

SECTION 09782**HARD SURFACE FLOOR, BASE AND WALL – MAINTENANCE AND RESTORATION**

Note to specifier: Use this section to specify proper restoration products and procedures for hard surfaces. This section is intended to be used in conjunction with 09781 for finishing, protection after restoration. Increasingly sophisticated clients require existing floors in rehabilitation, renovation or remodel projects be restored to their original beautiful condition while leaving the floor durable and maintenance friendly for years to come. The maintenance products a janitorial service selects could ultimately determine the aesthetics of the floor you designed, particularly on natural stones. Your involvement in the selection of advanced systems for restoration, finishing, protection and maintenance is critical to satisfying your client. Miracle Sealants would enjoy being a part of your successful project.

All tile, stone, grout and masonry surfaces benefit by having a natural look impregnator / penetrating sealer. Impregnators penetrate into the substrate creating a barrier resistant to water penetration, oil penetration, stains, decrease surface absorption, reduce wear, allow 100% vapor transmission, increase static coefficient of friction, without altering the natural look. Stone has many variables and because stone care is not an exact science, test every situation should to assure expected results.

This specification can be used as a stand-alone supplement cross-referenced by your hard surfaces specification sections or you may elect to cut and paste these articles into the appropriate specification section.

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Maintenance and Restoration of Honed, Textured, Unpolished Natural and Cast Stones
- B. Maintenance and Restoration of Polished Stone.
- C. Maintenance and Restoration of Brick and Masonry Surfaces.
- D. Maintenance and Restoration of Terre Cotta, Saltillo, Cataluna & Other Clay Type Pavers
- E. Maintenance and Restoration of Quarry, Ceramic, Mosaic, & Porcelain Tile.
- F. Maintenance and Restoration of Limestone.

1.02 RELATED SECTIONS

- A. 02515 Stone Pavers
- B. 04200 Unit Masonry
- C. 04400 Stone
- D. 04500 Masonry Restoration and Cleaning
- E. 07180 Water Repellents
- F. 09300 Tile
- G. 09450 Stone Facing
- H. 09600 Stone Flooring
- I. 09630 Unit Masonry Flooring
- J. 09790 Slip Resistant Finishes
- K. 11016 Floor Cleaning Equipment

1.03 REFERENCES

- A. TCA (Tile Council of America) – Handbook for Ceramic Tile Installation.
- B. Marble Institute of America handbook “Care and Cleaning for Natural Stone Surfaces”.
- C. Limestone Institute Handbook
- D. Ceramic Tile Institute Stain Test (CTI-T-72)
- E. American National Standards Institute (ANSI Z 124.3 Para 5.2 Stain Resistance)
- F. American Society of Testing Methods ASTM C373 and ASTM C 501 Surface Water Absorption Tests and Tabor Abrasion
- G. American Society of Testing Methods ASTM C97 (modified) Surface Water Absorption
- H. American Society of Testing Methods ASTM E 96-92 Water Vapor Transmission
- I. American Society of Testing Methods ASTM C 1028-89 Static Coefficient of Friction (American Disabilities Act - Slip Resistance)

1.04 QUALITY ASSURANCE

- A. Conform to ANSI/TCA A137.1
- B. Conform to TCA Handbook for Ceramic Tile Installation.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Handle and store all materials in a manner to avoid damage or contamination to materials and products by water, moisture, freezing, excessive heat, foreign matter.
- B. Store Penetrating Sealers at 77 deg F.

1.06 MOCK-UPS

- A. Perform four test areas for each substrate.

1.07 TOLERANCES

- A. Polished marbles should achieve a gloss of 80 to 90 dynes minimum as measured by a Miracle Sealants Gloss meter.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Install adhesives, grout releases, tile sealer or grout sealer in an open ventilated environment.
- B. Maintain environmental condition and protect work during installation. Comply with trade standards and manufacturer’s printed recommendations.
- C. Maintain temperature in tiled areas of no less than +50 degrees Fahrenheit and no more than 104 degrees Fahrenheit for 7 days after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERES OF CLEANERS, SEALERS, COLOR AND GLOSS ENHANCEMENT

- A. Manufactured by Miracle Sealants Company. 1 (800) 350-1901 as represented by:

 Note to Specifier: List the appropriate rep for both your office location and the job site location. This will ensure continued excellent service of your account.

2.02 CEMENTITIOUS GROUT REPAIR FOR SHADED MOTTLED OR BLEACHED OUT GROUT

- A. Epoxy Grout Colorant as manufactured by Miracle Sealants Company.
- B. For uniformly bleached out grout use Mira Matte Color Enhancement

2.03 CLEANING

- A. Cementitious grout haze removal: “GCFR” Grout & Concrete Film Remover manufactured by Miracle Sealants Company.
- B. Epoxy grout haze removal: “Epoxy Grout Film Remover” manufactured by Miracle Sealants Company.

2.04 WATER, STAIN AND SLIP PROTECTION

- A. MiraSeal 511 Porous Plus Natural Looking Penetrating Sealer. Vapor permeable, not a topical coating, making surfaces harder and less slippery. UV resistant, resists acid rain, and non-yellowing. USDA approved for incidental contact for meat and poultry.

 Note to Specifier: Test results vary from stone to stone. Please request test reports from Miracle Sealants for your application if your desire is to write a performance specification. Fill in the following data as is appropriate for your project. We appreciate you using Miracle Sealants test data as your benchmark.

- 1. Stain Test :
- 2. Static Coefficient of Friction Test :
- 3. Tabor Abrasion Test, Surface Absorption Test :
- 4. Freeze/Thaw Test :
- 5. Vapor Transmission :

2.05 COLOR ENHANCEMENT

- A. Textured Non-Polished Surfaces Mira Matte

- B. Porous Type Pavers Saltillo & Terre Cotta Paste & Liquid Wax

2.06 GROUT RELEASE, GROUT AND TILE SEALING

- A. Grout Release & Tile Sealer: 511 Impregnator manufactured by Miracle Sealants Company. Grout Sealer: 511 Porous Plus manufactured by Miracle Sealants Company.

PART 3 EXECUTION

3.01 PREPARATION

- A. Floor Surface to be dry and free of contaminants, including previously applied sealers, dirt, lime and hard water deposits, efflorescence, and rust.
- B. Remove existing coatings and waxes using Mira Strip or H2O Strip.
- C. Remove lime and hard water deposits, efflorescence, rust and other heavy dirt and grime using Miracle Sealants "GCFR" Grout and Concrete Film Remover. Not for acid sensitive materials including but not limited to marble.
- D. Deep Cleaning non-acid use Miracle Sealants Liquid Poultice.
- E. Thoroughly rinse with clean water and allow to dry.

3.02 INSTALLATION

- A. Keep expansion and control joints free of sealers which may inhibit bonding of gun-applied sealant.
- B. Protect all adjacent surfaces and finishes.

3.03 GROUTING

- A. Allow tile to set for a minimum of 24 hours before treating with 511 Impregnator as a grout release.
- B. Remove all paper and glue from the face of the mounted tile. Remove all spacers, strings, ropes and pegs.
- C. Apply 511 Impregnator per manufacturer's printed instructions and allow curing 12 to 24 hrs before grouting. Keep sealer out of open joints.
- D. Mix and install grout materials to requirements of TCA Handbook, ANSI 108.10 and manufacturer's printed instructions.
- E. Force grout into joint to fill joint flush, leaving no voids.
- F. Promptly remove excess grout from tile surfaces with damp sponge or cloth and polish tile surface with a clean cloth to avoid heavy duty clean up.
- G. Allow grout to cure minimum 72 hours minimum and as required by grout manufacturer prior to application of additional sealers or finishes.

3.04 CLEANING

- A. Clean tile surfaces and adjoining surfaces of any residue of setting adhesive or grout. Grout residue may be cleanable with clean sponges and clean water.
- B. Any excess grout haze or residue must be removed using Miracle Sealants Company "GCFR", diluted according to the manufacturer's printed instructions.
- C. For moderate stains, use Miracle Sealants Company Liquid Poultice, diluted according to the manufacturer's printed instructions
- D. For stubborn stains use Miracle Sealants Company Poultice Powder mixed with the appropriate chemical.

3.05 SEALING

- A. Apply 511 Porous Plus to grout joints using a brush or clean cloth. Allow to dwell a minimum of 3-5 minutes before wiping away any excess sealer from adjacent tile surfaces.
- B. Use Miracle Sealants 511 Impregnator, 511 H2O, 511 Porous Plus as indicated in schedule.

 Note to Specifier: Acid Polishing Powders utilize oxalic acid, polishing agents, and micro-abrasives to remove scratches, etch marks, traffic patterns, and water rings. A high shine is restored to calcium based stone surfaces.

3.06 ACID POLISHING

- A. Treat the surface with an impregnator / penetrating sealer and allow to cure.
- B. Use Miracle Sealants Mira Dust polishing powder with water to create a milky solution.
- C. Buff with low RPM machine and neutralize with water when desired finish is achieved.

Note to Specifier: Recrystallization is necessary to rejuvenate a floor to an outstanding shine while making the surface less slippery. It is an acid and magnesium flourisilicates polishing process. Acid, steel wool, and stone react to create a shine. Periodically, a surface being maintained with recrystallization will need a light honing. Honing removes scratches, etch marks and traffic patterns. Honing will also open pores and remove fluorite surface crystals. Recrystallization changes the surface of the stone from calcium carbonate to calcium fluorite which is harder and more resistant to scratches and traffic.

3.07 RECRYSTALLIZATION

- A. Treat surface with Impregator and allow to cure.
- B. Using a floor buffing machine, use Miracle Sealants Marble Conditioner with a steel wool pad. Do not allow formula to stand on floor because it will etch.
- C. Final buff with dry steel wool pad to remove residue and five final polish.

3.08 HIGH POLISH MAINTENANCE

- A. Alternate days with Miracle Sealants Stone Cleaner Preserver and Stone Polish Preserver.
- B. Mop on and allow to dry. Once dry, buff off.

Note to Specifier: All polished stones become dull because of normal use. Restoration is the process of removing lippage, scratches, etch marks, water rings and traffic patterns by grinding, sanding, or honing the surface of the stone. Bricks with grit abrasives have been used historically but are cumbersome in the field and ineffective on smaller 12 x 12 tiles. Abrasive Screens or Paper are easy to use but they aren't aggressive enough to remove lippage. Diamond Abrasives are the preferred method.

3.09 RESTORATION

- A. Use a slow RPM floor machine like the Miracle Sealants Marble Master, large quantities of water and protect adjacent surfaces using a wet dry vacuum constantly.
- B. Select the grit based on the depth of the scratches and tile lippage. Use all grits in succession.
- C. After achieving desired finish, rinse with neutral cleaner like Mira Clean #1.
- D. Seal with Miracle Sealants 511 Impregator and protect with Stone Polish Preserver.

3.10 COLOR/GLOSS ENHANCEMENT USING TOPICAL COATINGS

- A. Use Mira Matte to enhance gloss. Because the coating may be softer than the stone, protect the Mira Matte with a sacrificial layer like Miracle Sealants Saltillo & Terra Cotta Paste & Liquid Wax.

3.11 PROTECTION

- A. Protect finished installation from construction traffic until protection products and setting and grouting materials are fully cured.
- B. Do not permit traffic over finished floor surface. If traffic is necessary, protect the floor with a layer of _ " plywood for full length of traffic pattern; tape joints; use large rubber tired dollies for moving heavy items or equipment.
- C. Protect neighboring surfaces including but not limited to wood, carpet, metal, landscaping, and other non-masonry surfaces.

Note To Specifier: Acidic Cleaners will burn and dissolve calcium in organic stones like marble, travertine or limestone thus causing etch marks. Conversely, acid polishing compounds may be used to polish these calcareous stones. When in doubt, call Miracle Sealants Co.

Siliceous stones like granite, slate, sandstone, and bluestone are durable and easy to clean with mild acidic cleaners.

Restoration may be required for stains that are Oil Based (grease, tar, cosmetics), Organic (coffee, tea, fruit, food), Metal (rust from iron, oxidized copper or bronze), Biological (algae, mildew, fungi, moss), Ink (magic marker, pen), Water Spots (hard water stains), Fire and Smoke, Etch Marks, Efflorescence or Scratches and Nicks.

A stone polish will enhance the beautiful luster of the stone while hiding light scratches and etch marks. Stone Soap will react with the calcium in the stone and leave a protective layer.

3.12 SCHEDULE

Material	Routine Maintenance	Heavy Duty Cleaning
Marble - Polished	Mira Clean#1	Liquid Poultrice, Mira Matte, Mira Strip, H2O Strip
Marble - Honed	Mira Clean#1, GCFR	Liquid Poultrice, Mira Matte, Mira Strip, H2O Strip
Marble - Textured	Mira Clean #1, Mira Soap	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Granite - Polished	Mira Clean #1, Porcelain & Ceramic Tile Cleaner	Liquid Poultrice, Mira Strip, H2O Strip
Granite - Honed	Mira Clean #1, Porcelain & Ceramic Tile Cleaner	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Granite - Textured	Mira Clean #1	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Limestone - Polished	Mira Clean #1, Mira Soap, Stone Cleaner Preserver	Liquid Poultrice, Mira Strip, H2O Strip
Limestone - Honed	Mira Clean #1, Mira Soap, Porcelain & Ceramic Tile Cleaner	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Limestone - Textured	Mira Clean #1, Mira Soap	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Travertine - Polished	Mira Clean #1, Stone Cleaner Preserver	Liquid Poultrice, Mira Strip, H2O Strip
Travertine - Honed, Unfilled	Mira Clean #1, Mira Soap, Porcelain & Ceramic Tile Cleaner	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Slate	Mira Clean #1	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Sandstone	Mira Clean #1	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Flagstone	Mira Clean #1	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Cantera	Mira Clean #1, Mira Soap	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Terre Cotta	Mira Clean #1, Saltillo & Terre Cotta Liquid Wax	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Mexican Saltillo Tile	Mira Clean #1, Saltillo & Terre Cotta Liquid Wax	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Ceramic Tile	Mira Clean #1, Tile & Grout Cleaner, Porcelain & Ceramic Tile Cleaner	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Quarry Tile	Mira Clean #1, Tile & Grout Cleaner, Porcelain & Ceramic Tile Cleaner	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Porcelain Tile	Mira Clean #1, Tile & Grout Cleaner, Porcelain & Ceramic Tile Cleaner	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Brick	Mira Clean #1	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Concrete	Mira Clean #1	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Cementitious Grout	Mira Clean #1, Grout Cleaner, Tile & Grout Cleaner	Liquid Poultrice, GCFR, Mira Strip, H2O Strip
Epoxy Grout	Mira Clean #1, Grout Cleaner, Tile & Grout Cleaner	Liquid Poultrice, Epoxy Grout Haze Remover

END OF SECTION