DECK SURFACE PROFILING

PART 1: GENERAL

1.01 SUMMARY

A. This section describes the preparation of concrete surfaces and priming to receive an epoxy sand overlay for deck surface profiling (sloping).

B. This system is utilized to divert runoff towards existing primary drainage system and/or edge of deck. Epoxy-sand profiling system can be applied to the entire deck surface or to treat low “birdbath” locations.

C. Maximum application thickness shall be 1 ½” and can be tapered to a feather edge.

1.02 REFERENCES

A. Comply with provisions of the following codes, specifications and standards, except where more stringent requirements are shown or specified.

B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute.

C. ACI 318- Building Code Requirements for Reinforced Concrete; American Concrete Institute.

D. ASTM C 33 - Standard Specification for Concrete Aggregates.

E. ASTM C 882 – Bond Strength of Epoxy to Hardened Concrete.

F. ASTM C 579 – Compressive Properties of Mortar.

G. ASTM D 638 - Tensile Properties of Mortar.

H. ASTM D790 - Flexural Properties of Mortar.

I. ASTM D 732 – Shear Strength of Mortar.

J. ASTM D 648 – Deflection Temperature of Mortar.

K. NACE 6: Surface Preparation of Concrete.

PART 2: PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

A. **NEOGARD, a Division of the Jones-Blair Company.**

B. **Sika Corporation.**

C. **Cabot Corporation.**

2.02 MATERIALS

A. Epoxy Resin: **NEOGARD 70734/70735** OR **Sikadur 21, Lo-Mod LV**

B. Aggregate: **20-40 Gradation Sand, Oven-Dried**.

C. Epoxy Thickener: **Cab-O-Sil M-5 Fumed Silica** or equivalent.

D. CONTRACTOR is responsible for ensuring compatibility of placed overlay materials and subsequent waterproof coatings to be applied should these specifications not be followed.

E. Substitutions not allowed.

2.03 DELIVERY AND HANDLING

A. Store in a dry place out of direct sunlight, between 40 and 90 degrees (F).

B. Check product labels for batch dates. Materials exceeding the manufacturers published shelf life shall be rejected.

PART 3: EXECUTION

3.01 SURFACE PREPARATION

A. Surfaces must be clean and sound as well as dry or damp and free of standing water. Remove dust, laitance, grease, curing compounds, impregnations, waxes and any other contaminants.

B. Concrete shall be cleaned and prepared to achieve an open textured surface by abrasive blasting, etching or mechanical means.

C. Porous substrates shall be tested for moisture vapor transmission prior to application.

D. Minimum age of concrete repair material before application is 7 days.

3.02 MIXING

A. Proportion equal parts of each component by volume into a clean pail. Mix thoroughly for three minutes with a manufacturer approved paddle on a low speed (400-600 rpm) drill until uniformly blended.

B. Mix only such quantity that can be used within the materials published pot life, not to exceed 25 minutes.

C. To prepare epoxy-sand mortar, slowly add three to six parts, by loose volume, of oven-dried sand aggregate to one part of mixed epoxy depending on viscosity. Mix until a uniform, lump-free consistency is obtained.

D. To prepare epoxy-silica blend, slowly add one part of fumed silica to one part of epoxy resin. Mix until a uniform consistency is obtained.

E. Do not dilute. Solvents will prevent proper curing.

3.03 APPLICATION

A. Verify minimum substrate and ambient temperature are above 40°F.

B. Prime the prepared surfaces with neat mixed epoxy resin.

C. Apply epoxy-sand profiling by trowel or vibrating screed before prime coat loses tack. Finish with finishing trowel.

D. Apply epoxy-silica blend over epoxy-sand profiling with a roller and allow to permeate. Reapply epoxy-silica blend until refusal.

3.04 FINISHING

A. Build up overlay material immediately adjacent to bases of vertical walls or sliding glass door curbs furthest from drainage point.

B. Deposit material at the approximate center and trowel down working outward to the perimeter edges. Follow by pulling a screed across the prepared overlay surface to strike off excess material.

C. Feather the tapered edges along the outer perimeter of each overlay to blend in with the existing adjacent concrete deck surface.

3.05 CURING AND PROTECTION

A. Protect finished overlays from all types of contact for approximately two to three hours, depending on temperature, until tack-free time expires.

B. Prevent opening decks to foot traffic until four to five hours after application of epoxy mortar overlays.

C. If possible, protect finished epoxy-sand profiling system from excess moisture for a 24-hour period.

END OF SECTION

THIN-SET TILE COLD FLUID-APPLIED WATERPROOFING

PART 1: GENERAL

1.01 RELATED REQUIREMENTS

A. Furnish all labor, materials, tools and equipment necessary to install a cold fluid-applied waterproofing membrane suitable to be overlaid with thin-set tile to existing concrete surfaces as specified within this Section.

B. The Manufacturer's application instructions for each product used are considered part of this Specification and should be followed at all times.

C. Comply with applicable codes, regulations, ordinances and laws regarding use and application of coating systems.

1.02 SUMMARY OF WORK

A. Surface preparation of deck surface for application of specified coatings; Install a synthetic fluid applied deck coating incorporating selected aggregate to provide a waterproof membrane below thin-set ceramic tile.

B. Waterproofing membrane topcoat shall be tinted to match body color of structure or as selected by OWNER.

C. Provide and maintain barricades and/or traffic control at coating areas during installation and curing.

1.03 REFERENCES

A. ASTM:
1. C920 – Standard Specification for Elastomeric Joint Sealants
2. C957 – Standard Specification for High-Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with Integral Wearing Surface
3. C1127 – Standard Guide for Use of High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with an Integral Wearing Surface
4. C1193 – Standard Guide for Use of Joint Sealants
5. D4258 – Standard Practice for Surface Cleaning Concrete for Coating
6. D4259 – Standard Practice for Abrading Concrete
7. E96 – Standard Test Methods for Water Vapor Transmission of Materials

1.04 WARRANTY

A. Upon request, NEOGARD® shall offer its standard Limited Material Warranty to cover a period of ten (10) years upon receipt of a properly executed warranty request form.

1.05 QUALITY ASSURANCE

A. Manufacturer approved applicator with minimum five years' experience and successfully completed three projects of similar magnitude and complexity with ability to obtain warranty.

B. Comply with applicable codes, regulations, ordinances, and laws regarding use and application of coating systems.

1.06 DELIVERY AND STORAGE

A. Deliver material to project in sealed, original packages or containers bearing name and brand of Manufacturer. Each container shall have Manufacturer's printed label. Non-labeled or unsealed containers will not be accepted.

B. Store materials in a single location designated by the OWNER at a recommended storage temperature of 75°F. Do not store at high temperatures or in direct sunlight. Keep storage area neat and clean to prevent damage thereto or to its surroundings. Cleaning rags and waste material shall be deposited in metal containers having tight covers or removed from the building each night. Every precaution shall be taken to avoid danger from fire. Provide dry chemical or carbon dioxide fire extinguisher in storage area. Allow no smoking or open containers of solvents. Store solvents in safety cans. Do not use OWNER's extinguishers.

1.07 ENVIRONMENTAL CONDITIONS

A. Install deck coating materials in strict accordance with all safety and weather conditions required by Manufacturer's product literature or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Only apply material between temperatures of 40°-100°F and when ambient temperature is more than 5° above the dew point.

B. Do not apply materials unless surface to receive new coating is clean and dry, or if precipitation is imminent.

C. Provide adequate ventilation for application and curing.

D. Protect adjacent surfaces and materials with covering, masking, and/or drop clothes as required to keep adjacent surfaces free of coating. Plants and vegetation are to be protected the same way. Upon completion, remove protection materials and clean. Surfaces soiled or damaged by special coating shall be cleaned or replaced at no cost to the OWNER.

PART 2: PRODUCTS

2.01 MANUFACTURER

A. **NEOGARD, a Division of the Jones-Blair Company.**
   1. **Peda-Gard FC TS – Thin-Set Tile Cold Fluid-Applied Waterproofing.**

B. Substitutions are NOT allowed.

2.02 MATERIALS

A. The Cold Fluid-Applied Waterproofing Membrane system shall consist of the following:
   1. Primer: Concrete and material primers are required by NEOGARD.
   2. Flashing Tape: **86218 (Eternabond WebSeal)**
   3. Sealant Cant: **70991 (Single-Component, Non-Sag, Polyurethane)**
   4. Crack Filler: **70991 (One-Component, Non-Sag, Polyurethane)**
   5. Liquid Flashing: **FC7500/FC7960 Polyurethane Coating**
   6. Aggregate: **16/30 (7992) or 12/20 (7992U) mesh silica (quartz) sand.**
   7. Base Coat: **FC7510/FC7960 Polyurethane Coating.**
   8. Wear Coat: **FC7540/FC7964 Polyurethane Coating.**

B. Thin-set tile adhesives, setting materials and grouts, not covered in this specification shall be in accordance with the Document 09310: Thin-Set Balcony Tile Installation.

C. Miscellaneous materials such as cleaning agents, adhesives, backer rod, etc. shall be a composite part of the deck system and shall be compatible with the specified thin-set cold fluid-applied waterproofing system.

D. Waterproofing membrane top coat shall be tinted to match exterior paint color of structure, or as selected by OWNER.

PART 3: EXECUTION

3.01 CONDITION OF SURFACES

A. Strip all existing finishes from entire deck, such as tiling and pre-existing deck coatings prior to commencing of coating work.

B. Remove existing deck coatings, adhesives, overlays, curing compounds, efflorescence, dust, grease, laitance etc. down to bare concrete by scraping, scarifying or grinding with diamond cup blades running at low RPM and assure surface is profiled. Acid etching is NOT allowed.

C. Concrete repair mortars must achieve minimum 7-day cure prior to commencement of coating. Verify that curing methods used for concrete are compatible with coating system and grind off residual curing compounds.

D. Concrete surfaces must be visibly dry passing a 2-hour rubber mat test (no condensation) prior to application of primer. Tape mat to deck on all edges.

E. Verify that the concrete deck surface is free of ridges and sharp projections.

F. Surfaces other than structural concrete shall be prepared in accordance with the Manufacturer's recommendations.

G. Commencement of coating installation implies CONTRACTOR's acceptance of substrate areas suitable to receive membrane system.

3.02 PREPARATION

A. Protection: Mask off all adjoining areas that are not to receive the thin-set tile cold fluid-applied waterproofing system.

B. Cleaning: Surfaces contaminated with oil or grease shall be vigorously scrubbed with a stiff bristle broom and a strong non-sudsing detergent such as NEOGARD 8500 BioDegradable Cleaner. Thoroughly wash, clean, and dry. Areas where oil or other contaminants penetrate deep into the concrete may require removal by mechanical methods.

C. Cracks and Cold Joints: Visible hairline cracks (less than 1/16" in width) in concrete and cold joints shall be cleaned, primed as required and treated with liquid flashing a minimum distance of 2" on each side of crack to yield a total thickness of 30 dry mills. Large cracks (greater than 1/16" in width) shall be routed

and sealed with 70991 sealant. Sealant shall be applied to inside area of crack only, not applied to deck surface. Detail sealed cracks with liquid flashing a distance of 2” on each side of crack to yield a total thickness of 30 dry mills.

D. Control Joints: Seal secondary control joints with 70991 sealant. Sealants shall be applied to the inside area of joint only, not applied to the deck surface. Detail sealed joints with liquid flashing a distance of 2” on each side of joint to yield a total thickness of 30 dry mils.

E. Surface Condition: Surface shall be clean and dry prior to coating.

3.03 APPLICATION

A. Primer: Apply primer at a minimum rate of 300 SF/Gal to all concrete surfaces in strict accordance with procedures outlined by NEOGARD. Within 24 hours of application of primer, base coat must be applied. If base coat cannot be applied within 24 hours, reprime.

B. Base Coat: Apply FC7510/FC7960 base coat at a rate of 40 SF/Gal to achieve a 40 mil DFT to deck surfaces in strict accordance with procedures outlined by NEOGARD. Extend base coat over cracks and control joints which have received treatment.

C. Wearing Surface Coat: Apply FC7540/FC7964 at a rate of 100 SF/Gal to achieve a 16 mil DFT finish. Apply coatings in strict accordance with procedures outlined by NEOGARD and immediately broadcast aggregate, evenly distributed, into wet coating at a rate of 10-15 pounds per 100 square feet or until solidly textured. When dry, remove excess aggregate.

D. Total system thickness shall average 56 dry mils exclusive of aggregate.

E. Factors that affect dry film thickness: Volume of solids, thinning, surface profile, application technique and equipment, overspray, squeegee, brush and roller wet out, container residue, spills and other waste are among the many factors that affect the amount of wet coating required to yield proper dry film thickness. To ensure that specified dry film thickness is achieve, use a wet mil gauge to verify actual thickness of wet coating applied, adjusting as needed for those factors which directly affect the dry film build.

3.04 CLEANING

A. Remove debris resulting from completion of coating operation from the project site.

B. Reference "NEOGARD Traffic-Bearing Systems Maintenance Manual" for typical cleaning methods.

3.05 PROTECTION

A. After completion of application, do not allow traffic on coated surfaces for a period of at least 24 hours at 75°F and 50% relative humidity, or until completely cured.

END OF SECTION

THIN-SET BALCONY TILE INSTALLATION

PART 1: GENERAL

1.01 RELATED REQUIREMENTS

A. Concrete deck surfaces shall be coated with thin-set tile cold fluid-applied waterproofing in accordance with Document 07614.

B. Layout thermal movement joints to achieve straight lined, regular shaped patterns.

1.02 QUALITY ASSURANCE

A. Conform to ANSI Specifications as follows:
   1. A108 – Installation
   2. A118 – Materials
   3. A137.1 – Ceramic Tile

B. Conform to current edition of TCA Handbook for Ceramic Tile Installation.

C. Maintain a clean working environment. Repair any damage to adjacent surfaces during tile installation.

1.03 ENVIRONMENTAL REQUIREMENTS

A. Temperature shall not be less than 50°F for (24) hours or (48) hours after tile installation. Maintain materials and mixing water between 50°F to 70°F prior to installation when temperature is greater than 70°F.

PART 2: PRODUCTS

2.01 MATERIALS

A. Ceramic Tile:
1. Color & Size: As Selected By Owner.
2. Unit Weight: Recommended not to exceed (12) PSF for completed installation including underlayment, if utilized.
3. Finish: Hard surfaced tile with skid resistance determined by average coefficient of friction in accordance with ANSI A137.1 and ADA recommended as follows:

a. Wet: DCOF 0.42

B. Adhesive Mortar:
1. Manufacturer: **Custom Building Products**
2. Product: **Prolite RS – Rapid Setting Large Format Tile Mortar**

C. Grout:
1. Manufacturer: **Custom Building Products**
2. Product: **Prism Ultimate Performance Grout**

D. Movement Joint Sealant:
1. Manufacturer: **Pecora Corporation**
2. Product: **DynaTred**
3. Color: To be selected by OWNER from Manufacturer’s standard range.

PART 3: EXECUTION

3.01 PREPARATION

A. Protect surrounding work for damage or disfiguration.

B. Surfaces must be sound, clean and free of all foreign matter, such as dirt, grease, wax, soap film, and paint.

C. Deck surfaces to be structurally sound with no deflection greater than L/360.

D. Remove dust immediately before installation by vacuuming.

3.02 TILE INSTALLATION

A. Mix mortar in strict accordance with Manufacturer's instructions using clean, cool, potable water no greater than 70°F. Maintain a uniform mixing speed not to exceed (300) RPM. Add powder to liquid for ease of mixing and mix to achieve a thick, creamy consistency, then allow to stand for (10) minutes. Remix and apply.

B. Use the flat or straight edge of the trowel to apply a thin, pressure applied coat to the substrate. Follow immediately with additional material, then comb in one direction with the notched side of the trowel to achieve an even setting bed.

C. Spread only an area of mortar than can be covered with tiles while the surface is still tacky, typically within (20) to (30) minutes. Decrease interval when temperature is greater than 70°F.

D. Layout and center tile in both directions of each balcony space. Press tiles into setting bed, then push in a direction perpendicular to the notched trowel ridges to achieve the required coverage.

E. Apply mortar in a heavy enough layer so that complete contact, i.e. no voids present, between the mortar and tile is accomplished when tile is positioned. It may be necessary to "back-butter" large tiles, greater than 12" x 12" nominal, to provide complete coverage and firm support.

F. Periodically remove and check sample tiles for proper coverage at the backside. Keep a minimum of 2/3 of the joint depth between tiles clear for grouting.

G. Place tile joints uniform in width, 1/8" minimum to 1/4" maximum, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess material, or excess grout.

H. Clean all joints and wipe smudges from the tile face with a damp towel while mortar is still wet. Mortar may be remixed periodically to maintain uniform consistency but additional water is not allowed.

I. Do not disturb or walk over tiles until ready to grout. Grouting may commence when tiles are held firmly in place, typically (16) to (24) hours after installation is completed.

J. Unglazed tile may require sealing prior to grouting to prevent discoloration of the finished surface, especially when lighter colored tile is to receive a darker

contrasting grout. Perform a test patch prior to grouting. If discoloration occurs consult Manufacturer.

3.03 GROUTING

A. Wipe tile surfaces with a damp cloth before grouting. Install temporary blocking to prevent grout from entering movement joints to receive flexible polyurethane sealant.

B. Use an appropriate float to trowel the mixed grout over the surface and into the grout joints, careful to assure all joints are fully filled. Hold the float at a 45° angle to the surface of the tile.

C. As soon as possible, remove excess grout from the tile surface with a clean float held at a 90° angle and moving diagonally across the joints. Strike the joints with the blunt end of a hand tool, compacting the surface but not digging out the grout.

3.04 MOVEMENT JOINTS & SPACING

A. Remove temporary backing from joints to be filled with sealant.

B. Maintain ½" minimum perimeter isolation joint (I.J.) along the juncture of all adjacent wall and column bases.

C. Provide expansion control joints (C.J.) transverse across the deck as follows:
   1. Minimum 3/8" wide for maximum spacing of 8 feet on center.
   2. Minimum 1/2" wide for maximum spacing of 12 feet on center.

D. Prime edges of tile as recommended by sealant Manufacturer. Take steps necessary to keep primer off finished tile faces. Protect finished tile surfaces along joint nosing by masking.

E. Line the bottom of each joint reservoir with bond breaker tape of half-round backer rod suitable diameter to prevent three-sided adhesion.

F. Apply sealant by professional caulking gun. Fill joints from the deepest point to the surface by holding a properly sized nozzle against the back of the joint.

G. Dry tooling is recommended to promote maximum adhesion, neatness and correct bead profile.

H. Provide and maintain 1/2” wide minimum gap between exterior edges of perimeter tiles and screen enclosure frames or accordion shutter tracks in place.

I. Terminate tiling 1/2” minimum before perimeter handrails of balcony. Remaining portion of balcony shall have exposed waterproofing membrane.

J. Do not fill recessed gap along outer perimeter of deck with any material to allow drainage under lower screen enclosure frames or shutter tracks in place.

3.05 CLEANING AND PROTECTION

A. Clean tile surfaces per grout Manufacturer’s latest instructions.

B. Allow (48) hours cure time before opening tiled balcony decks to pedestrian traffic.

C. Remove cured sealant by cutting with a sharp edges tool. Remove thin films by abrading.

END OF SECTION