INSTALLATION SPECIFICATION TUFCHEM™ TILING SYSTEMS

1. SCOPE

1.1 This specification governs materials, preparation and installation of Tufchem Tiling Systems (TTS) tile flooring system, employing the sonic embedment method of application. This method was designed to achieve maximum performance and aesthetics from the finished floor.

1.2 Consult applicable bedding and grout side jointing technical data sheets for more information as noted below. The selection of the adhesive setting bed and side jointing material should be based on a review of the anticipated chemical thermal and mechanical conditions as well as in consultation with Armor and the installation contractor.

1.3 The Tufchem Tiling Systems method uses ceramic units of a nominal ¾” thickness (19 mm). TTS tiles also have integral prespaced grout spacers lugs along the tile edging to maintain a tight and consistent joint spacing. Where thicker ceramic units may be required such as extreme thermal shock or heavy impact, consult Armor, as different installation methods would apply.

1.4 In some cases such as elevated slabs for example, it may be desirable to specify a separate flexible membrane to insure a liquid tight flooring system. In those cases, it is common practice to first install the membrane on a structural concrete slab. A leveling bed with slopes to drain is then installed over the membrane, and the Tufchem Tiling System is applied on top of the leveling bed. Consult Armor to discuss membrane options. Confirm sufficient allowance for elevations and slopes to drain are built into the additional leveling layer.

2. CONCRETE SUBSTRATE

2.1 Prior to commencement of any work, the flooring contractor shall thoroughly examine all floor surfaces, and report any conditions which will adversely affect proper floor installation. These conditions may include the presence of birdbaths, irregular slopes and flatness, cracks or chips, and degraded expansion or control joints amongst others. Commencement of work shall be deemed as acceptance of floor finish slope and condition. If there are any disputes, these should be resolved before commencement of work as a tile floor will follow the elevations of the underlying concrete.

2.2 Acid proof floors should be designed to drain completely. To do this, a fall of up to 1/4" (6 mm) to the foot may be considered in the design. However, this amount of slope is very evident when walking across the slope. A 1/8" (3 mm) to the foot slope will still drain if all tile and joints are smoothly laid. A lesser slope should be reviewed with the contractor.

2.3 Prepare the concrete surface in accordance with industry practice as outlined in NACE No. 6/SSPC-SP 13. Criteria for acceptance shall be as noted in section 6, Acceptance Criteria. If moisture testing is not performed in accordance with NACE No. 6/SSPC-SP 13 section 5, then standard industry practice is to allow a 28-day cure on concrete surfaces receiving membranes, epoxy setting beds or monolithic toppings. Consult Armor or review with the installation contractor and the general contractor to resolve. If circumstances are

such that the above acceptance criteria cannot be met, work should be halted until resolved. Exact surface preparation method shall be determined by installation contractor based on his experience, personal preferences, equipment, access, job-specific needs and circumstances.

3. ***MATERIALS***

3.1 The Tufchem Tiling System uses a unique dust pressed tile of 19 mm (3/4") thickness that incorporates an integral spacer lug. A significant benefit of this system is the availability of a wide number of tile shapes, surface textures and colors. Consult your Armor representative for project-specific details.

3.2 The setting bed material shall be Thinset™ Adhesive (product data sheet CE-158), a 100% reactive epoxy adhesive composed of an epoxy resin, chemically curing hardener, and inert silica filler. For upgraded performance requirements in strong chemical service environments, or high thermal shock areas, Thinset Novolac Adhesive (product data sheet CE-163) may be specified. Consult your Armor representative to select the appropriate setting bed for the anticipated service conditions.

3.3 Side jointing is uniquely formulated for use with the TTS installation method. There are 2 side jointing options available, consult with your Armor representative to select the appropriate grout for the anticipated service conditions.

Quartz filled epoxy - EZ Grout 100 data sheet CE-321
Quartz filled high functional epoxy - EZ Grout 200 data sheet CE-330

Note: EZ Grout 100 and EZ Grout 200 do not require pre-waxing of tile. Follow their use instructions carefully to make sure cleaning steps are followed in a timely manner.

In some cases, there may be a need to install side jointing to resist a more aggressive chemical service environment such as may be found in CIP pump rooms or chemical storage facilities. The ceramic units of the TTS system may be used for this purpose, but the type of grouting and the installation method will vary. Consult Armor or the installation contractor for specific details.

3.4 Expansion joints are required to accommodate mechanical or thermal stresses in tile flooring. Expansion joints are placed over existing joints in the underlying concrete. Flexjoint U500 Joint Sealant (CE-134), a two component polyurea joint filler shall be used in traffic bearing areas. Consult joint detail drawings CED-607 for a typical detail.

There are several guidelines that could be followed to determine where the joints are placed. However, not all rules should be followed as there would be redundancy, and it is known that joints are a maintenance item. It is suggested the specified locations be determined on a case-by-case basis after review by the qualified contractor.

4. CONDITIONING OF MATERIALS AND JOBSITE

4.1 All TTS work with chemically curing setting beds and grouts should be performed under cover from the elements, and at a minimum temperature of 50˚F (10˚C) and a maximum of 90˚F (32˚C) unless specific arrangements for exceptions are made. The temperature limitations apply not only to the air, but to the substrate the masonry will be in contact with as well as the materials themselves. In addition, the air temperature must be maintained from start of job until cure is initiated at 5˚F (3˚C) or more above the moisture dew point.

All materials including the tile must be kept dry and within this temperature range for not less than 48 hours prior to use to allow sufficient time to acclimate. All work shall be kept dry until the mortar has reached the

point of cure designated by the manufacturer. The bedding and grouting materials and chemically setting compounds that are temperature dependent and work best within a temperature range of 70˚F-75˚F (21˚C-24˚C). Higher temperatures will reduce work life and set time, and lower temperatures will increase it.

4.2 The user should be conscious of temperature changes and erratic cures that can result from high winds (chilling or heating, and rapid drying), by direct sunlight during summer months, particularly in hot climates, and changes in temperature for daytime to nighttime. Provide appropriate job protection.

5. APPLICATION OF MATERIALS

5.1 Installation of all components of Tufchem Tiling Systems lining including membrane, sloping bed, tile setting bed, grout, and expansion joints shall be performed only by an Armor trained and approved contractor familiar with the installation techniques associated with Tufchem Tiling Systems.

5.2 A test panel of a nominal 100 square feet (10 sm) is typically recommended for inspection before commencement of large work areas to establish a baseline and may be used to establish expected standards to which subsequent work shall be performed. Written signoffs as to acceptance of test panel shall be provided by general contractor, owner, or architect as required for the specific project.

5.3 Commencement of work by tiling contractor shall be deemed as acceptance of structural concrete substrate. Deficiencies such as cracks, incorrect elevations, birdbaths, incorrect slopes, or other shall be noted in writing by tiling contractor and resolved before commencement of tile lining work.

6. CLEANUP

6.1 Consult specific product data sheets for suggested tool cleaning recommendations.

7. SAFETY PRECAUTIONS DISCLAIMER CONTACT INFORMATION

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

7.2 Mixes and applications of this product present a number of hazards. Read and follow the hazard information, precautions and first aid directions on the individual product labels and safety data sheets before using. While all 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.

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