-410 solvent for a few minutes, remove and then allow to air dry to remove any free lint or fiber particles from the roller to keep them from depositing on the freshly applied finish coat.
2. A paint roller pan should be used to load the roller with the liquid.
3. To avoid roller marks, roll in the same direction and keep from overlapping other areas excessively. This application technique is necessary since the finish coat dries rapidly and is prone to show roller marks after it cures. Do not reroll excessively. To minimize roller marks, the final roller stroke in a freshly rolled areas should be an "out and up" motion; lifting the roller off the floor as you near the end of your reach with the roller.

SPECIAL INSTRUCTIONS:
PRESENCE OF MOISTURE OR WATER WILL AFFECT CURE AND FINAL RESULTS. Avoid direct contact with water during mixing and application. Moisture in the air will cause CEILCOTE 682 smooth finish coat (component B) to cure in its container if left open. Reseal immediately after using if partials are used for smaller batches. Clean the lid and opening of the container to prevent the cap from bonding to the can.

NOTE: Do not attempt to coat old, existing coated floor surfaces with this product before contacting Master Builders for specific surface preparation instructions. The finish coat should be applied to the CEILCOTE 682 topcoat within 72 hours for suitable bonding properties.

SPECIAL APPLICATION INSTRUCTIONS
PATCHING COMPOUND AND VERTICAL SURFACE MODIFICATION
OF CEILCOTE 682 MATERIALS
This trowelable compound is to be used for patching holes and filling cracks prior to installation of CEILCOTE 682 flooring. It is also used to go up vertical surfaces and around severely sloped drains. The amount of S-1 powder can be slightly varied to achieve proper workability of the mortar.

Mixing Instructions

	30 lb. Batch
CEILCOTE 680 PRIMER (CEILCOTE 680/68BC resin)	7 lbs. (3 qts.)
#9 Hardener	2 lbs. (1 qt.)
S-1 powder	18 to 22 lbs.

This formula works best at 70°F (21°C). Adjustments for temperature and desired consistency may be made with S-1 or S-11 powder.

CEILCOTE 682 FLOOR COVE PROCEDURE

NOTE: Coves should be installed after the topcoat installation but before the grit coat is applied.

1. Place 3 inch masking tape on wall at desired cove height.
2. Using roller, prime wall to receive cove and let harden.
3. **With above patching compound, form cove with a radius trowel or appropriate tool. Be sure to substitute S-15 powder for S-1 powder for cove radius material.**
4. Pull of masking tape before cove material hardens.
5. After cove material hardens, any uneven areas must be sanded or ground smooth.
6. Paint the coves with CEILCOTE 682 grit coat without grit to cover the patching material used to form the cove. For colors other than gray, two coats are necessary. This is especially important when the floor area is not to receive a grit coat because the coves are then finished.
7. Apply the grit coat on the floor.
8. The coves will be easier to clean if the grit coat without grit is placed on the coves. Stop grit coat with grit approximately 1 inch from cove radius on floor.

FLOOR DRAIN PROCEDURE

1. Chip out a 1/4 inch deep by 3/4 inch wide groove around drain.
2. Prime groove with CEILCOTE 680 primer.
3. Install CEILCOTE 682 floor base coat bringing 1 oz. mat into bottom of groove (do not fill up groove with the CEILCOTE 680 primer).

   At this point one of two methods can be used.
   A. For floor drains where a slope is moderate or less than about 1/2" per foot,
      1. Cut out cardboard shield and secure over drain hole.
      2. During CEILCOTE 682 topcoat installation use a trowel to apply topcoat material around the shielded drain.
      3. After the CEILCOTE 682 topcoat material hardens, cut out cardboard shield from drain.
      4. Some touch up sanding will be required.

B. For floor drains where floor slope is severe (over 1/2" per foot),
   1. Trowel CEILCOTE 680 PRIMER mixed with S-1 powder around drain extending radially approximately 3 feet.
   2. Install the self-leveling TOPCOAT on the floor terminating at trowel applied material around drain.
   3. After the topcoat cures, grind off any material that has run over onto patching materials to ensure a smooth transition.
   4. Apply grit coat over entire area. Two applications will be necessary for colors other than gray.

EXPANSION JOINTS(see CP-16)

Expansion joints in floor toppings are necessary when CEILCOTE 682 flooring is placed over existing expansion joints or isolation joints. Consult Master Builders.

1. Dig out and remove fiberboard joint material or debris 1 inch deep by 3/4 inches wide.
2. Prime groove with CEILCOTE 680 primer. Allow to cure.
3. Apply (approx. 1/32 inch) thin layer of slurry composed of CEILCOTE 680 primer and S-1 powder to the sides of groove and extending onto floor 2 to 4 inches. Allow to cure. NOTE: Care should be taken to avoid filling up groove with “slurry” or floor system material.
4. Place a plastic hose into the joint which fits snugly (do not use wax).
5. Install CEILCOTE 682 topcoat on floor terminating at edges of groove.
6. After topcoat cures, pull hose out of the joint and touch up edges of groove by grinding.
7. Install CEILCOTE 682 grit coat on floor terminating at edges of groove.
8. Place 3/4 inch diameter closed cell polyethylene foam sealant backing in joint.
9. Place masking tape on both sides of groove. Fill groove with expansion joint material. Pull up masking tape before joint material hardens.

SAFETY

CEILCOTE 682 flooring components contain epoxy resins and solvents, catalyzed by an aliphatic polyamine. Observe the following health, physical, and storage precautionary measures before using products.

Health Protection Information

Wear gloves, eye protection, and appropriate work clothing as required to avoid contact with components. The hardeners contain polyamines which can seriously burn eyes and skin. Hardener fumes may result in skin rash, dermatitis or other allergic reactions. Ventilation is required with special consideration for enclosed or confined areas. Air movement must be designed to ensure turnover at all locations in work and adjacent areas to avoid concentration of heavy vapors. Chemical hazards with vapor concentration above Permissible Exposure Limits (PEL) requires the use of an organic vapor cartridge respirator or a self-contained breathing apparatus.

Refer to Material Safety Data Sheets (MSDS) for specific health information and first aid on each product.

PHYSICAL HAZARDS

CEILCOTE 682 flooring components and solvents are combustible or flammable. Refer to flash points on products. When using flammable or combustible components; heat, sparks, and flames or any source of ignition must be kept at least 50 feet from working area. Use grounded nonsparking tools in work area. When applying to enclosed area use two men, one on the outside for safety. Continue ventilation in area after coating until cured to minimize concentrating solvent vapor and avoid reaching potential explosive limits. Empty containers with residues may ignite from source of ignition explosively.

STORAGE SAFETY
Observe safe storage practices by separating resins from hardeners, by keeping solvents and hardeners in a cool area free of sources of ignition, and by observing a special Master Builders warning on RED and YELLOW labeled products. The RED label represents amine type chemicals, and the YELLOW label represents organic peroxide type chemicals which should not be stored adjacent or mixed together because of possible violent reaction between them.

FOR INDUSTRIAL AND PROFESSIONAL USE ONLY

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