PENNTROWEL™ SB and SBR FLOORING SYSTEMS INSTALLATION SPECIFICATION

1. SCOPE

1.1 This specification governs the installation of PENNTROWEL SB and SBR Flooring Systems as manufactured by Armor. SB designates “Slurry Broadcast” and SBR designates “Slurry Broadcast Reinforced”.

1.2 This specification shall be used in conjunction with information presented on product data sheets CE-283 Penntrowel SB/SBR Flooring Systems, CE-139 Penntrowel Epoxy Primer, Novocoat™ SC1100 Primer, CE-138 Penntrowel Vinyl Ester Primer and any associated specifications referenced therein.

1.3 There are 3 variations of SB/SBR Flooring Systems available. They include an epoxy-based System (Penntrowel Epoxy SB) , a high functional novolac epoxy system (Penntrowel Novolac Epoxy SB), and a high functional vinyl ester system (Penntrowel Vinyl Ester SB). The steps for all three of the systems are similar. The only difference is in the choice of the resin used and the primer used after preparation of the concrete. The selection of the resin system is based primarily on the anticipated chemical exposure. Consult Armor if unsure as to which resin system to use.

1.4 Each of the 3 systems outlined above can be installed either with a 1 oz. chopped strand mat embedded into the primer layer, or without the mat. If the mat is included the system is designated “SBR” (Slurry Broadcast Reinforced). If there is no mat, it is designated “SB” (Slurry Broadcast). The mat serves to bridge hairline cracks in the concrete and prevent transmission through the subsequently applied Flooring System.

2. MATERIAL, ENVIRONMENTAL, AND SUBSTRATE CONDITIONS

2.1 The product and substrate temperatures are important. The product storage and construction areas shall be conditioned to achieve and maintain the temperatures outlined below.

2.2 At the time of mixing and application, the temperature of the components and substrate should ideally be 70˚F (21˚C) and between 50°F (10°C) and 90°F (32°C). The temperature of the prepared surface shall be at least 5°F (3°C) above the moisture dew point.

2.3 An optional Cold Room Hardener is available for epoxy-based resins. Consult Armor for applications where temperatures will be between 35°F (2°C) and 50°F (10°C).

2.4 The work site must be protected from precipitation until the Flooring System has achieved dry-to-touch stage and is not damaged by light traffic.

3. NEW CONCRETE REQUIREMENTS

3.1 The surface condition of new and/or existing concrete can vary greatly. The surface should be thoroughly inspected to identify the condition and suitability of the surface to accept the System. An assessment and evaluation of the suitability of the surface should precede quotations, procurement, or mobilization of installation crews.

3.2 New concrete shall reach a minimum compressive strength of 3000 psi (20 MPa) and a surface tensile strength of 300 PSI (2.0 MPa) before the System is applied.

3.3 All cavities, stone pockets, honeycombing, and bug holes greater than 1/4" (6 mm) depth shall be filled by repairing with appropriate polymer-modified cementitious materials.

4. SUBSTRATE PREPARATION

4.1 A concrete surface to which the selected System is to be applied shall be prepared by abrading the concrete and have a resultant surface like a medium grit of sandpaper. The surface shall have a non-glazed appearance. Remove enough material to achieve a sound concrete surface free of laitance, glaze, efflorescence and incompatible concrete curing agents or form release agents.

4.2 A single pass troweled finish shall be given to new concrete floors with care being taken to avoid bringing laitance to the surface. New concrete shall be cured in accordance with good practice as outlined in ACI-308 "Recommended Practice for Curing Concrete". Do not use liquid curing compounds as they may impede the bond of the lining system.

4.3 Consult SSPC-SP 13/NACE No. 6 for recommended surface preparation procedures.

5. PRIMER APPLICATION AND APPLICATION OF SBR REINFORCING LAYER

5.1 Penntrowel Epoxy Primer or Novocoat SC 1100 are the recommended primers when using Penntrowel Epoxy SB or Penntrowel Novolac Epoxy SB high functional epoxy resins for the System. When using the vinyl ester SB/SBR System (Penntrowel Vinyl Ester SB System), use Penntrowel Vinyl Ester Primer. The primer seals the substrate surface and promotes adhesion of the System. Consult primer Product Data Sheets for additional details.

5.2 With epoxy-based systems open proportioned cans of Part A Epoxy Primer Resin and Part B Epoxy Primer Hardener. Blend thoroughly together in mixing vessel. Use a slow speed electric drill to mix the liquids to avoid whipping air into the mix.

For the vinyl ester resin-based System, measure the catalyst carefully and add to the Vinyl Ester Resin at a rate of 2-3 fluid ounces per gallon of resin, or 1.5-2.25% by volume. The 2 oz. (1.5 %) dosage rate is used for temperatures of 70˚-90˚F (21˚-32˚C) and the higher dosage rate can be used for lower temperatures.

5.3 Mix thoroughly for at least one minute minimum and until mix is homogeneous.

5.4 Apply mixed epoxy primer onto prepared substrate by use of a roller or brush. On damp concrete surfaces the epoxy primer can be scrubbed into the surface with a stiff brush. Do not apply vinyl ester primer on a damp surface. Take extra steps to ensure the substrate is fully dry.

5.5 For the optional crack-bridging Penntrowel SBR System, a 1 oz. mat reinforcement is laid into the wet primer. Proceed by laying 1 oz. chopped strand glass mat into wet primer. Smooth out all wrinkles as work proceeds. Saturate the mat with mixed Primer resin/hardener ensuring no dry spots remain.

5.6 Allow primer to dry to touch before proceeding with application of System. Primer must remain clean and dry before proceeding.

6. *MIXING PENNTROWEL SB/SBR FLOORING SYSTEM COMPONENTS*

6.1 With epoxy-based resins open proportioned cans of Part A Resin and Part B Hardener of the appropriate Resin/Hardener components to be used. Blend thoroughly together in mixing vessel. Use a slow speed electric drill to mix the liquids to avoid whipping air into the mix.

6.2 For the vinyl ester resin-based System, measure Penntrowel Vinyl Ester Resin carefully and add CHP Hardener to the resin at a rate of 2-3 fluid ounces per gallon of resin, or 1.5-2.25% by volume.

7. INSTALLATION OF MIXED RESIN AND BROADCASTING OF SANDS

7.1 Penntrowel SB Flooring Systems can be applied at thicknesses of 0.040" (1 mm) to 3/8" (9 mm). Because of the variability in thickness that can be achieved with the SB method of installation, it is beyond the scope of this specification to determine the exact sand-broadcast steps required to achieve a certain finished lining thickness.

7.2 Apply a flood coat of mixed resin/hardener onto the dried primer layer. This flood coat is generally applied at a rate of 100-150 SF/gallon. This may vary if coarse aggregate is planned to be used for the first broadcast step, in which case the coverage may be less.

7.3 The next step is to broadcast sand into the wet flood coat until the sand has been applied evenly and the sand is broadcast to excess. Sweep away excess sand after the mixed resin/hardener has dried.

This step can be highly variable depending upon the desired build thickness and the preferred degree of nonslip finish. This will also be dependent on the fineness/coarseness of the locally sourced aggregate used and the number of broadcast steps used, especially in the case of when a heavier/thicker lining is desired. Finer sand (100-150 mesh) will result in a smoother surface with lesser build. Coarser sands in the range of 20-80 mesh will result in a thicker build with a coarser finish.

7.4 For thinner linings it is recommended to use at least one broadcast-to-excess step with fine broadcast sand followed by a second flood coat to help seal the first layer. For heavier/thicker Flooring Systems where greater film build is desired quickly, use a combination of several coarse broadcast sands applied as outlined above followed by a final finer sand to help seal the surface and achieve a smooth finish. The use of several broadcast steps can be used to achieve maximum build thickness.

7.5 After the final broadcast step, it is recommended to topcoat the System to seal it. During this final top coating step, a light aggregate can also be broadcast into the wet topcoat layer to impart a non-slip finish. In some cases, a second topcoat can be applied.

7.6 Due to variability (shape, angularity, roundness, sieve analysis) of local sands, it is always best to establish a test panel to verify all parties agree on the work standard, thickness, and expected appearance of the finished product surface.

8. SET TIME OF SB SYSTEM

8.1 Catalyzed resins used with Penntrowel SB/SBR Flooring Systems will exhibit a work life of 35-60 minutes at 70˚F (21˚C) depending on the type of resin used and the temperature the ambient air, the material components and the substrate. Once all broadcast and sealing steps are completed the System can usually support foot traffic in 4-5 hours. Full cure is 48 hours.

9. CLEANUP

9.1 Clean tools with xylene and rags. Dispose of rags in accordance with good practice and in compliance with local regulations.

10. SAFETY PRECAUTIONS DISCLAIMER CONTACT INFORMATION

10.1 Consult current Safety Data Sheets (SDS's) before commencement of work.

10.2 While statements, technical information and recommendations contained herein are based on information our company believes to be reliable, nothing contained herein shall constitute any warranty, express or implied, with respect to the products and/or services described herein, and any such warranties are expressly disclaimed. We recommend that the prospective purchaser or user independently determine the suitability of our product(s) for their intended use. No statement, information, or recommendation with respect to our products, whether contained herein or otherwise communicated, shall be legally binding upon us unless expressly set forth in a written agreement between us and the purchaser/user. For all Terms and Conditions of Sale see armor-inc.com.

10.3 Please contact Armor for further information at +1-877-98ARMOR (982-7667) or customerservice@armor-inc.com.

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