

Basic Procedures for Installing the ACTECH 2170™ FC On Interior Flooring Applications

GENERAL:

The ACTECH Moisture Mitigation Systems are ASTM F3010 compliant and have a permeance rate below the Standards minimum of 0.1 perms. These products are designed for application to concrete substrates to reduce moisture and control alkalinity to make concrete slabs compliant for today's high-performance, moisture and alkaline sensitive flooring systems. Whether the ACTECH system is going to be applied in Division 3, 7 or 9 of the CSI Building Divisions, the manner in which the deck is prepared, and the material applied are the same.



These application procedures apply to all concrete slabs on grade or below grade and elevated slabs with lightweight concrete. This application procedure is designed for Internal applications only, if there is a need to apply this material externally, contact the ACTECH technical staff for alternative application procedures. The ACTECH 2170™ FC will not stop liquid water, only water in the vapor phase. If there is a liquid water issue, please contact the ACTECH technical staff prior to any bidding or project planning.

NOTE: For this technical bulletin it is assumed that the concrete has been satisfactorily checked (ACI 201.2R; ACI 302.1R & 2R) and is a suitable substrate for the ACTECH 2170™ FC Moisture Reduction System to be applied per ASTM F 710 and F3010.

NOTE: The ACTECH 2170™ FC moisture reduction resin has no upper limit for moisture as measured by either the ASTM F1869 or the ASTM F2170 testing protocols, moisture testing is not required. This material will also resist alkalinity or a pH of 14 sustained. The ACTECH 2170™ FC warranty is specifically for moisture and alkalinity control.

CONCRETE SUBSTRATE REQUIREMENTS:

- Minimum of 200 psi cohesive strength: (ASTM C1583/ C1583M-20)
- Minimum of 3,000 psi compressive; (ASTM C 805; 805M-18)

SUBSTRATE PREPARATION:

Shotblasting is the preferred method for floor prep, but under some circumstances grinding is acceptable, see ACTECH Bulletins #10 & 11 for full details on concrete floor prep. The key element here is to achieve a suitable anchor pattern for the ACTECH material and have a dust free – stain-free surface prior to application. Provide the proper ICRI CSP value; Concrete Surface Profile; ICRI Guideline# 310.2R);

- **New Concrete: CSP 3**
 - **Existing Concrete (old – renovation): CSP 4**
- 1) Edge-grind around the perimeter, columns, and any obstructions in the floor such as machinery or other unmovable objects with 4" grinders and/or a small "8" Blastrac or edge shotblaster; "round out" all inside corners for continuous shotblasting machine operation.
 - 2) Shotblast or grind floor in an efficient pattern that will have your machines end up at the out-load door area for removal; Shotblast up to and over the edge grinding, provide the proper CSP value.
 - 3) Check the concrete absorption as you go with the "Water Drop Test"; (ASTM F3191). The concrete must be absorptive, if not additional prep may be required.
 - 4) Plan on where you are going to empty the dust collector and have that area ready.

- 5) Clean up all fugitive shot and vacuum floor to a dust-free condition. Sweeping with brooms removes the large debris, but often leaves dust behind on the deck; don't sweep – vacuum or wash.
- 6) Set up mix station and prepare for coating.
- 7) Proceed with coating operations, squeegee, and back-roll.
- 8) Coat-out and clean up.
- 9) Secure floor area for curing.

NOTE: Read Data Sheets, product literature and SDS prior to mixing and application. Make sure all crew are aware of any potential issues and safety measures.

SET UP MIXING STATION:



Left: A mobile mix station complete with power & digital timer.

Right: ACTECH 2170 FC cans ready to open and mix. Note Jiffy mixer and drill.



1. Set up the mixing station in a convenient spot central to the project floor convenient to the material supply area and to the work area; avoid a long walk to carry mixed pails;
2. Have all items you will need close at hand; ACTECH 2170™ FC units, 400 rpm mixing drill with jiffy mixer attachment, rags for wiping hands and any drops or spills.
3. You may start breaking the units down separating the "A" can from the "B" can – combi-units.
4. Pour the "B" into the "A" can and mix for 3 timed minutes, then get the bucket out to the "wet-edge" and pour out onto the deck for spreading with a squeegee. Mix only what is going to be immediately used, DO NOT PRE-MIX BUCKETS OF MATERIAL to have them sit idle awaiting usage. Due to the mass of resin in the mixed bucket, an exothermic reaction (heat creating) will start very quickly and will create smoke. This smoke is hazardous, do not breath in the fumes, immediately cover the can and remove it away from all personnel outside to a safe location and throw sand, dirt, or water into the can to slow the reaction, (if water-watch out for splashing).

NOTE: refer to the product SDS for health and safety warnings.

5. Make sure that the mixer is trained on all safety procedures in handling this type of emergency. Refer to product SDS's, data sheets and product literature for the safe mixing and handling of this material.
6. Do not upend mixed buckets on the floor as this may cause a "half-moon" of material that may contain unreacted/unmixed resins which will not cure hard.
7. When buckets have been emptied, have them removed from the work area to an outside safe location as the material left in the buckets may start to smoke.



COATING WITH THE ACTECH 2170™ FC:

Make sure that all personnel know the procedures and which way the coating is to proceed. Make sure that proper coating equipment and tools are ready:

1. The ACTECH 2170™ FC (Fast Cure) coating is a 4-hour cure resin. The resin is designed as a Single-Coat interior system of 12-mils *minimum* over all high spots. Please contact the ACTECH technical staff prior to application if there are any questions or concerns regarding any negative substrate conditions, coating thickness or application.
2. Material is properly stored according to the instructions in the data sheets and product literature.

3. Tools: squeegees (either notched or flat); buckets, lint-free 3/8" roller covers with frames & handles, small disposable brushes for edging and detailing.
4. Disposable brushes for detailing around objects such as columns, railings, etc.
5. Gloves and any other PPE that will be needed or required; Spikes for shoes/boots

NOTE: If not in a climate-controlled area check temp & humidity: apply only when ambient temperatures are steady and/or falling and not rising, and NOT within 5° F of the Dew Point, (see ACTECH Dew Point Chart). Always store material in a dry, warm area not subject to direct sunlight or open flames or any sources of ignition.

BASIC INSTALLATION PROCEDURES:

1. After the 3-minute mixing, pour bucket out immediately in a ribbon a few feet away from the current wet edge. The ACTECH 2170™ FC System is a single coat, zero VOC product.
2. Squeegee the material out to close to the recommended spread rate, either by notched squeegee or by measuring, make sure that a minimum of 12-mils coverage is achieved over all high spots, this is necessary for proper moisture protection and for the performance warranty. The warranty is void if the 12 – mil WFT is not achieved.
3. Backroll to even out the coat and maintain complete coverage. Do not over-roll the material and once it starts to set up, do not go back into it. Working time with this material is outlined on the product data sheets and is affected by the ambient temperature and humidity conditions on the job site; material will start to set faster in hotter and dryer conditions, and slower if cold and humid.



Mix & pour out in ribbon



Squeegee out to proper spread rate



Backroll to even the coating & coverage

CURING:

Allow material to cure; 4 – hours for the ACTECH 2170™ FC @ 75°F

If applied in a non-climate-controlled area cure times may be affected by cold & damp: slower cure; hot & dry: faster cure. After the cure time has elapsed, and the material is no longer tacky, it will be safe to walk on; foot traffic only- avoid heavy point-load vehicles such as forklifts, pallet jacks or steel-wheeled carts until full cure in 5 – 7 days (cure time dependent on ambient conditions).

INATALLING ON GREEN CONCRETE:

The ACTECH 2170™ FC may be applied to green concrete that is a minimum of 3-days (72-hours) after final set of the concrete. The concrete must be visibly dry and be able to support the prep equipment. All prep methods are the same with shot blasting the recommended procedure profiling to a CSP 3 minimum. If the project is to be on green concrete, please obtain the concrete mix-design and submit it to the ACTECH technical staff for review prior to the project start to identify any constituents or admixtures that may adversely affect the ACTECH 2170™ FC moisture mitigation properties. The same product application and curing procedures apply and the coating is a required minimum of 12-mils Dry Film Thickness obtained.

INSTALLING FLOORING DIRECTLY TO THE CURED AC TECH 2170™:

Resilient flooring, epoxies, urethanes, wood, bamboo, carpet, epoxy terrazzo, etc. may be installed directly onto the cured ACTECH 2170™ as soon as it is tack-free and achieves its initial cure (4 - hours). If installing a resilient flooring system, the cured surface may need to be lightly sanded to remove any surface blemishes or bumps that may telegraph through the flooring.

NOTE: If installing a resilient, glued down flooring directly to the cured ACTECH 2170™ FC make sure that the adhesive used is designed for a non-porous substrate as no water from the adhesive will be able to “leech” or “blot” into the concrete as it will be sealed and isolated from the adhesive.

If the adhesive selected requires that a “blotter” layer for water absorption be installed, then a thin set or a feather-finish type of underlayment will have to be installed over the cured ACTECH 2170™ FC System. When this is applied then the ACTECH SLP™ (Self Leveling Primer) primer must be installed over the cured ACTECH 2170™ FC System prior to any cementitious materials application.

INSTALLING ANY CEMENTITIOUS UNDERLAYMENTS, SCREEDS, TERRAZZOS, ETC.

Generally, all self-leveling and cementitious materials must be installed over the cured ACTECH 2170™ FC, *never under it*. Any cementitious self-leveling, patch or feather-finish to be installed must be installed over the cured ACTECH 2170™ FC Systems and will require that the ACTECH SLP™ be installed first for proper adhesion. Never apply the ACTECH resins over any gypsum-based underlayments or patch.

NOTE: Exception: If extensive cracking or large damaged areas are to be repaired, we recommend using Rapid Set (CTS) Cement All as a patch material. We have recommended this material for many years and have had success in all applications. It may be used to patch and fill voids, cracks and damage to concrete substrates. We recommend contacting the Rapid Set (CTS) technical team for guidance in repairs to substrates. Once the Rapid set material is cured (per their literature and Data Sheet), it must be lightly ground or brush-blasted with fine shot to remove any surface laitance.

The ACTECH SLP™ is a single component, zero VOC material applied directly out of the container to the floor using a squeegee and thin nap roller cover. This material is designed to be installed thin, very thin, with only a 1-2-mil coating/membrane covering the ACTECH 2170™ FC moisture mitigation primer; the thinner, the better!

The ACTECH SLP™ will cure in 20 – 50 minutes in normal conditions; faster if dry and hot, slower if cold and damp. The Primer will take longer to cure longer if colder and humid, faster if hotter and dryer. Underlayment or self-leveling should be applied as soon as the Primer is dry-tacky to the touch. Do not allow the ACTECH SLP primer to remain uncovered for any extended time. Contact the ACTECH technical staff if a long wait (more than a day) is expected.

NOTE: If it is necessary to install a cementitious repair material to the concrete prior to the application of the ACTECH 2170™ FC due to negative concrete surface conditions, contact the ACTECH technical team for guidance on the type and compatibility of material to use.

Refer to all product data sheets, SDS and product literature for more detailed instructions on the proper preparation and installation of the ACTECH 2170™ FC Moisture Mitigation Systems. Please read all product literature and MSDS and make sure that all crewmembers are familiar with the correct all safe handling and application procedures prior to the start of any project.

RECOAT WINDOW:

The ACTECH 2170™ FC moisture mitigation products must be recoated within 7-days with no additional surface prep required for a chemical bond. Solvent wipe to remove any dirt, dust, or debris. If the 7-day period is exceeded, the surface must be mechanically abraded prior to any subsequent coatings. This may be done with a “swing-sander” with appropriate grit paper or screen on it. The surface gloss must be removed, consult the subsequent flooring or coating manufacturer for any additional material-specific recoat times or conditions.

NOTE: if PMMA’s or MMA’s are subsequently applied to the ACTECH material, they must be applied within 48-hours of the ACTECH 2170™ FC application.

SAND BROADCAST:

The ACTECH 2170™ FC moisture mitigation systems do not require any sand broadcast for adhesion and most epoxies, urethanes and other coatings will readily adhere to the cured ACTECH 2170™ FC. If the subsequent coating requires a sand broadcast do not broadcast into the first 12-mil coat of the ACTECH material but apply a second, thinner coat (~5 mils) or at a thickness to properly anchor the size sand

required. If the sand is broadcast into the first coat it may compromise the moisture reducing and alkalinity control properties of the coating and void the warranty.

MOCK-UP:

ACTECH always recommends that a product mock-up be performed with the complete assembly to confirm compatibility between the different products and over the selected concrete substrate. ACTECH has tested many different manufacturer's products for compatibility, consult the ACTECH technical staff for additional testing results and information.

Please direct any questions or concerns to the ACTECH Technical Staff; (757) 855-5100;

Email:

Mac Krauss: mkrauss@actechperforms.com.

Alex Rogers: arogers@actechperforms.com.

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