



# **STRONGFLOOR SF-112MR**

## **Installation Procedures**

### **Fluid Applied Flooring System**

STRONGFLOOR SF-112MR System is an attractive, fluid applied, waterproof, traffic bearing flooring system. Each component is installed in thin layers. A variety of acrylic and epoxy topcoat selections are compatible with this system.

**JOB SITE SURVEY:**

- Evaluate the existing substrate for signs of efflorescence.
- Ensure that the concrete does not have capillary action or hydrostatic pressure from the underside.
- Test for MVER, chlorides content, depth of carbonation, ASR, AAR and to determine if there are any deleterious aggregate or unacceptably high levels of potassium, sulfate, alkali or other aggressive agents within the concrete substrate. Perform required testing in accordance with one of the following methods:

**ASTM F-1869** - *Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor using Anhydrous Calcium Chloride.* Verify and document the results in accordance with the specifications. If MVER exceeds 3 lbs/24 hrs/1000 ft<sup>2</sup> and is under 10 lbs/24 hrs/1000 ft<sup>2</sup> apply ET-PRIMER 10. If MVER exceeds 10 lbs/24 hrs/1000 ft<sup>2</sup>, apply ET-PRIMER 24.

**ASTM F-2170** - *Determining Relative Humidity in Concrete Floors Slabs Using In situ Probes.* Verify and document the results in accordance with the specifications. If the in situ relative humidity (rh) of the substrate is greater than 75% and less than 84% apply ET-PRIMER 10. If the in situ relative humidity (rh) is greater than 84% and less than 89-99%, apply ET-PRIMER 24.

**ASTM C-1583** - *Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension.* Perform a minimum of 3 pull tests.

**ENVIRONMENTAL CONDITIONS:**

All materials are mixed, applied and cured at the job site. These environmental conditions are required to facilitate proper curing and performance of the products and systems. Do not proceed if outside of these environmental conditions.

<b>Ambient</b>	<b>Minimum</b>	<b>Maximum</b>
Temperature	55°F and rising	90°F
Relative Humidity	20% rh	85% rh
<b>Substrate</b>		
Temperature	55°F and rising	85°F
Relative Humidity	N/A	85% rh
MVER	N/A	10 lbs.
Measure and record these temperatures daily. Substrate is not frost laden and totally dry. Substrate temperature must be at least 5°F above measured dew point.		

**SUBSTRATE PREPARATION GUIDELINES:**

- Inspect the concrete substrate to determine its general condition including previously applied products, concrete defects, soundness, chemical damage, presence of contaminants and excess moisture.
- Remove or replace areas with penetrating and migrating contaminants, silicone coated surfaces, concrete curing compounds and form release agents, sealers, dirt, adhesives, oil, grease, wax, fatty acids, hydraulic fluid, cutting oils, paint, films, existing coating, laitance, glaze, efflorescence and all contaminants that will inhibit or prevent formation of a penetrating bond within the substrate.
- Restore all non-durable, unsound, damaged, deteriorated, delaminated, cracked, weak, loose, spalled and rust stained concrete. Restore substrate using applicable Strongwall repair products. Mechanically profile all repairs.
- All details are required to be fully cured and embedded within the system.
- New and restored concrete are required to be thoroughly cured, free of surface irregularities, flat in line and grade and slope to drain. No ponding water conditions.
- Determine the best method or combination of methods of mechanical surface preparation to obtain an exposed aggregate profile and open the concrete pore structure.
- Mechanically profile the substrate by shot blasting or scarification to achieve a surface profile of 2 - 3. Grind only transition areas where the large machines cannot reach. Refer to the ICRI Technical Guideline # 310.2R-2013 for "Selecting and Specifying Concrete Surface Preparation."
- For assessment of decontamination, surface preparation and profile, perform a Tensile Adhesion Tests per ASTM C-1583.
- A dedicated power wash at up to 4,000 psi to remove all contaminants is required prior to commencing installation.
- When power washing is not possible, thoroughly brush the substrate. Clean with wet and dry vacuum.

## **SYSTEM INSTALLATION:**

The proper installation of the STRONGFLOOR SF-112 MR System is the sole responsibility of the end-user.

The supervision and quality control of the project is the sole responsibility of the user.

Job site visits by SWI representatives are only for the purpose of making recommendations.

- Conduct a pre-installation conference on site with all parties in attendance to review the surface preparation, structural repair procedures, details regarding joints, crack isolation, transitions, flashing and any other conditions prior to commencing work.
- Install a field mock-up of all components of the SF-112 MR System using the same equipment as in the construction procedures, for owner, architect and engineer approval of the following: surface preparation, individual component, installation procedures, coverage rates, adhesion, functionality, slip resistance and aesthetics including finish and color.
- Expansion, pour and control joints are continued up through the underlayment and template to the original joint.
- Maintain dust free conditions. All contaminants will inhibit bond formation.
- Precondition properly stored components to 65°F - 75°F for 24 hours prior to mixing.
- Work according to the approved field mock-up.
- Provide sufficient ventilation to achieve optimal performance and a full and continuous cure.
- Consistently follow all ambient and substrate environmental conditions.
- Record values every three hours and as conditions fluctuate during the installation.

## **COMPONENTS:**

### **1. WATERPROOFING BASE COAT MEMBRANE: EM-100 N**

5 gallon pail

**Coverage:** 32 ft<sup>2</sup>/gallon @ 40 mils

#### **Mixing:**

Use as supplied.

Prime Coat: Mix one part pre mixed EM-100N with one part of potable water.

- Pre-mix at 400 rpm for 2 minutes.
- Use drill with a mounted Jiffy mixer.
- Place at ¾ depth of the pail.
- Avoid air entrapment during the inversion of the material.
- This may result in air bubbles.

#### **Procedures:**

Prime coat plus two full strength 20 mil coats are required as waterproofing basecoat membrane.

Ensure good, intimate contact with the substrate.

Do not let mix settle, remix during use.

Discard membrane once it begins to set up.

#### **Prime Coat:**

- Mix prime coat.
- Prime prepared substrate.
- Dip and roll to achieve optimal adhesion.
- Thoroughly scrub into substrate.
- Allow primer to become thumb print tacky.

#### **Waterproofing Basecoat Membrane:**

Install two full strength coats.

Each coat must be completed in one continuous step.

- Apply each coat in a uniform direction.
- Regularly check wet mil thickness and coverage rates.
- Install using a flexible notched squeegee.
- Apply evenly, keep a wet edge and lightly back roll.
- Allow first coat to cure.
- Apply the second 20 mil coat within the 8 - 48 hour recoat window.
- Use a crosshatch method.
- Allow to fully cure.
- Finish as per approved field mock-up.
- Protect waterproofing base coat membrane from foot traffic prior to installation of intermediary coat.

### **2. INTERMEDIARY COAT: STRONGCOTE SC-111**

**Unit:** 5 gallon pail of SC#3 liquid

Two 55 lbs. bags of SC# 3 white powder

One pigment pint

**Coverage:** 300 ft<sup>2</sup> @ 50 mils

**Mixing:**

Always pre-mix the liquid prior to each batch.  
Mix only what can be installed in 20 minutes.  
Follow unit mix ratio.

- Pre-mix at 400 rpm for 2 minutes.
- Use drill with a mounted Jiffy mixer.
- Place at ¾ depth of the pail.
- Do not create a vortex or aerate the material.
- Gently shake 1 pigment pint. Decant into pail.
- Rinse the pint with liquid from the pail.
- Repeat this process until all colorant is added.
- Make sure no settlement remains at the bottom prior to discarding.
- Pre-measure pigmented liquid (hold back ½ gallon) into a clean mixing container.
- Gradually add the powder to the liquid.
- Never reverse this step.
- Scrape sides of container.
- Mix for 3 minutes until mixture is free of pockets of dry powder.
- Add in the remaining ½ gallon of pigmented liquid.
- Mix for 1 minute.

**Procedures:**

Waterproofing basecoat membrane is fully cured.  
Monitor wet film thickness during installation to ensure two 25 mil coats are consistently installed.  
STRONGCOTE SC-111 is installed with a flexible notched squeegee.

- Apply each coat in a uniform direction.
- Spread evenly, keep a wet edge and back roll.
- Allow first coat to cure.
- Do not dampen between coats.
- Apply the second 25 mil coat.
- Finish to obtain uniform texture.
- Allow to fully cure.

**Curing @ 75°F:**

6 - 8 hours or until fully cured.

**3. TOPCOAT: ET-1000 CR**

**Unit:** 3 gallon Resin  
2 gallon Hardener

**Coverage:** 160-225 ft<sup>2</sup>/gallon @ 8 mils

**Mixing:**

Provide a mixing area to avoid spilling topping onto installed material. Clean immediately.  
Use all material supplied.  
Always pre-mix each component prior to blending.  
Mix only what can be installed in 20 minutes.  
Discard all residual material that is not fluid.

**Unit Ratio: 3A : 2B by volume**

- Pre-mix each for 2 minutes.
- Empty contents into a clean pail.
- Thoroughly blend both components.
- Use a low speed drill with a mounted Jiffy mixer.
- Keep mixer head fully immersed at all times.
- Only develop a slight vortex.
- Scrape all material off the sides and bottom of the containers.
- Mix for 3 minutes.
- Immediately pour mix on substrate.
- Use a new pail each time.

**Procedures:**

Intermediary layer is fully cured and totally dry.  
Ensure good intimate contact with the intermediary coat.  
Never extend the working life of material by adding solvent.

**Basecoat with aggregate:**

The aggregate absorbs a portion of the ET-1000CR.  
Provide a smooth even coat with no color difference.

AGGREGATE MIXING RATIO:		5 GALLON UNIT			
Profile	Aggregate Name	Mixed		Broadcast	
Fine	Aluminum oxide fine #80	4.5 pints	18 lbs.	N/A	
Medium	Aluminum oxide medium # 60	5.5 pints	22 lbs.	4.5 pints	18 lbs.
Coarse	Aluminum oxide coarse # 30	N/A		4.5 pints	18 lbs.

- Pour the mixed material out in a 6 - 12" ribbon down one side of the area to be coated.
- Spread evenly with a flat squeegee to the thickness of the largest aggregate.
- Back roll in a cross hatched method to level material and mitigate roller marks.
- Use roller cage end caps for precision gauging.
- Change roller covers as necessary.
- Always work into a wet edge.
- Leave no puddles or excess material.
- Allow to cure 8 - 24 hours or until fully cured and tack free.

**Second coat:**

Installed material is fully cured and totally dry.

- Apply according to the re-coat window.
- Allow to cure 16 - 24 hours (temperature dependent), or until fully cured before allowing light traffic.

**Cure Time:**

Allow to cure a minimum of 7 days before maximum chemical cure is achieved.

CURE TIME			
Ambient & Substrate Temperature	Foot traffic	Light traffic	Full cure
50°F	24 Hours	1 Day	7 Days
65°F	20 Hours	1 Day	7 Days
85°F	16 Hours	1 Day	7 Days

**EQUIPMENT AND TOOLS:**

Mechanical surface preparation  
Air blower  
Wet dry vacuum  
Precision mil gauge  
Mixing pails  
Volumetric graduated containers  
1/4" industrial drill  
Jiffy mixer model PS-1  
Hard nap rollers  
Flexible notched squeegee  
Magic trowel  
Paint roller frame with cage end caps  
Industrial grade 3/16" to 1/4" mohair roller covers with phenolic core  
Handles, extensions and roller cage end caps for back roll application

**PRECAUTIONS AND LIMITATIONS:**

Refer to corresponding Product Data Sheets, Installation Procedures and Safety Data Sheets of all products and systems prior to installation. Refer to [www.strongwall.com](http://www.strongwall.com) for the most recent information and updates.

- Concrete surfaces must be dry and designed to remain dry prior to installation.
- Prior to application, measure, confirm and record substrate moisture content, ambient relative humidity (rh), ambient and substrate temperatures and dew point. Confirm these values during the installation every 3 hours and also when conditions change during the ongoing installation.
- May reflect working cracks within the substrate. Follow details for crack isolation and/or repair as per mock-up.
- Prevent any contact with aluminum, as with all Portland cement based products, to prevent adverse chemical reactions and possible product failure. Follow specifications to insulate potential areas of contact by coating aluminum bars, rails and posts with an appropriate epoxy.
- Do not track dirt, grease, or any other contaminants. They will affect the aesthetics of the finished flooring.
- See chemical resistance chart for topping. Strongwall Industries, Inc. does not warrant materials against staining.
- Use of safety goggles, chemical resistant gloves and protective cream are recommended.

**OPTIONAL TOPPINGS:****ET-1000 Epoxy:**

ET-1000 is a two-component, pigmented epoxy. This topping is designed for interior applications and is not UV stable. ET-1000 resists most common chemical spillage. Aluminum oxide aggregate broadcast in varying grades will provide a slip resistant surface profile.

**ET-1100 Heavy-Duty Elastomeric Polyurea:**

ET-1100 is a pre-pigmented aliphatic elastomeric polyurea designed for interior and exterior applications. This high solids and UV stable topping, increases the durability, chemical resistance and color stability of the system.

**RESICOLOR Acrylic Sealer:**

RESICOLOR will provide the system with continued breathability, increased UV stability and ease of cleaning. It is pigmented in the same selection as the coating and provides overall color uniformity. It is designed for interior and exterior service conditions and can be installed neat or as a sand coat.

**NEW CONCRETE:**

New concrete pours, as an industry standard, are required to cure for 28 days. Mechanical surface preparation may begin at 21 days or if the concrete has achieved at least 80% of its design strength. The surface preparation will open the pores and eliminate the excess moisture within the slab that is not part of the hydration process. Concrete, unless at approximately 8% moisture via a moisture meter, if coated too soon, may have elements of their internal chemistry migrate to the surface, which acts as a de-bonder. ASTM F-2170 is an In situ Relative Humidity (RH) Test and is the most accurate as it provides, not only the surface, but also a picture of the overall moisture condition of the slab. This test is affected by the dew point, outside elements and is dependent upon the surface temperature of the concrete. New concrete is required to have attained enough strength to support itself and has to be dried sufficiently.

**SITE, STORAGE AND TRANSPORTATION CONDITIONS:**

Materials should be delivered in their original packaging in containers with seals unbroken and bearing the manufacturers' labels indicating brand name, directions for storage and mixing with other components. Check materials upon receipt to make sure all is accounted for and has arrived in good condition. Store materials indoors, off the ground and in a dry location at temperatures not exceeding 80°F or lower than 65°F. Always keep the material out of direct sunlight and freezing temperatures in a protected environment. The liquid components must not freeze. Keep containers tightly sealed.

**FIRST AID:**

Refer to specific criteria on individual Product Data Sheets and Installation Procedures.

**HEALTH AND SAFETY:**

Users must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300. For further information and advice regarding transportation, handling, storage and disposal of chemical products, the user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data.