



Installation & Application Guide
Resinous Flooring



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1.0 - INTRODUCTION

The purpose of this guide is to acquaint flooring contractors with the fundamental information necessary for ordering and installing Tnemec's StrataShield Flooring Systems. Prior to starting work, read this entire guide carefully. If you have questions, contact your Tnemec representative or call 1-800-TNEMEC1. It is important that you obtain answers to any questions you have prior to starting flooring system work.

Please thoroughly review the companion information and literature to this installation guide prior to starting flooring projects with StrataShield Flooring Systems. This literature and information includes the following:

- StrataShield Systems Guide to High Performance Coatings for Floors
- Specific Product Data Sheets
- StrataShield Standard Flooring Details Guide
- Reference Information – Given in Part 5.0 of this installation guide

Also, always review the flooring specifications for each specific project against Tnemec's Flooring Literature and Systems Guide to ensure there are no inconsistencies or conflicts prior to starting the project work.

Tnemec Company also provides Standard Flooring Specifications for all of the StrataShield Flooring Systems.

This Installation and Application Guide and its companion literature cannot cover every floor coating or floor topping issue that will be encountered in the field. If such issues arise that are not addressed by this guide or the related literature, please contact your Tnemec representative for assistance.

2.0 - PURPOSES FOR INSTALLING FLOORING SYSTEMS

Floor coating and floor topping systems are used for one or more of the following purposes.

- To provide a decorative finish.
- To provide a cleanable, sanitizable finish.
- To protect concrete from exposure to process chemicals and chemical solutions that would otherwise attack it.
- To protect concrete from exposure to abrasion, wear, erosion, or other physical mechanisms of deterioration.
- To help prevent leakage of water through hairline cracks or other breaches in concrete slabs into facilities beneath the slabs.
- To contain and/or direct process solutions or water to drain systems.

When selecting a StrataShield Flooring System for a specific project, be certain to identify the purpose or purposes of the selection carefully. Both performance and cost can be negatively affected if the flooring system is selected for the wrong purposes.

3.0 - BACKGROUND: AVOIDING FLOOR COATING/TOPPING FAILURES

All floor coating/topping failures are caused by one or more of the following problems.

- Improper material selection.
- Improper design or construction of the concrete substrate to receive the flooring system.
- Inadequate surface preparation.
- Lack of correct construction detail treatment for the flooring system.
- Improper mixing or application of the concrete or flooring system.
- High vapor emission rates.

Please read the background information given below on these problem areas. It will help you to avoid flooring failures.

PROPER MATERIAL SELECTION

Improper material selection often results in floor coating failures or in the failure to meet customer expectations.

Staining, chemical attack, topping abrasion, or thermal shock related cracking can all be caused by using the wrong flooring system. Below is a checklist for averting such problems.

- Select materials that resist the physical, thermal, and chemical exposure conditions. Compare exposure conditions with the thermal and chemical resistance data on the products under consideration. Have exposure testing conducted if the chemicals used are not specifically listed by temperature and concentration (percent) on the Tnemec chemical resistance charts. Contact the Tnemec Technical Service Department for assistance.
- Carefully evaluate floor topping materials for their physical properties. They must be thick enough and offer sufficient compressive strength and wear resistance for the actual physical exposure conditions. Find out what the point loads and dynamic wheeled traffic loads will be first. Then check with the Technical Service Department for proper material selection.
- Select topping materials that meet substrate requirements, i.e., adequate thickness for rehabilitated floors. A 1/8" thick (3-mm) topping alone will not be sufficient for repairing floor degradation that exceeds 1/2" (12.5-mm) in thickness losses.
- Select flooring systems that provide sufficient thickness to hide the surface profile provided by the selected means of surface preparation such as shotblasting.
- Select flooring systems that can be installed within the available outage or shutdown timetables (if pertinent).
- Select materials that produce the appearance desired. Review large size sample coupons so that cleaning and non-slip characteristics can be balanced in the field. Trial areas should be installed so that decision-makers from the facility (customers) can select the texture they desire. The selected trial area can then be used as the standard on the job.

- Select materials that comply with relevant volatile organic compound (VOC) regulations. These regulations vary from state to state.
- When selecting floor topping materials, review the odors given off by the resin system to ensure the health and safety of area or building personnel.
- Do not use the same floor topping everywhere in the building solely for a consistent appearance. Use the appropriate product for the specific exposure conditions. For example, line containment areas for chemical overflows and spills with a protective coating or lining system that resists extended exposure to the full strength chemicals. Isolate these areas from the unexposed adjacent floor areas.

PROPER DESIGN AND CONSTRUCTION OF THE CONCRETE SUBSTRATE

If everything else is done correctly, flooring systems might still fail due to substrate inadequacies. Here is a checklist for avoiding commonplace substrate problems.

- Ensure that attention is paid to drainage and compaction of soil for all slab-on-grade portions of the facility to be built or repaired. Be certain that well draining sub-base soils are specified or provided and that diversions of run-off water and water table elevations are considered. Hydrostatic water or moisture vapor problems in slabs-on-grade and elevated slabs frequently cause floor topping failures. Blistering-type modes of failure often occur when water vapor problems are present.

Perform moisture testing on the concrete prior to proceeding with flooring system application.

It is advisable to determine the presence of moisture within, or migrating through, a particular slab prior to flooring installation work. Questions/considerations include the following:

1. Was a moisture vapor barrier utilized? Plastic sheeting (polyethylene) placed under the slab is commonly used to prevent moisture migration.
2. Was the moisture vapor barrier sealed around penetrations such as catch basins, piping, conduit, or grade beams, etc.?
3. What was the concrete's water to cement ratio by design? What was the slump/actual water to cement ratio as field supplied? What was the concrete mix design? Were water reducing admixtures used? If construction records are not available, laboratory testing of concrete specimens can be performed. Petrographic analysis of concrete can be performed to determine the original water to cement ratio of the concrete.
4. What, if anything, do geotechnical or civil engineering surveys indicate relative to water table, ground permeability/soil composition (stratification), required grading, drainage, etc.? As a general rule, building permits are not granted for new construction without a geotechnical soils study. Ask to review a copy of it, especially if the floor to be coated is in a building surrounded by wetlands or near bodies of water.

The essential aspect of these inquiries is to ascertain, as early as possible in the course of the project, potential problems relative to moisture.

METHODS OF DETECTION & THRESHOLD MOISTURE LIMITS

To determine whether too much moisture is present or migrating through concrete, ASTM D4263 "Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method" is useful. An 18" x 18" transparent polyethylene plastic sheet (minimum 4.0 mils thick) is placed on bare concrete and the edges are taped to form an airtight seal. The sheet is left in place for a 16-hour period (minimum). The shortcomings of this method are that the test takes 16 hours to perform and does not quantify the amount of moisture present. Also, floors to be coated are often indoors and no sunlight is present. In this case, place a light (100 watt) approximately 8"-12" over the plastic sheet. However, it can be stated that if any amount of water is detected, during or subsequent to the test, there is probably too much moisture to install a floor coating system.

Another method to determine the presence of moisture in/through concrete is by performing vapor emissions testing (V.E.T.). The test method for water vapor emissions was developed by the Rubber Manufacturers Association and is designated as ASTM F1869 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride." Test kits for the evaluation are available through a variety of sources. Individual tests can be performed using either the visual/qualitative method or the referee/quantitative method. The required materials and use instructions for the referee/quantitative test method are described below.

MATERIALS

- Calcium chloride (powder) in small sealable container (approximately 3" diameter x 5" high or similar)
- Sealing tape
- Plastic cover (capable of encapsulating the calcium chloride container)
- Scale accurate to the nearest centigram (.01 gram)
- Suitable label marking materials

PROCEDURE

- Place calcium chloride in container, attach label to lid, and weigh the container, lid, and tape used to seal the lid to the container. During this process, do not spill any of the contents of the container.
- Record weight on attached label.
- Place the open container, lid and tape on bare/clean concrete floor. It may first be necessary to remove old coating, debris, dust, etc. During this process, do not spill any of the contents of the container.
- Place the plastic cover over the container and seal edges. It is vital that a complete airtight seal is achieved.

- Place caution tape or other signage to prohibit test unit from being disturbed.

NOTE: Although the frequency of testing can be determined on a per job basis, a minimum of one test per 1,000 sq. ft. of floor area should be conducted.

- Leave test unit in place for 60 hrs. (minimum)-72 hrs.
- Following the prescribed test period, carefully place the previously weighed lid onto the calcium chloride container, seal, weigh and record the weight on the label. During this process, do not spill any of the contents of the container.

The formula for calculating moisture emissions is as follows:
 1,000 sq. ft. x weight gain x 24 hrs. = pounds/1,000 sq. ft./24-hr. period

Area of test x Exposure time x Grams/pound

Notes: 1,000 sq. ft. = 144,000 sq. in.

Area of test = 70 sq. in.

Exposure time = hrs. to the nearest .1 hr.

Grams per pound = 454

The visual/qualitative method assessment is done in the same manner as described above, but pre- and post-test weighing is not done. Rather, the calcium chloride is viewed for the presence of clumps and/or dark spots. If particularly high vapor emission rates are present, the calcium chloride may dissolve. For reasons stated previously, however, this method is not recommended.

THRESHOLD LIMITS/CRITERIA FOR ASSESSMENT OF VAPOR EMISSION RATES

Test result values which are in excess of 3.0 lbs./1,000 sq. ft./24-hr. period can be considered as problematic relative to the installation of highly impermeable type flooring materials such as the StrataShield flooring products. It should be noted that floor coating failures related to vapor emissions are common and very expensive to rectify. Hence, a conservative approach is advisable. Additionally, it should be understood that vapor emission rates can change throughout the year due to precipitation variances and geological events – natural or man-made (i.e. construction or landscaping activities). This is why it is recommended that questions regarding potential water problems, moisture vapor barriers, etc., always be addressed prior to the installation of StrataShield floor coating systems.

For more detailed information on water vapor emissions problems, please refer to Thmec Technical Bulletin No. 97-05 R-1 and ASTM F1869-98.

Check to make sure that routine quality assurance measures are in place during construction to enforce proper compaction of sub-base soils. If soils are not properly compacted, settlement of the slab-on-grade will result in slab cracking. This, in turn, will cause cracking of the floor topping materials.

ENSURE THE QUALITY OF NEW CONCRETE

The water-cement ratio should be as low as possible while still ensuring good workability. The slump of the concrete need not exceed 3"-4" (9 cm-10 cm) for floor slabs. This is the slump before the addition of super plasticizers or high range water reducers. This will minimize shrinkage-related cracking and increase the impermeability of the concrete.

Do not recommend the use of lightweight concrete in areas where heavy and frequent wheeled traffic will be typical.

The concrete should be properly placed and consolidated without the addition of more water.

The concrete should be properly cured to avert unnecessary cracking. Moist curing for approximately five to seven days is preferred. If curing agents or sealers are used, be certain they can easily be removed by surface preparation.

Finishing should include screeding for proper pitch to drains, floating, and steel trowelling as required to produce a uniform, tight surface that meets levelness and flatness tolerances. Steel power trowelling to a burnished, hard finish is inappropriate and undesirable if a floor topping is to be applied. Hard, power-trowelled concrete brings cement fines to the surface, producing laitance, a thick layer of cement paste or cream. This laitance must then be partially removed to achieve proper flooring system adhesion. This removal is expensive and unnecessary when toppings are to be used. Overfinishing is, therefore, wrong for slabs to receive flooring systems.

Broom finishing or mere float finishing is improper if a topping is to follow. Broom or float finishing leaves irregularities and undulations in the concrete. Variations in the thickness of the cement paste or concrete matrix create problems for final floor flatness tolerances, pitch for drainage, and surface preparation for the floor topping. Underfinishing adds unnecessary costs to the repair or topping operation.

REVIEW THE DESIGN OF FLOOR SLABS

Ask if adequate expansion joints are provided for thermal expansion.

Make sure control joints are provided to control cracking in the slabs. Control joints should be sawcut. Be certain joint locations do not intersect walls and doorways.

Check to see that joints are placed at logical transitions, such as where one floor finish meets another.

Column footing isolation joints should not intersect walls or doorways if possible.

Make sure the flooring system cove base to be used, if applicable, is terminated at a height on the facility walls so that it can be easily cleaned and sanitized. Do not allow it to end at the first concrete masonry unit (CMU) mortar joint in masonry buildings. The cove base should terminate on to a flat wall surface, and the top of the cove should be chamfered (back towards the floor).

Ensure that steel embedments in the concrete are carefully set at elevations conducive to good floor topping transitions. Embedded angles and plates at trench drains, circular floor drains, loading dock platforms, and elevator entrances should be set slightly above the finished concrete elevation. This distance must take into account the specific thickness of the floor topping and the extent of concrete removal during surface preparation. Also, the elevations of such embedments should be uniform from one end to the other. Otherwise, floor system installation costs go up.

Carefully review the grouts or flash patching materials specified for leveling penetrations and metal embedments in the slabs. Make certain they will be compatible with the selected floor coating or topping materials.

Check to see if expansion joints have been designed to occur at perimeter walls in the facility. If this occurs, the installation of a cove base requires careful attention along such walls. Placing a rigid cove base over an expansion joint will result in subsequent cracking of the cove base.

Please refer to the StrataShield Standard Flooring Details Guide for the proper way to handle cove base installations.

Make sure as much equipment as possible can be removed and reinstalled to accommodate future floor topping maintenance.

Make sure all Portland cement concrete and masonry cures for a minimum of 28 days prior to floor topping installation. Otherwise, consult the Tnemec Technical Service Department or your Tnemec representative for assistance.

Carefully review the construction schedule for the sequence of equipment installation. Get the floor system installed first whenever possible.

ADEQUATE SURFACE PREPARATION

Most floor topping failures are the result of inadequate preparation of the substrate. Below is a checklist for avoiding inadequate surface preparation problems for flooring systems.

ENSURE ADEQUATE SURFACE PROFILE

Resinous flooring systems on concrete rely on mechanical bonding for long-term, good adhesion. This is accomplished in two ways on concrete substrates.

First, concrete is a porous, heterogeneous composite. Its pores or capillaries aid in the adhesion of the floor topping. Adhesion is improved via the use of highly penetrating primers, preferably of the lowest possible viscosity. The greater the depth of penetration, the better the adhesion, but concrete porosity alone does not produce adequate surface profile.

Mechanical adhesion is also achieved in the concrete substrate by roughening or profiling the concrete. The peaks and valleys formed by roughening the concrete provide an anchor pattern to which the floor topping can bond. This profile can be created by mechanical methods such as scarifying, contained abrasive

blasting, water jetting, planing, and shot blasting. Acid etching is also used to prepare concrete surfaces.

Many people continue to recommend acid etching as a method of profiling concrete substrates. While acid etching can be an effective surface preparation method for thin-film coatings, it generally does not produce sufficient profile on concrete for laminate or trowelable mortar flooring systems. Additionally, it can cause problems of safety, waste disposal, and contamination of the substrate, which occurs when acid salts are not completely removed after etching, and which often leads to adhesion related coating or topping failures.

Shot blasting has become the most accepted and proven method for successfully preparing concrete floors and is recommended for most StrataShield flooring systems.

Achieving sufficient anchor profile is of major importance to floor topping adhesion. The depth of the anchor profile should be proportional to the topping thickness. Surface preparation guidelines are provided on StrataShield Product Data Sheets.

ENSURE CLEAN CONCRETE

The degree of cleanliness of the concrete substrate is also critical for proper adhesion. Surface preparation must produce a substrate that is free of loose cement paste, laitance, dust, dirt, grease, oil, paint splatter, and any other deleterious substances. Substrate cleanliness means also that there are no non-visible contaminants on the concrete. Tests can be performed to ensure soluble salts and other contaminants are not present. Consult with the Tnemec Technical Service Department for assistance with such matters.

Contaminants can be effectively removed using high pressure water jetting and other methods. Contaminant testing should be performed prior to, and following, mechanical surface preparation. This way, the extent of contaminant removal and cleaning can be anticipated and planned.

Concrete curing agents or sealers can cause floor topping failures if they are not removed by surface preparation. These failures are normally manifested by failure of the topping system to adequately bond to the floor. Solving this problem generally involves more extensive concrete removal.

ENSURE THE DRYNESS OF THE SUBSTRATE

The concrete must also be dry, with no standing water or wet or overly damp areas. While some floor topping resins are more tolerant of dampness than others, as a general rule, the concrete should not be damp or wet when resinous floor systems are applied. Among the several tests for presence of moisture, the most effective are ASTM D-4263 "Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method" and ASTM F-1869 "Standard Test Method to Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride."

The degree of cleanliness required for concrete to be coated includes removal of visible and non-visible contaminants and assurance that the concrete is sound and dry.

CORRECT CONSTRUCTION DETAIL TREATMENT FOR FLOORING SYSTEMS

Frequently, floor topping failures begin at terminations, transitions, and other construction details. The following is a checklist to help avoid such problems.

- Do not place seamless floors over construction, expansion, and isolation joints. Generally, a joint in the concrete substrate should be a joint in the topping. If the topping covers a joint, it must be specially treated first.
- Actively moving cracks must be treated prior to floor topping application. Placing the floor topping over active cracks results in cracking of the topping once the crack in the concrete moves. Assume all cracks to be active unless testing or engineering analysis by others is performed to indicate otherwise.
- Leading edge terminations at embedded steel plates, angles, and trench drains should include installation of a nosing detail. The nose area should be built from the topping material or a compatible resinous material.
- Leading edge terminations at bare concrete or at alternate floor finishes require a sawcut and nosing detail.
- Finish floor topping elevations and door clearances must be addressed. Make a mock-up or door model for checking clearances.
- Floor topping terminations at circular floor drains require an uninterrupted transition. The drain must be set at the right elevation. In addition, a transition nosing detail is required for the topping at drains.
- Cove base heights and terminations require careful planning with the customer.

Understanding the cause(s) of cracking of concrete slabs is essential to determining the methods of detail treatment to be used for cracks prior to installation of the selected flooring system.

Detail treatment for cracks, joints, terminations, leading edges, drains, and embedded steel or metal elements in concrete floors are described in the StrataShield Standard Flooring Details Guide.

PROPER MIXING AND APPLICATION OF FLOORING MATERIALS

Improper flooring system application can result in topping failures. Below is a checklist of items to help avoid such problems.

- Be certain the materials are mixed properly. If not, the topping material will not cure properly. Improper mixing may also lead to staining or discoloration in resinous flooring materials. Streaks of darker and/or lighter tones may remain in the finish.

If an inadequate resin-filler ratio results due to poor mixing, the system may never develop the chemical resistance or physical properties designed into the formulation.

The best way to ensure proper mixing is to carefully follow the mixing instructions given on the Product Data Sheets and in this document.

- Check to ensure that the floor system is installed at the specified thickness. If the contractor installs the material below the specified thickness, it may not provide the wear resistance or load spreading capacity required for the service conditions. Also, the thinner topping may not isolate the substrate from chemical exposures.

If the floor topping is applied above the specified thickness, it may not cure properly throughout the film or films, and broad irregularities in thickness will compromise both performance and aesthetics.

- Use only an experienced tradesperson with the specified product.
- Be certain all prepared surfaces are properly primed with the topping systems' primer prior to application of the mortar, broadcast system, or topcoats.
- Make sure you monitor the finishing operation early in the installation work. Good finishing work can make all the difference between a good-looking job and a mess.
- If topcoats are included in the system specified, make certain they are strictly applied according to the Product Data Sheets.
- Check to make sure that the application personnel follow the recoat limitations and minimum ambient condition requirements for flooring system application. These requirements are well defined in the Product Data Sheets. If substrate temperature, air temperature, or humidity at the time of application fail to meet the minimum requirements, improper or insufficient cure of the flooring system may result.

If minimum and maximum recoat time limitations are not followed, intercoat delamination, cure problems, or eventual cohesive bond failures may occur in the topping. For example, solvent entrapment can result if a base coat is topcoated too early. This entrapment can promote blistering of the topcoat, and delamination will develop. If the maximum recoat limitation is exceeded for a successive coat, a cohesive chemical bond may not form between coats. This could produce topcoat or intercoat delamination in the flooring system.

- Before allowing traffic or activity on the finished floor, be certain the finished topping system is cured for the minimum length of time at the appropriate minimum ambient conditions. Failure to ensure adequate cure time will result in damage to the topping.

4.0 STRATASHIELD FLOORING SYSTEMS

4.1 COATING SYSTEMS

These thin-film systems (25.0 mils or less) are designed for decorative, cleanability, and protective purposes for mild to moderate physical and chemical exposure conditions. More detailed information regarding system selection is given in the StrataShield Flooring Systems Guide.

This installation guide is to be used in conjunction with the pertinent Product Data Sheets and addresses installation of the following systems:

| PRIMER | INTERMEDIATE | FINISH |
|---------------------------|---------------------------|---------------------------------------|
| Series 201 Epoxoprime | N/A | Series 201 Epoxoprime |
| Series 205 Terra-Tread FC | Series 205 Terra-Tread FC | Series 291 CRU (optional) |
| Series 201 Epoxoprime | Series 280 Tneme-Glaze | Series 291 CRU (optional) |
| Series 201 Epoxoprime | Series 281 Tneme-Glaze | Series 291 CRU (optional) |
| Series 287 Enviro-Tread | Series 287 Enviro-Tread | Series 297 Enviro-Tread UR (optional) |

NOTE: For specific floor coating systems for unusual substrate or chemical exposure conditions, consult your Themec representative.

PRODUCTS, PACKAGING AND SUGGESTED COVERAGE

SERIES 201 EPOXOPRIME

A high-solids moisture tolerant epoxy used for priming concrete. Also used as a stand-alone, clear floor sealer.

201 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|-------------|-------------------|------------------|--------------|
| Extra Large | 2 55-gallon drums | 1 55-gallon drum | 165 gallons |
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

201 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 6.0-12.0 (150-305) | 6.0-12.0 (150-305) | 134-267 (12.2-24.8) |

SERIES 205 TERRA-TREAD FC

A fast-cure, polyamide epoxy for use as a penetrating primer as well as a general-duty topcoat. Can be applied in temperatures as low as 35° F (2° C).

205 PACKAGING

| KIT SIZE | PART A | PART B | YIELD (MIXED) |
|----------|-----------------|-----------------|---------------|
| Large | 1 5-gallon pail | 1 5-gallon pail | 10 gallons |
| Small | 1 1-gallon can | 1 1-gallon can | 2 gallons |

205 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 2-6 (50-150) | 3.5-10.5 (90-265) | 155-465 (14.4-43.2) |

SERIES 280 TNEME-GLAZE

A glaze-like, corrosion resistant coating with an orange-peel finish. Resistant to frequent pressurized, hot water and detergent cleaning. Used as a topcoat/sealer for heavy duty floor systems, or in a stand-alone, high-performance function. Excellent chemical, stain and abrasion resistance.

280 PACKAGING

| KIT SIZE | PART A | PART B | YIELD (MIXED) |
|----------|------------------|-----------------|---------------|
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon pail | 3 gallons |

280 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 6.0-12.0 (150-305) | 6.0-12.0 (150-305) | 134-267 (12.4-24.8) |

SERIES 281 TNEME-GLAZE

A high gloss, glaze-like coating for concrete floors. It imparts a smooth, aesthetically pleasing finish in a variety of colors, while providing protection against various acids and alkalis, abrasion and frequent cleaning.

281 PACKAGING

| KIT SIZE | PART A (PARTIALLY FILLED) | PART B (PARTIALLY FILLED) | YIELD (MIXED) |
|----------|------------------------------|------------------------------|---------------|
| Large | 1 5-gallon pail | 1 2-gallon pail | 5 gallons |
| Medium | 1 2-gallon pail | 1 1-gallon pail | 2 gallons |
| Small | 1 1-gallon can | 1 1/2-gallon pail | 1 gallon |

281 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 6.0-12.0 (150-305) | 6.0-12.0 (150-305) | 134-267 (12.4-24.8) |

SERIES 287 ENVIRO-TREAD

A rapid cure, wear-resistant, water-based coating capable of withstanding moderate commercial and industrial floor traffic. It will withstand frequent spillage of water, oil and grease, and mild to moderate chemical and solvent exposures, as well as repeated cleaning.

287 PACKAGING

| KIT SIZE | PART A | PART B | YIELD (MIXED) |
|----------|------------------|-----------------|---------------|
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

287 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 2.0-4.0 (50-100) | 4.0-8.0 (100-200) | 205-409 (19.0-38.0) |

SERIES 290 CRU

An extremely hard, chemical-resistant urethane floor coating with a semi-gloss finish. Excellent resistance to abrasion, wet conditions, corrosive fumes and chemical contact.

290 PACKAGING

| KIT SIZE | PART A (PARTIALLY FILLED) | PART B | YIELD (MIXED) |
|----------|------------------------------|----------------|---------------|
| Large | 1 3-gallon pail | 1 1-gallon can | 3 gallons |
| Small | 1 1-gallon can | 1 1-quart can | 1 gallon |

290 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 2.0-3.0 (50-75) | 3.0-4.5 (75-115) | 380-570 (35.3-53.0) |

SERIES 291 CRU

An extremely hard, chemical-resistant urethane floor coating with superb flow characteristics. Excellent resistance to abrasion, wet conditions, corrosive fumes and chemical contact.

291 PACKAGING

| KIT SIZE | PART A (PARTIALLY FILLED) | PART B | YIELD (MIXED) |
|----------|------------------------------|------------------|---------------|
| Large | 1 3-gallon pail | 1 1-gallon can | 3 gallons |
| Small | 1 1-gallon can | 1 1/2-gallon can | 1 gallon |

291 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 2.0-3.0 (50-75) | 3.0-4.5 (75-115) | 358-537 (33.3-49.9) |

SERIES 295 CLEAR CRU

An extremely hard, chemical-resistant clear urethane floor coating with a superb gloss finish. Excellent resistance to abrasion, wet conditions, corrosive fumes and chemical contact.

295 PACKAGING

| KIT SIZE | PART A | PART B | YIELD (MIXED) |
|----------|-----------------|------------------|---------------|
| Large | 1 3-gallon pail | 1 1-gallon can | 3 gallons |
| Small | 1 1-gallon can | 1 1/2-gallon can | 1 gallon |

295 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 2.0-3.0 (50-75) | 3.5-5.0 (90-125) | 321-481 (29.8-44.7) |

SERIES 297 ENVIRO-TREAD UR

Low odor, water-based urethane. Provides excellent abrasion resistance, good stain resistance and excellent color and gloss retention.

297 PACKAGING

| KIT SIZE | PART A (PARTIALLY FILLED) | PART B (PARTIALLY FILLED) | YIELD (MIXED) |
|----------|------------------------------|------------------------------|---------------|
| Large | 1 5-gallon pail | 1 1-gallon can | 4 gallons |
| Small | 1 1-gallon can | 1 1-quart can | 1 gallon |

297 COVERAGE RATE

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 2.0-3.0 (50-75) | 4.0-5.5 (100-140) | 281-421 (26.1-39.1) |

EQUIPMENT AND SUPPLIES FOR APPLICATION

EQUIPMENT AND SUPPLIES

This list includes tools and supplies normally required for surface preparation, priming, mixing and installation of StrataShield floor coating systems. If an overlay or patching material is used beneath the floor coating system, see the appropriate Product Data Sheet and reference the Mortar Flooring Installation information herein for additional equipment and installation details.

FOR SURFACE PREPARATION

- Heavy duty circular type industrial floor scrubbing machine with various head attachments.
- Self contained blasting equipment, i.e; Blastrac Wheelabrator.
- Floor magnet.
- Power saw with carbide or diamond tip blades for saw cutting exposed perimeters.
- Heavy duty industrial "wet" vacuum.
- Hand-held power tools for chipping, abrading and grinding.

FOR MIXING AND APPLICATION OF PRODUCTS LISTED IN THIS GUIDE

- Slow speed or variable speed (350 rpm or less) heavy duty (½" chuck or larger) electric or air driven drill fitted with a clean PS "Jiffy" mixing paddle (available at W.W. Grainger distributors in most cities).
- Spray equipment: Contact the Tnemec Technical Service Department. Typically, materials are applied by using rollers or are spray-applied followed by backrolling.
- Roller cages and covers – a high-quality, shed-resistant woven fabric cover is suggested (available through the Wooster Brush Co., Wooster, OH). Nine inch roller cages and covers are normally used, however an 18" combination may be used when coating large open areas. This tool will increase productivity and decrease roller marks.
- A ⅜" nap for Series 201, 280 and 281 is recommended.
- A ¼" nap for Series 203, 205, 287, 290, 291 and 295 is recommended.
- Assortment of clean trowels and squeegees, both notched and flat.
- Spike (golf) shoes.

Other:

- Brushes
- Brooms
- Thermometers
- Knee pads
- Solvent
- Assortment of resin-coated sanding disks
- Pail scrapers
- Duct tape
- Spatulas
- Clean pails
- Personal protective equipment
- Timer
- Gloves
- Pole extensions
- Rags

SURFACE PREPARATION

Prior to beginning any application of the floor coating systems, the concrete surface must be clean, dry, physically sound and free of all grease, oil, dust, curing compounds or membranes - any foreign materials or contaminants that will interfere with primer penetration and adhesion.

Mechanical preparation such as light shotblasting or mechanically abrading is recommended to achieve surface profile in accordance with ICRI Guidelines as stated on the Product Data Sheet.

If acid etching is required, perform in accordance with ASTM D 4260-88 and ensure that thorough rinsing is performed using copious quantities of clean, potable water. Acid etching shall also achieve a concrete surface profile in accordance with ICRI Guidelines as stated on the Product Data Sheet. Test pH in accordance with ASTM D 4262-83.

Refer to the Flooring Systems Guide for specific concrete surface profile required for each floor coating system.

DETAIL TREATMENT

StrataShield floor coating systems shall be terminated at door stops, walls, or at sealed joints. When terminating these systems at other floor finishes, consult your Tnemec representative for recommendations on termination details or refer to the StrataShield Standard Flooring Details Guide.

MIXING AND APPLICATION INSTRUCTIONS

For all products used in the Floor Coating Systems, use a variable speed drill with a PS "Jiffy" blade. Slowly mix the Part A, and while under agitation, add the Part B at the correct mixing ratio. Mix for a minimum of two minutes. Ensure that all Part B is blended with Part A by scraping the pail walls with a flexible spatula.

NOTE: Apply the mixed material within pot life limits, after agitation, to the prepared surface of the concrete or to the previous coat.

Coverage will vary due to the profile of the concrete.

Material may be "ribboned" onto the floor and spread with either a flat or notched squeegee, depending on the mil thickness. Once spread, backroll the material to ensure complete and even coverage. An applicator wearing spiked shoes may walk back onto the floor to reach all areas.

For best application results, a ¼" nap roller cover is recommended for Series 203, 205, 287, 290, 291 and 295, and a ⅜" nap cover is recommended for Series 201, 280 and 281.

ANCILLARY PRODUCTS

Refer to Section 4.4 of this guide for information on Series 203, 214 and 295.

CLEANUP

Clean all equipment immediately after use with a compatible solvent such as Xylene or Methyl Ethyl Ketone (MEK). Hands can be cleaned with soap and water.

STORAGE AND HANDLING

All materials must be stored between 40° F and 90° F. Prior to application, the material must be between 70° F and 90° F.

For optimum application, handling and performance, the surface, air and material temperatures during application should be between 70° F and 90° F. For applications below 70° F, contact your Tnemec representative for instructions and precautions.

The surface and air temperatures should be at least 5° F above the dew point and the relative humidity should be below 75 percent. Do not apply in direct sunlight or on outside concrete surfaces where the temperatures are rising. Blistering and cratering may occur due to air escaping from the concrete, commonly referred to as "out-gassing".

SAFETY INFORMATION

These products may contain solvents and/or other chemical ingredients. Adequate health and safety precautions should be observed during storage, handling, application and curing. For information regarding the potential hazards associated with these products, please refer to the container label or request a Material Safety Data Sheet from Tnemec Company Inc., at the address noted in this guide. Please direct your inquiries to the attention of our Safety Director.

4.2 - LAMINATE FLOORING SYSTEMS

These systems are designed for decorative, cleanability, and protective purposes for mild to moderate chemical and physical exposure conditions where thicker systems are required.

This installation guide is to be used in conjunction with the pertinent Product Data Sheets and addresses installation of the following systems:

| PRIMER | INTERMEDIATE | FINISH |
|----------------------------------|---------------------------|---------------------------|
| Series 201 Epoxoprime (optional) | Series 222 Deco-Tread | Series 284 Deco-Clear |
| Series 201 Epoxoprime | Series 210 Even Flow SL | Series 291 CRU (optional) |
| Series 281 Tneme-Glaze | Series 224 Deco-Fleck | Series 284 Deco-Clear |
| Series 201 Epoxoprime (optional) | Series 237 Power-Tread | Series 280 Tneme-Glaze |
| Series 201 Epoxoprime (optional) | Series 238 Power-Tread FC | Series 280 Tneme-Glaze |
| Series 201 Epoxoprime (optional) | Series 239 ChemTread | Series 282 Tneme-Glaze |

NOTE: For specific laminate flooring systems for unusual substrate or chemical exposure conditions, consult with your Tnemec representative.

PRODUCTS, PACKAGING AND SUGGESTED COVERAGE

SERIES 201 EPOXOPRIME

A high-solids moisture tolerant epoxy used as a concrete primer for laminate flooring systems.

201 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|-------------|-------------------|------------------|--------------|
| Extra Large | 2 55-gallon drums | 1 55-gallon drum | 165 gallons |
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

201 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 6.0-12.0 (150-305) | 6.0-12.0 (150-305) | 134-267 (12.2-24.8) |

SERIES 210 EVEN FLOW SL

A high-gloss, high-build, self-leveling epoxy topping that imparts an ultra-smooth finish while providing protection against abrasion and various chemicals.

210 PACKAGING

| KIT SIZE | PART A (PARTIALLY FILLED) | PART B (PARTIALLY FILLED) | PART C (PARTIALLY FILLED) | YIELD |
|----------|------------------------------|------------------------------|------------------------------|-------------|
| Large | 1 6-gallon pail | 1 2-gallon pail | 5-gallons | 5 gallons |
| Medium | 1 3 1/2-gallon pail | 1 1-gallon pail | 2-gallons | 2.5 gallons |
| Small | 1 1-gallon can | 1 1/2-gallon pail | 1-gallon | 1 gallon |

210 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|-----------------------|-----------------------|-------------------------------------|
| 30.0-100.0 (750-2500) | 30.0-100.0 (750-2500) | 16-53 (1.5-4.9) |

SERIES 222 DECO-TREAD

A decorative broadcast or slurry broadcast laminate coating system installed at 1/8" minimum thickness. Protects against impact, abrasion and mild chemicals with an aesthetically pleasing appearance.

222 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|-------------|-------------------|------------------|--------------|
| Extra Large | 2 55-gallon drums | 1 55-gallon drum | 165 gallons |
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

222 COVERAGE RATES

| THICKNESS | DRY MILS (microns) | WET MILS (microns) | COVERAGE |
|--------------------|--------------------|--------------------|-----------------|
| 1/16" | 20.0 (510) | 20.0 (510) | 80 sq. ft./gal. |
| 1/8" (dbl. broad.) | 40.0 (1020) | 40.0 (1020) | 40 sq. ft./gal. |

NOTE: The Part C colored quartz is calculated at 1/2 lb. per sq. ft., per broadcast application. (Two broadcast applications are required.) Additional Part C aggregate may be required to accommodate for waste or loss during application, or to make coving material. The Part C is ordered and shipped separately from Parts A and B.

NOTE: A double broadcast at 1/16" per application is required to achieve the 1/8" minimum. (Example: Two gallons are required to cover 80 sq. ft. at 1/8")

SERIES 224 DECO-FLECK

A decorative flake system typically applied by a single broadcast. Protects against abrasion and mild chemicals while providing the speckled appearance of terrazzo.

224 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|-------------|-------------------|------------------|--------------|
| Extra Large | 2 55-gallon drums | 1 55-gallon drum | 165 gallons |
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

224 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 8.0-10.0 (205-255) | 8.0-10.0 (205-255) | 160-200 (14.9-18.6) |

NOTE: The Part C colored flake is calculated at roughly 100 sq. ft. per lb. for a random broadcast and 4-5 sq. ft. per lb. for broadcast to refusal. A test patch is recommended when a random broadcast is desired to ensure approval of appearance and to help determine the amount of Part C needed. The Part C is ordered and shipped separately from Parts A and B.

SERIES 237 POWER-TREAD, 238 POWER-TREAD FC AND 239 CHEMTREAD

Functional laminate coating systems installed by double broadcast or slurry/broadcast at 1/8" minimum thickness. Protects against impact, abrasion and mild chemicals. Series 238 offers accelerated cure and Series 239 provides additional resistance to chemicals and heat.

237, 238, 239 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|-------------|-------------------|------------------|--------------|
| Extra Large | 2 55-gallon drums | 1 55-gallon drum | 165 gallons |
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

237, 238, 239 COVERAGE RATES

| THICKNESS | DRY MILS (microns) | WET MILS (microns) | COVERAGE |
|--------------------|--------------------|--------------------|-----------------|
| 1/16" | 20.0 (510) | 20.0 (510) | 80 sq. ft./gal. |
| 1/8" (dbl. broad.) | 40.0 (1020) | 40.0 (1020) | 40 sq. ft./gal. |

NOTE: The aggregate is not supplied by Tnemec. Purchase clean, dry, bagged 4.0 (30/50 mesh) Flint Shot, sand or approved equal. Calculate at 1/2 lb. per sq. ft., per broadcast application. (Two broadcast applications are required.) Additional aggregate may be required to accommodate for waste or loss during application, or to make coving material.

NOTE: A double broadcast at 1/16" per application is required to achieve the 1/8" minimum. (Example: Two small kits are required to cover 80 sq. ft. at 1/8".)

SERIES 280 TNEME-GLAZE

A glaze-like, corrosion resistant coating with an orange-peel finish. Resistant to frequent pressurized, hot water and detergent cleaning. Used as a topcoat/sealer for heavy duty, laminate floor systems in a high-performance function.

280 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|----------|------------------|-----------------|--------------|
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon pail | 3 gallons |

280 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 6.0-12.0 (150-305) | 6.0-12.0 (150-305) | 134-267 (12.4-24.8) |

SERIES 282 TNEME-GLAZE

A highly chemical resistant, glaze-like coating with an orange-peel finish. Uses a Novolac epoxy binder to resist frequent chemical contact. Used as a topcoat/sealer for heavy duty, laminate floor systems in a high-performance function.

282 PACKAGING

| KIT SIZE | PART A (PARTIALLY FILLED) | PART B (PARTIALLY FILLED) | YIELD (MIXED) |
|----------|------------------------------|------------------------------|------------------|
| Large | 1 5-gallon pail | 1 5-gallon pail | 10 gallons |
| Small | 1 1-gallon can | 1 1-gallon pail | 2 gallons |

282 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 6.0-12.0 (150-305) | 6.0-12.0 (150-305) | 134-267 (12.4-24.8) |

SERIES 284 DECO-CLEAR AND 286 DECO-CLEAR CR

A clear finish for decorative flooring systems. Protects against mild chemicals, impact and abrasion, providing a skid-resistant or smooth finish depending on the number of coats. Series 286 provides additional chemical resistance.

284 AND 286 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|-------------|-------------------|------------------|--------------|
| Extra Large | 2 55-gallon drums | 1 55-gallon drum | 165 gallons |
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

284 COVERAGE RATES

| USAGE | DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|-----------------|--------------------|--------------------|-------------------------------------|
| Finish Coat | 8.0-10.0(205-255) | 8.0-10.0(205-255) | 160-200 (14.9-18.6) |
| With 285 or 295 | 14.0-16.0(355-405) | 14.0-16.0(355-405) | 100-115 (9.2-10.7) |

286 COVERAGE RATES

| USAGE | DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|-------------|--------------------|--------------------|-------------------------------------|
| Finish Coat | 8.0-12.0(205-305) | 8.0-12.0(205-305) | 134-200 (12.4-18.6) |

SERIES 290 CRU

An extremely hard, chemical-resistant urethane floor coating with a semi-gloss finish. Excellent resistance to abrasion, wet conditions, corrosive fumes and chemical contact.

290 PACKAGING

| KIT SIZE | PART A (PARTIALLY FILLED) | PART B | YIELD(MIXED) |
|----------|------------------------------|----------------|--------------|
| Large | 1 3-gallon pail | 1 1-gallon can | 3 gallons |
| Small | 1 1-gallon can | 1 1-quart can | 1 gallon |

290 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 2.0-3.0 (50-75) | 3.0-4.5 (75-115) | 380-570 (35.3-53.0) |

SERIES 291 CRU

An extremely hard, chemical-resistant urethane floor coating with superb flow characteristics and a gloss finish. Excellent resistance to abrasion, wet conditions, corrosive fumes and chemical contact.

291 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|----------|-----------------|------------------|--------------|
| Large | 1 3-gallon pail | 1 1-gallon can | 3 gallons |
| Small | 1 1-gallon can | 1 1/2-gallon can | 1 gallon |

291 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 2.0-3.0 (50-75) | 3.0-4.5 (75-115) | 358-537 (33.3-49.9) |

EQUIPMENT AND SUPPLIES FOR APPLICATION

This list includes tools and supplies normally required for surface preparation, priming, mixing, and installation of StrataShield broadcast floor systems. If an overlay or patching material is used beneath the broadcast system, see the appropriate Product Data Sheet and reference the Mortar System section of this guide for additional equipment and installation details.

FOR SURFACE PREPARATION

- Heavy duty circular type industrial floor scrubbing machine with various head attachments.
- Self-contained blasting equipment, i.e., Blastrac Wheelabrator.
- Floor magnet.
- Hand-held power tools for chipping, abrading and grinding.
- Power saw with carbide or diamond tip blades for saw cutting exposed perimeters.
- Heavy duty industrial "wet" vacuum.

FOR MIXING AND APPLICATION OF PRODUCTS LISTED IN THIS GUIDE

- Slow speed or variable speed (350 rpm or less) heavy duty (1/2" chuck or larger) electric or air driven drill fitted with a clean PS "Jiffy" mixing paddle (available at W.W. Grainger distributors in most cities).
- Roller cages and covers – a high-quality, shed-resistant woven fabric cover is suggested (available through the Wooster Brush Co., Wooster, OH). Nine inch roller cages and covers are normally used, however an 18" combination may be used when coating large open areas. This tool will increase productivity and decrease roller marks.
- A 3/8" nap for Series 201, 222, 224, 237, 238, 239, 281, 284 and 286 is recommended.
- A 1/4" nap for Series 203, 205, 287, 290, 291 and 295 is recommended.
- Assortment of clean trowels and squeegees both notched and flat.
- Spike (golf) shoes.

Other:

- Brushes
- Brooms
- Thermometers
- Knee pads
- Solvent
- Pail scrapers
- Duct tape
- Spatulas
- Clean pails
- Personal protective equipment
- Timer
- Gloves
- Pole extensions
- Rags
- Assortment of resin-coated sanding disks
- Spiked roller (for Series 210)

SURFACE PREPARATION

Prior to beginning any application of the floor coating systems, the concrete surface must be clean, dry, physically sound and free of all grease, oil, dust, curing compounds or membranes – any foreign materials or contaminants that will interfere with primer penetration and adhesion. It is highly recommended that acid etching not be considered as a means of preparation for StrataShield laminate flooring systems. New concrete should be allowed to cure for 28 days. Mechanically preparing concrete is recommended to provide suitable profiles for optimum adhesion, and to sufficiently remove surface laitance, curing compounds/membranes/sealers or hardeners. For recommendations on surface preparation, refer to the StrataShield Systems Guide, the specific Product Data Sheets and to Part 3.0 of this installation guide.

DETAIL TREATMENT

As discussed in Section 3.0 of this guide, there are many important details to be treated for successful flooring projects. For the laminate flooring systems, these include terminating edges, various joints in the concrete substrate, cracks in the concrete, embedded steel elements in the concrete, etc.

All terminating edges of the laminate floor systems including doorways, drains, traffic aisle sides, etc., must be saw cut and possibly keyed or chipped in areas which are difficult to reach with a saw. This saw cutting of perimeters is extremely important. It will allow installation of the broadcast system at its full minimum $\frac{1}{8}$ " thickness at these critical points, for maximum impact and abrasion resistance. It will also provide a vertical "dam" of epoxy below the concrete surface to block moisture penetration from any adjacent exposed surface that will not be overlaid.

Please refer to the StrataShield Standard Flooring Details Guide for illustrations on most detail treatments required for the Laminate Flooring Systems.

If unusual details are encountered, consult with your Tnemec representative for recommendations.

MIXING AND APPLICATION INSTRUCTIONS

PRIMER

Use a variable speed drill with a PS "Jiffy" blade. Slowly mix the contents of Part A, and while under agitation, add the contents of Part B and mix for a minimum of two minutes. Ensure that all Part B is blended with Part A by scraping the pail walls with a flexible spatula.

NOTE: Apply the mixed material within pot life limits, after agitation, to the prepared surface of the concrete or to the previous coat.

Coverage will vary due to the profile of the concrete. Ensure that the surface is thoroughly "wetted out" with the primer. Refer to the appropriate Product Data Sheet for curing time information.

NOTE: When applying a Series 224 Deco-Fleck system, a pigmented primer in a color that compliments the flake blend should be chosen to provide an aesthetic "background" to the decorative flake.

SERIES 210 EVEN FLOW SL

Thoroughly mix the Part A and Part B at the proper ratio with a $\frac{1}{2}$ " variable speed drill (350 rpm or less) equipped with a PS "Jiffy" blade. Slowly sift in the Series 210 Part C while the mixed A and B is under agitation. Mix the blended components for two minutes.

After the appropriate mixing time, immediately transport the mixed material to the work area and pour out onto the floor to prevent settling of the Part C.

Working in a logical sequence across the floor, apply the material by pouring out in "ribbons" and spread with either a $\frac{1}{4}$ " notched trowel or a rigid notched squeegee at a minimum thickness of 30.0 mils or 53 sq. ft. per gallon. (Notch sizes may vary depending on desired mil thickness.) The material should be allowed to relax and flow together (about three to five minutes) before backrolling with a spiked roller. Keep a continually "wet" edge as the entire area is surfaced.

COVE BASES

Prior to cant cove or rolled radius cove installation, both the vertical and horizontal surfaces should be primed with Series 201, 222, 237, 238 or 239. Once primed, the desired cove should be installed while the surface is still tacky. This will assist in holding the vertically applied material in place.

Use the Series 222, 237, 238 or 239 systems for building cove bases. Mix Part A, Part B, and Part C to a drier consistency to allow vertical application. Mix Parts A and B first, then slowly add the aggregate Part C at around $7\frac{1}{2}$:1 until the desired consistency is achieved.

The best method of forming a radius cove base is to use a 12" x 3" steel trowel and a base trowel of the desired radius and height. For cant coves, a 1" x 2" margin trowel is recommended. Mineral spirits, xylene or like solvents can be used to clean trowels during application. Use duct or masking tape to form a straight line at the desired cove height. Series 222, 237, 238 or 239 can be installed vertically at full thickness to a height of 8", but are not intended for extensive vertical application, other than coving around an area perimeter.

CANT COVE

For ease of installation and long-term functional performance for the Series 222, 237, 238 or 239 systems, a simple cove angled at forty-five degrees

is suggested – totaling 1"-2" in height. This type of cove is extremely strong and meets sanitary requirements by eliminating the ninety degree angle at the wall to floor junction. (Refer to StrataShield Standard Detail Drawing No. TFS-14 for Cant Covets.)

ROLLED RADIUS COVE

If a rolled radius cove is desired, again, the Series 222, 237, 238 or 239 systems, mixed to a dryer consistency, can be used for forming the cove base. (Refer to StrataShield Standard Detail Drawing No. TFS-15 for Rolled Radius Cove Bases.)

Suggestion: For radius cove installation, the base should first be installed vertically to its proper thickness and height and smoothed flat. Material should then be spread approximately 1" x 1" and placed evenly along the foot of the vertical base. The radius can then be formed with the cove tool, which at the same time will embed the cove into the vertical base to form a seamless transition.

When used for cove bases, the Series 222, 237, 238 or 239 products are mixed using the same equipment listed below for the laminate flooring systems.

SERIES 222 DECO-TREAD, SERIES 237 POWER-TREAD, 238 POWER-TREAD FC OR 239 CHEMTREAD (PARTS A AND B LIQUIDS)

For all products used in the Laminate Systems, use a variable speed drill with a PS “Jiffy” blade. Slowly mix the Part A, and while under agitation, add the Part B at the correct mixing ratio. Mix for a minimum of two minutes. Ensure that all Part B is blended with Part A by scraping the pail walls with a flexible spatula.

NOTE: Apply the mixed material within pot life limits, after agitation, to the prepared surface of the concrete or to the previous coat.

Coverage will vary due to the profile of the concrete.

After the appropriate mixing time, transport the mixed material to the work area and begin application. Working in a logical sequence across the floor, apply the material by pouring out in “ribbons” and spread with a 1/8" notched squeegee at a thickness of approximately 20.0 mils or eighty sq. ft. per gallon, then backroll using a 3/8" nap roller. Keep a continuous “wet” edge as the entire area is surfaced.

CAUTION: At normal room temperature (70° F), the liquids can be worked out of a pail for as long as twenty minutes. However, it is best to empty the pail as soon as possible.

BROADCASTING

After the blended liquid material is applied to the surface and allowed to relax and level out, broadcast the bagged aggregate onto the epoxy liquid. (Broadcast evenly, broadcasting up and out, allowing the aggregate to fall perpendicularly and settle onto the liquids.) Apply the aggregate until no liquids are

showing on the surface (broadcast to rejection). When rejection is achieved, the surface will be an even color similar to that of the dry aggregate. Spike (golf) shoes may be worn to walk into the wet surface that has not yet been broadcast. Rebroadcasting areas that “wet-out” may be required.

SECOND BROADCAST

After cure of the first layer, sweep and remove excess aggregate. Remove aggregate that is not sufficiently bonded with a trowel edge and sweep again. Repeat the application and broadcast procedures.

TOPCOAT

After the second broadcast layer has cured sufficiently to support the weight of the applicator without leaving indentations, sweep and seal with the appropriate topcoat.

SERIES 224 DECO-FLECK (PARTS A AND B LIQUIDS)

Use a variable speed drill with a PS “Jiffy” blade. Slowly mix the Part A, and while under agitation, add the Part B at the correct mixing ratio. Mix for a minimum of two minutes. Ensure that all Part B is blended with Part A by scraping the pail walls with a flexible spatula.

NOTE: Apply the mixed material within pot life limits, after agitation, to the prepared surface of the concrete or to the previous coat.

Coverage will vary due to the profile of the concrete.

BROADCAST RANDOMLY

This technique provides a “speckled” appearance and allows the primer color to show through.

Mix the Series 281 primer and ribbon out onto the floor and spread with a flat squeegee at around 8.0 mils or 200 sq. ft. per gallon. Wearing spiked shoes the applicator can walk out into the material and backroll. Once the material has been allowed to flow and level, the applicator, wearing spiked shoes, can walk out onto the floor and begin broadcasting the decorative flake at roughly 100 sq. ft. per lb. (Broadcast evenly, broadcasting up and out, allowing the flake to fall perpendicularly and settle onto the liquids.)

NOTE: The amount of broadcasted flake depends upon the personal preference of the owner. It is advisable to do a sample patch in an inconspicuous area to determine the desired look and accurate coverage rates.

Once the material has cured and can be walked on, the applicator should visually check for any decorative flakes that are loose or are sticking up through the coating. Remove loose flakes and spot sand any that are bonded unevenly to the coating. Mix the Series 284 and ribbon out onto the floor, spreading with a flat squeegee at around 8.0 mils or 200 sq. ft. per gallon. An applicator wearing spiked shoes can walk out into the material and backroll.

NOTE: For extremely rough or heavily blasted concrete, a pigmented primer similar in color to the 281 such as 287 or 205 should be applied and allowed to dry prior to the following Series 281 primer application. This will ensure that full coverage is achieved since the Series 281 self levels and may run off of peaks or high spots on heavily profiled floors.

BROADCAST TO REFUSAL

Series 205, 281 and 287 (primer similar in color to the decorative flake) should be applied and allowed to dry prior to the following system application. Mix the Series 224 and ribbon out onto the floor and spread with a flat squeegee at around 8.0-10.0 mils or 160-200 sq. ft. per gallon.

Wearing spiked shoes, the applicator can walk out into the material and backroll. When the material has been allowed to flow and level the applicator, again wearing spiked shoes, can walk out into the floor and begin broadcasting the decorative flakes to refusal at roughly 8 to 10 sq. ft. per lb. (Broadcast evenly, broadcasting up and out, allowing the flake to fall perpendicularly and settle onto the liquids.) The flakes should appear dry and evenly spread throughout the floor. Some areas may settle and wet out. Apply additional flakes to these areas.

When the Series 224 has cured hard, remove unused flakes. Fasten a screen attachment to a floor buffer and lightly screen the entire floor. Once completed, the floor should be swept with a hard bristled broom and then vacuumed. Mix the Series 284 topcoat and ribbon out onto the floor and spread with a flat squeegee at around 4.0-6.0 mils or roughly 300-400 sq. ft. per gallon. (This will act as a sealer and prevent any air from being entrapped within the coating. It will also allow the applicator to more aggressively sand the floor without damaging the decorative flake.)

When the Series 284 has cured hard, attach a sanding disk to a floor buffer (the grit of the sandpaper should be no more than 60) and thoroughly sand the entire floor, paying attention not to dwell in one spot. Once completed, the floor should be vacuumed to remove all loose chips and dust. Mix the Series 284 and ribbon out onto the floor, spreading with a flat squeegee at around 8.0-10.0 mils or roughly 160 to 200 sq. ft. per gallon. The applicator, wearing spiked shoes, can then walk out into the material and backroll.

CAUTION: At normal room temperature (70° F), the liquids can be worked out of a pail for as long as twenty minutes. However, it is best to empty the pail as soon as possible.

SERIES 280 OR 282 TNAME-GLAZE

Use a variable speed drill with a PS “Jiffy” blade. Slowly mix the Part A, and while under agitation,

add the Part B at the correct mixing ratio. Mix for a minimum of two minutes. Ensure that all Part B is blended with Part A by scraping the pail walls with a flexible spatula.

NOTE: Apply the mixed material within pot life limits, after agitation, to the prepared surface of the concrete or to the previous coat.

Coverage will vary due to the profile of the concrete.

“Ribbon” the mixed material onto the Series 237, spreading with a flat squeegee and backroll with a $\frac{3}{8}$ " nap roller to a uniform thickness of 8.0-12.0 mils. The Series 280 and 282 can be applied in a one-coat application, however, the Series 280 may soak into the Series 237 unevenly, which can leave dry or shiny spots in the floor. To help prevent this, the floor should be grouted with a thin coat (4.0-6.0 mils) of either Series 280 or pigmented Series 237 to evenly seal the Series 237 before applying the final Series 280 topcoat at 6.0-8.0 mils.

The Series 280 or 282 Tname-Glaze is not normally topcoated. If a second application is required, re-coat after eight hours and before 24 hours. If more than 24 hours have elapsed, the coated surface must be mechanically abraded before topcoating. Allow to cure 24 hours before placing into service.

SERIES 284 DECO-CLEAR AND 286 DECO-CLEAR CR

Use a variable speed drill with a PS “Jiffy” blade. Slowly mix the Part A, and while under agitation, add the Part B at the correct mixing ratio. Mix for a minimum of two minutes. Ensure that all Part B is blended with Part A by scraping the pail walls with a flexible spatula.

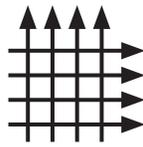
Apply the mixed material to the Series 222 Deco-Tread or Series 224 Deco-Fleck and spread using a flat squeegee and backroll using a $\frac{3}{8}$ " roller cover to a uniform thickness of 8.0-10.0 mils. One coat will leave a skid resistant finish. Two coats will provide a smoother finish. Re-coat after 12 hours and before 24 hours have elapsed. If more than 24 hours have elapsed, the coated surface must be mechanically abraded before topcoating. Allow a 24-hour cure after the last coat before placing into service.

NOTE: To achieve an orange-peel finish, the second coat of Series 284 can be replaced with Series 285 Satinglaze and applied at a thickness of 4.0-6.0 mils. For enhanced abrasion and chemical resistance, topcoat with Series 295 Clear CRU.

SERIES 290 CRU, 291 CRU, AND 295 CLEAR CRU

Use a variable speed drill with a PS “Jiffy” blade. Slowly mix the Part A, and while under agitation, add the Part B at the correct mixing ratio. Mix for a minimum of two minutes. Ensure that all Part B is blended with Part A by scraping the pail walls with a flexible spatula.

Dipping from the material container, apply the mixed material and spread in a cross-hatch pattern (see illustration). Use a ¼" nap roller and cover to a uniform thickness of 2.0-3.0 mils.



If more than 24 hours have elapsed, the epoxy coated surface must be mechanically abraded before topcoating. Allow a 24-hour cure after the last coat before placing into service.

ANCILLARY PRODUCTS

Refer to Part 4.4 of this guide for information on Series 206, 214, 285 and 295.

CLEANUP

Clean all equipment immediately after use with a compatible solvent such as Xylene or Methyl Ethyl Ketone (MEK). Hands can be cleaned with soap and water.

STORAGE AND HANDLING

All materials must be stored between 40° F and 90° F. Prior to application, the material must be between 70° F and 90° F.

For optimum application, handling and performance, the surface, air and material temperatures during application should be between 70° F and 90° F. For applications below 70° F, contact your Themec representative for instructions and precautions.

The surface and air temperatures should be at least 5° F above the dew point and the relative humidity should be below 75 percent. Do not apply in direct sunlight or on outside concrete surfaces where the temperatures are rising. Blistering and cratering may occur due to air escaping from the concrete, commonly referred to as "out-gassing".

SAFETY INFORMATION

These products may contain solvents and/or other chemical ingredients. Adequate health and safety precautions should be observed during storage, handling, application and curing. For information regarding the potential hazards associated with these products, please refer to the container label or request a Material Safety Data Sheet from Themec Company Inc., at the address noted in this guide. Please direct your inquiries to the attention of our Safety Director.

4.3 MORTAR FLOORING SYSTEMS

These ¼" systems are designed for severe exposure to heavy traffic and physically abusive conditions where moderate to aggressive chemical contact will be encountered or for resurfacing areas of degraded concrete.

This installation guide is to be used in conjunction with the pertinent Product Data Sheets and addresses installation of the following systems:

| PRIMER | INTERMEDIATE | FINISH |
|-----------------------|------------------------|------------------------|
| Series 201 Epoxoprime | Series 239 ChemTread | Series 282 Tneme-Glaze |
| Series 201 Epoxoprime | Series 223 Deco-Trowel | Series 284 Deco-Clear |
| Series 201 Epoxoprime | Series 237 Power-Tread | Series 280 Tneme-Glaze |

NOTE: For specific applications where unusual exposure conditions exist, consult your Themec representative for recommendations.

PRODUCTS, PACKAGING, AND SUGGESTED COVERAGE

SERIES 201 EPOXOPRIME

A high-solids moisture tolerant epoxy used as a concrete primer for laminate flooring systems.

201 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|-------------|-------------------|------------------|--------------|
| Extra Large | 2 55-gallon drums | 1 55-gallon drum | 165 gallons |
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

201 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 6.0-12.0 (150-305) | 6.0-12.0 (150-305) | 134-267 (12.2-24.8) |

SERIES 223 DECO-TROWEL

A decorative mortar flooring system installed at ⅜" to ¼" thickness. Protects against impact, abrasion and mild chemicals with an aesthetically pleasing appearance.

223 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|-------------|-------------------|------------------|--------------|
| Extra Large | 2 55-gallon drums | 1 55-gallon drum | 165 gallons |
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

223 COVERAGE RATES (BASED ON 6.5:1 TO 9:1 ROCK TO RESIN RATIO)

| THICKNESS | COVERAGE |
|-----------|--------------------|
| 1/4" | 25-35 sq. ft./gal. |

SERIES 237 POWER-TREAD, 238 POWER-TREAD FC AND 239 CHEMTREAD

Mortar topping, trowel-applied at ¼". Performs in heavy physical abuse areas exposed to high impact and abrasion, providing a non-absorbent and skid-resistant finish. Series 238 offers accelerated cure and Series 239 provides additional resistance to chemicals and heat.

237, 238, 239 PACKAGING

| KIT SIZE | PART A (PARTIALLY FILLED) | PART B (PARTIALLY FILLED) | YIELD (MIXED) |
|-------------|------------------------------|------------------------------|------------------|
| Extra Large | 2 55-gallon drums | 1 55-gallon drum | 165 gallons |
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

237, 238, 239 COVERAGE RATES

| THICKNESS | COVERAGE |
|-----------|----------------------------|
| 1/4" | Approx. 25-35 sq. ft./gal. |

SERIES 280 OR 282 TNAME-GLAZE

Glaze-like, corrosion resistant coatings with an orange-peel finish. Resistant to frequent pressurized hot water and detergent cleaning. Used as a topcoat/sealer for heavy duty, laminate floor systems in a high-performance function. Series 282 offers additional resistance to chemicals and heat.

280 PACKAGING

| KIT SIZE | PART A | PART B | YIELD (MIXED) |
|----------|------------------|-----------------|---------------|
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon pail | 3 gallons |

282 PACKAGING

| KIT SIZE | PART A | PART B | YIELD (MIXED) |
|----------|-----------------|-----------------|---------------|
| Large | 1 5-gallon pail | 1 5-gallon pail | 10 gallons |
| Small | 1 1-gallon can | 1 1-gallon pail | 2 gallons |

280 AND 282 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 6.0-12.0 (150-305) | 6.0-12.0 (150-305) | 134-267 (12.4-24.8) |

SERIES 284 DECO-CLEAR AND 286 DECO-CLEAR CR

A clear finish for decorative flooring systems. Protects against mild chemicals, impact and abrasion, providing a skid-resistant or smooth finish depending on the number of coats. Series 286 provides additional chemical resistance.

284 AND 286 PACKAGING

| KIT SIZE | PART A | PART B | YIELD (MIXED) |
|-------------|-------------------|------------------|---------------|
| Extra Large | 2 55-gallon drums | 1 55-gallon drum | 165 gallons |
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

284 COVERAGE RATES

| USAGE | DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|-----------------|--------------------|--------------------|-------------------------------------|
| Finish Coat | 8.0-10.0(205-255) | 8.0-10.0(205-255) | 160-200 (14.9-18.6) |
| With 285 or 295 | 14.0-16.0(355-405) | 14.0-16.0(355-405) | 100-115 (9.2-10.7) |

286 COVERAGE RATES

| USAGE | DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|-------------|--------------------|--------------------|-------------------------------------|
| Finish Coat | 8.0-12.0(205-305) | 8.0-12.0(205-305) | 134-200 (12.4-16.8) |

SERIES 290 CRU

An extremely hard, chemical-resistant urethane floor coating with a semi-gloss finish. Excellent resistance to abrasion, wet conditions, corrosive fumes and chemical contact.

290 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|----------|-----------------|----------------|--------------|
| Large | 1 3-gallon pail | 1 1-gallon can | 3 gallons |
| Small | 1 1-gallon can | 1 1-quart can | 1 gallon |

290 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 2.0-3.0 (50-75) | 3.0-4.5 (75-115) | 380-570 (35.3-53.0) |

SERIES 291 CRU

An extremely hard, chemical-resistant urethane floor coating with superb flow characteristics and a gloss finish. Excellent resistance to abrasion, wet conditions, corrosive fumes and chemical contact.

291 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|----------|-----------------|------------------|--------------|
| Large | 1 3-gallon pail | 1 1-gallon can | 3 gallons |
| Small | 1 1-gallon can | 1 1/2-gallon can | 1 gallon |

291 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 2.0-3.0 (50-75) | 3.0-4.5 (75-115) | 358-537 (33.3-49.9) |

NOTE: Touch-up/repair kits are available in all products. Contact your Themec representative for more information.

EQUIPMENT AND SUPPLIES FOR APPLICATION

This list includes tools and supplies normally required for surface preparation, priming, mixing, and installation of StrataShield mortar floor systems. If an overlay or patching material is used beneath the broadcast system, see the appropriate Product Data Sheet for additional installation details.

FOR SURFACE PREPARATION

- Heavy duty circular type industrial floor scrubbing machine with several head attachments.
- Self-contained blasting equipment, i.e., Blastrac Wheelabrator.
- Floor magnet.
- Power saw with carbide or diamond tip blades for saw cutting exposed perimeters.
- Heavy duty industrial “wet” vacuum.
- Hand-held power tools for chipping, abrading and grinding.

FOR MIXING AND APPLICATION OF SERIES 201, 280, 281, 282, 284 AND 286

- Slow speed or variable speed (350 rpm or less) heavy duty (½" chuck or larger) electric or air driven drill fitted with a clean PS “Jiffy” mixing paddle (available at W.W. Grainger distributors in most cities).
- Roller cages and covers – a high-quality, shed-resistant woven fabric cover is suggested (available through the Wooster Brush Co., Wooster, OH). Nine inch roller cages and covers are normally used, however an 18" combination may be used when coating large open areas. This tool will increase productivity and decrease roller marks.

- A ⅜" nap for Series 201, 280 and 281 is recommended.
- A ¼" nap for Series 203, 205, 287, 290, 291 and 295 is recommended.
- Assortment of clean trowels and squeegees both notched and flat.
- Spike (golf) shoes.

FOR MIXING AND APPLICATION OF SERIES 223 DECO-TROWEL, SERIES 237 POWER-TREAD, SERIES 238 POWER-TREAD FC AND SERIES 239 CHEMTREAD

- Small mixes – standard five gallon type electric Kol Mixer (available from Man-U-Fab, Minneapolis, MN) or a variable speed mixing drill with a PS “Jiffy” mixing blade can be used.
- Large mixes – mortar or concrete mixer (available from W.W. Grainger distributors in most cities).
- Steel finishing and power trowels for concrete.
- Screed equipment for faster installation and accurate application at the required thickness.
- Pump sprayer (Hudson type)

Other:

- Brushes
- Brooms
- Thermometers
- Knee pads
- Solvent
- Spiked shoes
- Pail scrapers
- Duct tape
- Spatulas
- Clean pails
- Personal protective equipment
- Assortment of resin-coated sanding disks
- Timer
- Gloves
- Pole extensions
- Rags

SURFACE PREPARATION

Prior to beginning any application of the floor coating systems, the concrete surface must be clean, dry, physically sound and free of all grease, oil, dust, curing compounds or membranes – any foreign materials or contaminants that will interfere with primer penetration and adhesion. Existing coatings can be removed either by mechanical abrasion, shot blasting or use of a chemical stripper. New concrete should be allowed to cure for 28 days. For more information on surface preparation, refer to the StrataShield Flooring Systems Guide, the specific Product Data Sheets, and to Part 3.0 of this installation guide.

DETAIL TREATMENT

As discussed in Section 3.0 of this Installation Guide, there are many important details to be treated for successful flooring projects. For the mortar flooring systems, these include terminating edges, various joints in the concrete substrate, cracks in the concrete, embedded steel elements in the concrete, etc.

All terminating edges of the mortar floor systems

including doorways, drains, traffic aisle sides, etc., must be saw cut and possibly keyed or chipped in areas which are difficult to reach with a saw. This saw cutting of perimeters is extremely important. It will allow installation of the mortar system at its full minimum ¼" thickness at these critical points, providing maximum resistance to impact and abrasion. It will also provide a vertical "dam" of epoxy below the concrete surface to block moisture penetration from any adjacent exposed surface that will not be overlaid.

Please refer to the StrataShield Standard Flooring Details Guide that illustrate most detail treatments required for the Mortar Flooring Systems.

If unusual details are encountered, consult with your Themec representative for recommendations.

MIXING AND APPLICATION INSTRUCTIONS

SERIES 201 EPOXOPRIME

Use a variable speed drill with a PS "Jiffy" blade. Slowly mix the contents of Part A, and while under agitation, add the contents of Part B and mix for a minimum of two minutes. Ensure that all Part B is blended with Part A by scraping the pail walls with a flexible spatula.

Coverage will vary due to the profile of the concrete. Ensure that the surface is thoroughly "wetted-out" with the Series 201 Epoxoprime. Refer to the Series 201 Epoxoprime Product Data Sheet for curing time information.

COVE BASES

Prior to cant cove or rolled radius cove installation, both the vertical and horizontal surfaces should be primed with Series 201, 222, 223, 237, 238 or 239. Once primed, the desired cove should be installed while the surface is still tacky. This will assist in holding the vertically applied material in place.

Use the Series 201, 222, 223, 237, 238 or 239 systems for building cove bases. Mix Part A, Part B, and Part C to a drier consistency to allow vertical application. Mix Parts A and B first, then slowly add the aggregate Part C at around 7½:1 until the desired consistency is achieved.

The best method for forming a radius cove base is to use a 12" x 3" steel trowel and a base trowel of the desired radius and height. For cant covens, a 1" x 2" margin trowel is recommended. Mineral spirits, xylene or like solvents can be used to clean trowels during application. Use duct or masking tape to form a straight line at the desired cove height. Series 201, 222, 223, 237, 238 or 239 can be installed vertically at full thickness to a height of 8", but are not intended for extensive vertical application, other than coving around an area perimeter.

CANT COVE

For ease of installation and long-term functional performance for the Series 201, 222, 223, 237, 238 or 239 systems, a simple cove angled at forty-five degrees is suggested – totaling one to two inches in height. This type of cove is extremely strong and meets sanitary requirements by eliminating the ninety degree angle at the wall to floor junction. Refer to StrataShield Standard Detail Drawing No. TFS-14 for Cant Covens.

ROLLED RADIUS COVE

If a rolled radius cove is desired, again, the Series 201, 222, 223, 237, 238 or 239 systems, mixed to a dryer consistency, can be used for forming the cove base. Refer to StrataShield Standard Detail Drawing No. TFS-15 for Rolled Radius Cove Bases.

Suggestions: For radius cove installation, the base should first be installed vertically to its proper thickness and height and smoothed flat. Material should be spread approximately 1" x 1" and placed evenly along the foot of the vertical base. The radius can then be formed with the cove tool, which at same time will embed the cove into the vertical base to form a seamless transition.

When used for cove bases, the Series 201, 222, 223, 237, 238 or 239 are mixed using the same equipment listed below for the mortar flooring systems.

SERIES 223 DECO-TREAD, SERIES 237 POWER-TREAD, SERIES 238 POWER-TREAD FC AND SERIES 239 CHEMTREAD

Small amounts of mortar can be mixed in a standard five gallon Kol Mixer by pouring measured amounts of Part A and Part B into the rotating five gallon container, and mixing for one full minute. Small mixes can also be mixed in a five gallon mixing pail using ¾" variable speed (350 rpm or less) mixing drill with a PS "Jiffy" mixing blade. Use a concrete or mortar mixer for larger amounts. Do not guess the mixing time – use a watch or timer. After the liquids are thoroughly mixed, slowly add the Part C aggregate and mix for two minutes or until the mass falls off the side of the mixing vessel and has the appearance of a well mixed, uniformly colored mortar. The material is now ready for application.

NOTE: Mixing times are extremely important. Shorter mixing times will result in partially mixed batches that will cure unevenly and, on some areas of the floor, will not completely cure. Insufficient mixing of the Part C aggregate will cause an inconsistent finished appearance, ranging from "dry" areas to shiny, "wet" areas. It is important to mix kits consistently each time in order to assure uniform cure and finished appearance.

After the appropriate mixing time, transport mortar to the work area and begin application. Working in a logical sequence across the floor, spread mortar onto the surface at a uniform thickness with either a

gauge rake or screed box. Using clean steel finishing trowels, screed and trowel either by hand or power the mortar to a minimum 1/4" thickness. Work to achieve a tight, "closed" surface, but take care to avoid over-trowelling. A continuous "wet" edge should be kept as the entire area is surfaced. To assist in finishing the trowelled surface, mineral spirits, xylene, or other like solvents can be used to clean the trowels while in use.

Suggestion: When power-trowelling, a Hudson-type pump sprayer, filled with one of the above solvents, can be used to "mist" the surface of the mortar being trowelled. This will allow the power-trowel to ride smoothly along the surface of the mortar being finished. When hand trowelling, a rag soaked in solvent can be placed on a flat surface (e.g., five-gallon bucket lid, piece of cardboard, etc.) and used to clean and slick off the trowel. Do not place the soaked rag directly on the floor or mortar.

WARNING: When using solvent, care should be taken not to over saturate the mortar being trowelled. Overuse can result in blistering of the finished mortar. Only the amount needed to allow the trowels to ride smoothly over the material without pulling or sticking should be used.

TOPCOAT

After the mortar has cured for eight to 24 hours, one of the following topcoats can be applied. If more than 24 hours have elapsed, the mortar floor may need to be cleaned to get rid of surface contamination before applying the topcoat. If trowel marks or surface irregularities are present, the mortar should be mechanically stoned or ground to smooth and level the surface.

SERIES 280 OR SERIES 282 TNEME-GLAZE

Use a variable speed drill with a PS "Jiffy" blade. Slowly mix the Part A, and while under agitation, add the Part B at the correct mixing ratio. Mix for a minimum of two minutes. Ensure that all Part B is blended with Part A by scraping the pail walls with a flexible spatula.

NOTE: Apply the mixed material within pot life limits, after agitation, to the prepared surface of the concrete or to the previous coat.

Coverage will vary due to the profile of the concrete.

"Ribbon" the mixed material onto the mortar, spreading with a flat squeegee and backrolled with a 3/8" nap roller to a uniform thickness of 8.0-12.0 mils. Series 280 and 282 can be applied in a one-coat application, however, Series 280 may soak into the mortar unevenly, which can leave dry or shiny spots in the floor. To help prevent this, the floor should be grouted with a thin coat (8-10 mils) of Series 237 or 238 liquid or Series 280 to evenly seal the surface of the mortar before applying the final Series 280 topcoat at 6.0-8.0 mils.

Series 280 or 282 Theme-Glaze is not normally topcoated. If a second application is required, re-coat after eight hours and before 24 hours. If more than 24 hours have elapsed, the coated surface must be mechanically abraded before topcoating. Allow to cure 24 hours before placing into service.

NOTE: For a skid-resistant surface, a fine aggregate, 30 mesh or finer, can be broadcast into the wet material (Series 280 or 282 Theme-Glaze) followed by backrolling to create a non-slip surface.

SERIES 284 DECO-CLEAR AND SERIES 286 DECO-CLEAR CR

Use a variable speed drill with a PS "Jiffy" blade. Slowly mix the Part A, and while under agitation, add the Part B at the correct mixing ratio. Mix for a minimum of two minutes. Ensure that all Part B is blended with Part A by scraping the pail walls with a flexible spatula.

Apply the mixed material to the Series 223 Deco-Trowel and spread using a flat squeegee and backroll using a 3/8" roller cover to a uniform thickness of 8.0-10.0 mils. One coat will leave a skid resistant finish. Two coats will provide a smoother finish. Re-coat after 12 hours and before 24 hours have elapsed. If more than 24 hours have elapsed, the coated surface must be mechanically abraded before topcoating. Allow a 24 hour cure after the last coat before placing into service.

NOTE: To achieve an orange-peel finish, the second coat of Series 284 can be replaced with Series 285 Satinglaze and applied at a thickness of 4.0-6.0 mils. For enhanced abrasion and stain resistance, topcoat with Series 295 Clear CRU.

ANCILLARY PRODUCTS

Refer to Section 4.4 for information on Series 206, 214, 285 and 295.

CLEANUP

Clean all equipment immediately after use with a compatible solvent such as Xylene or Methyl Ethyl Ketone (MEK). Hands can be cleaned with soap and water.

STORAGE AND HANDLING

All materials must be stored between 40° F and 90° F. Prior to application, the material must be between 70° F and 90° F.

For optimum application, handling and performance, the surface, air and material temperatures during application should be between 70° F and 90° F. For application below 70° F, contact your Themec representative for instructions and precautions. The surface and air temperature should be at least 5° F above the dew point and the relative humidity should be below 75 percent.

SAFETY INFORMATION

These products may contain solvents and/or other chemical ingredients. Adequate health and safety precautions should be observed during storage, handling, application and curing. For information regarding the potential hazards associated with these products, please refer to the container label or request a Material Safety Data Sheet from Tnemec Company, Inc. at the address noted in this guide. Please direct your inquiries to the attention of our Safety Director.

4.4 ANCILLARY PRODUCTS

Tnemec also manufactures a number of ancillary products to be used for specific purposes in conjunction with the StrataShield Flooring Systems. A description of these products follows below:

SERIES 203 EPOXOPRIME LV

Series 203 is a low viscosity penetrating primer. Series 203 should be used when acid etching is the means of surface preparation or when substrate preparation mechanically, or otherwise, is marginal due to facility operating constraints or where greater moisture tolerance is required for the primer.

203 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|-------------|-------------------|------------------|--------------|
| Extra Large | 2 55-gallon drums | 1 55-gallon drum | 165 gallons |
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

203 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 3.0-5.0 (75-125) | 3.0-5.0 (75-125) | 321-535 (29.8-49.7) |

SERIES 206 SUB-FLEX EP

Series 206 is a flexible epoxy underlayment used for bridging small hairline cracks in concrete and to provide a protective membrane under aggregate reinforced flooring systems. Please refer to StrataShield Standard Flooring Detail Drawing TFS No's 5, 6, 8A, and 9A for typical uses.

206 PACKAGING

| KIT SIZE | PART A | PART B | YIELD(MIXED) |
|----------|------------------|-----------------|--------------|
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

206 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|----------------------|----------------------|-------------------------------------|
| 30.0-80.0 (750-2000) | 30.0-80.0 (750-2000) | 20-53 (1.9-4.9) |

Thoroughly mix the Part A and Part B at the proper ratio with a ½" variable speed drill (350 rpm or less) equipped with a PS "Jiffy" blade. Mix the components for two minutes.

After the appropriate mixing time, transport the mixed material immediately to the work area and begin application. Working in a logical sequence across the floor, apply the material by pouring out in "ribbons" and spread with either a ¼" notched trowel or a rigid squeegee at a minimum thickness of 30.0 mils or 53 sq. ft. per gallon. Keep a continually "wet" edge as the entire area is surfaced.

SERIES 214 TREADCRETE

Series 214 is an acrylic modified, fiber-reinforced, cementitious repair material used for rebuilding, filling, and grading of concrete floors where rapid curing is required prior to installation of StrataShield Flooring Systems. This material can be applied from ⅝" thick up to several inches in thickness.

214 PACKAGING

| KIT SIZE | PART A | YIELD |
|----------|-----------------|-----------|
| Large | 1 5-gallon pail | 5 gallons |

214 COVERAGE RATES

| COARSE AGGREGATE | FINE AGGREGATE |
|------------------------------------|------------------------------------|
| 3.5 cu. ft. (.099 m ³) | 4.0 cu. ft. (.113 m ³) |

SERIES 285 SATINGLAZE

Series 285 is a polyamine epoxy that provides a clear satin finish with an orange peel texture for diffusing light and reducing glare. It is to be used as a sealer or topcoat for StrataShield aggregate filled toppings and floor coating systems.

285 PACKAGING

| KIT SIZE | PART A (PARTIALLY FILLED) | PART B (PARTIALLY FILLED) | YIELD (MIXED) |
|----------|------------------------------|------------------------------|------------------|
| Large | 2 5-gallon pails | 1 5-gallon pail | 15 gallons |
| Small | 2 1-gallon cans | 1 1-gallon can | 3 gallons |

285 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 4.0-6.0 (100-150) | 4.0-6.0 (100-150) | 245-370 (22.9-34.6) |

SERIES 295 CLEAR CRU

Series 295 is a clear chemical resistant aliphatic polyester polyurethane. It is typically used over epoxy and urethane flooring systems for increased abrasion and chemical resistance. Series 44-600 may be added to 295 for additional protection from UV.

295 PACKAGING

| KIT SIZE | PART A (PARTIALLY FILLED) | PART B | YIELD (MIXED) |
|----------|------------------------------|------------------|------------------|
| Large | 1 3-gallon pail | 1 1-gallon can | 3 gallons |
| Small | 1 1-gallon can | 1 1/2-gallon can | 1 gallon |

295 COVERAGE RATES

| DRY MILS (microns) | WET MILS (microns) | SQ. FT./GAL. (M ² /GAL.) |
|--------------------|--------------------|-------------------------------------|
| 2.0-3.0 (50-75) | 3.5-5.0 (90-125) | 321-481 (29.8-44.7) |

5.0 REFERENCE DOCUMENTS

- Technical Bulletin No. 97-05-R-1 “Avoiding Water Vapor Emissions Related Coating Failures on Concrete Floors.”
- Technical Bulletin No. 99-18 “Protection and Maintenance of Tnemec Polymer Flooring.”
- Technical Bulletin No. 00-28 “Avoiding Coating Failures Due to Cracking of Concrete.”
- StrataShield Standard Flooring Details Guide



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