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PWGSC Ontario Region Project Number R.048689.002	SEAMLESS FLOORING, WALL AND CEILING COATING FOR KITCHENS	Section 09 96 00 Page 1 2012-08-10

PART 1 - GENERAL

- 1.1 PRODUCT DATA SHEETS .1 Submit product data sheets in accordance with Sections 01 33 00 and 01 78 00.
- 1.2 WHMIS .1 Submit two copies of MSDS - Material Safety Data Sheets to Departmental Representative.
- .2 Indicate VOC's during application and curing.
- .3 Enforce use of personal protective equipment required by MSDS.
- 1.3 SUBMITTALS .1 Submit samples in accordance with Sections 01 33 00 and 01 78 00.
- .2 Product Data: Submit manufacturer's technical data, installation instructions, and general recommendations for each epoxy flooring material required.
- .3 Samples: Submit duplicate 400 x 200 mm samples of each colour and finish coating applied to a rigid backing.
- 1.4 QUALITY ASSURANCE .1 Single Source Responsibility: Obtain primary epoxy flooring and materials including primers, resins, hardening agents, finishes or sealing coats from a single manufacturer with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. Contractor must have completed at least five projects of similar size and complexity. Provide secondary materials only of type and from source recommended by manufacturer of primary materials.
- .2 Arrange a meeting not less than thirty (30) days prior to starting work.
- 1.5 QUALIFICATIONS .1 Applied by applicator trained and licensed by

1.6 MOCK-UP

- .1 Apply materials of each finish to approximately 10 m<sup>2</sup> area of surface to be treated.
- .2 Allow 24 h for inspection of mock-up by Departmental Representative before proceeding with coating work.
- .3 Do not proceed until mock-up has been inspected and accepted by Departmental Representative.
- .4 Reviewed and accepted mock-up shall become part of installed work.

1.7 DELIVERY STORAGE  
AND HANDLING

- .1 Deliver material to job site. Check materials for shipping damage and completeness prior to job start.
- .2 All materials must be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on site mixing errors. No on site weighing or volumetric measurements allowed.
- .3 Store material in a dry, enclosed area protected from exposure to moisture. Temperature of storage shall be maintained between 16 degrees and 20 degrees celsius.

1.8 ENVIRONMENTAL  
REQUIREMENTS

- .1 Do not apply epoxy systems unless uniform minimum 16°C air temperature at installation area for 24 hours prior to and after application.
- .2 Provide adequate ventilation or isolation measures to protect against toxic fumes.
  - .1 Ventilate area 24 hours per day, during installation and for 7 days after installation is completed with minimum 30% outside air.
  - .2 Ventilate at a rate sufficient to produce a negative pressure in the work area and exhaust direct to the outside of the building. Do not recirculate contaminants within the building.
- .3 Moisture: Ensure substrate is within moisture limits prescribed by flooring manufacturer.
- .4 Safety: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding the use, handling, storage and disposal of hazardous materials.
- .5 Job area to be free of other trades during, and for a period of 24 hours, after wall installation.

- .6 Protection of finished wall from damage by subsequent trades is the responsibility of the General Contractor.
- .7 Manufacturer's representative must be on job site at start of installation.

1.9 MAINTENANCE  
DATA

- .1 Provide maintenance data for coatings for incorporation into manual specified in Section 01 33 00 and 01 78 00.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Ensure compatibility for all epoxy materials including primers, resins, hardening agents, finish coats and sealer coats.
- .2 All epoxy materials from same manufacturer.
- .3 Only products listed on the Canadian Food Inspection Agency, Reference Listing of Accepted Construction Materials, Packaging Materials and Non-Food Chemical Products are acceptable for this project. Refer to <http://active.inspection.gc.ca/scripts/fssa/reference/reference.asp?e> for floors, walls and ceilings.
- .4 Aggregate: silica sand to coating manufacturer's requirements.
- .5 Block filler: one component, high build, copolymer emulsion with inorganic pigments, stabilizers, extenders and fillers.
- .6 Waterproof membrane, where indicated on drawings: two component urethane liquid applied, 100% solids.
  - .1 Tensile strength: to ASTM D-412, 8.27 MPa.
  - .2 Elongation: to ASTM D-412, 100%.
  - .3 Hardness: to ASTM D2240-05, Shore A Durometer 80.
  - .4 Bond Strength: to ASTM D4541, greater than 2.75 MPa.

2.2 COLOURS

- .1 As selected by Departmental Representative from manufacturer's standard colours.

2.3 CRACK ISOLATION  
MEMBRANE

- .1 Crack isolation membrane: 2 part epoxy, 100% solids, 283 g/0.836 m<sup>2</sup> fibreglass fabric reinforcing.
  - .1 Elongation at break of flexible epoxy binder: to ASTM D638-10, 90%.
  - .2 Tensile strength of fibreglass fabric: 68.947 MPa.

2.4 EXPANSION AND  
CONTROL JOINT  
FILLER

- .1 Use either joint filler A, B, C, D, E or F.
- .2 Joint filler A: self leveling, two-component sealant based on a flexible epoxy resin and a blended polyamide curing agent.
  - .1 Hardness: to ASTM D2240-05(2010), Shore A Durometer 50.
  - .2 Tensile Strength: to ASTM C-307, 1.7 MPa.
  - .3 Elongation: to ASTM D638-10, 450%.
  - .4 Joint Movement Capability: to TT-S-00227E, +/- 25%.

2.5 EPOXY MORTAR/  
GROUT

- .1 Use either epoxy mortar/grout A, B, C, D, E or F.
- .2 Mortar/Grout A: 3 part epoxy grout, 100% solids, solvent free, trowelable.
  - .1 Compressive strength: to ASTM C579-01(2006), 52.40 MPa after 7 days.
  - .2 Tensile strength: to ASTM C307-03(2008), 12.41 MPa.
  - .3 Flexural strength: to ASTM C580-02(2008), 22.75 MPa.
  - .4 Hardness: to ASTM D2240-05(2010), shore D durometer 86-88.
  - .5 Density: 2200 kg/m<sup>3</sup>.

2.6 FLOOR SYSTEM  
STANDARD EPOXY (EP1)

- .1 Floor system, in regular areas: three-component, trowelled, epoxy mortar system.
  - .1 Primer: as recommended by manufacturer.
  - .2 Body coat: 3 part epoxy, 100% solids, minimum 6 mm thick, grey colour and texture selected by Departmental Representative.
    - .1 Compressive strength: to ASTM C579-01(2006), 68.94 MPa after 7 days.
    - .2 Tensile strength: to ASTM C307-03(2008), 12.06 MPa.

- .3 Flexural strength: to ASTM C580-02 (2008), 27.57 MPa.
- .4 Hardness: to ASTM D2240-05(2010), shore D durometer 85-90.
- .5 Abrasion resistance: to ASTM D4060-10, CS-17 wheel, 0.1 g maximum weight loss.
- .6 Coefficient of friction: to ASTM D2047-04, 0.6.
- .7 Flammability: to ASTM D635-10, self extinguishing, extent of burning maximum 6 mm.
- .8 Water absorption: to ASTM C413-01(2006), 0.2%.
- .3 Top coat: 2 part epoxy, 100% solids, colour selected by Departmental Representative aggregate to match floor body coat.
  - .1 Coating to be formulated to provide outstanding protection from a wide range of chemicals while increasing abrasion resistance and cleanability.
  - .2 Flammability: to ASTM D635-10, self extinguishing.
- .2 Floor system under heat generating equipment: four-component, notch trowel applied polyurethane mortar system.
  - .1 Primer: as recommended by manufacturer.
  - .2 Body coat: polyurethane mortar system, colour and texture selected by Departmental Representative.
    - .1 Compressive strength: to ASTM C579-01(2006), 53.08 MPa after 7 days.
    - .2 Tensile strength: to ASTM C307-03(2008), 6.89 MPa.
    - .3 Flexural strength: to ASTM C580-02 (2008), 16.54 MPa.
    - .4 Hardness: to ASTM D2240-05(2010), shore D durometer 80-84.
    - .5 Abrasion resistance: to ASTM D4060-10, CS-17 wheel, 0.05 g maximum weight loss.
    - .6 Coefficient of friction: to ASTM DF-1679 F-2508,1.
    - .7 Flammability: to ASTM E-648, Class 1.
    - .8 Water absorption: to ASTM C413-01(2006), less than 1%.
    - .9 Heat Resistance Limitations: 93 degrees Celsius.
  - .3 Top coat: 2 part epoxy, 100% solids, colour selected by Departmental Representative aggregate to match floor body coat.
    - .1 Coating to be formulated to provide outstanding protection from a wide range of chemicals while increasing abrasion resistance and cleanable.
    - .2 Flammability: to ASTM D635-10, self

extinguishing.

2.7 COVE BASE (EP2) .1 Install cove integral with the floor 100mm in height.

2.8 WALL SYSTEM  
STANDARD EPOXY (EP3) .1 Wall coating to 1200a.f.f: 3 component, trowel applied, 100% solids, colour, selected by Departmental Representative.  
.1 Bond Strength: to ACK committee #503/pp1139-41, 2.8 MPa.  
.2 Compressive strength: to ASTM C579-01(2006), 53.08 MPa after 7 days.  
.3 Tensile strength: to ASTM C307-03(2008), 25.5 MPa.  
.4 Flexural strength: to ASTM C580-02 (2008), 25.5 MPa.  
.5 Hardness: to ASTM D2240-05(2010), shore D durometer 86-90.  
.6 Abrasion resistance: to ASTM D4060-10, CS-17 wheel, 0.75 gm maximum weight loss.  
.7 Coefficient of friction: to ASTM DF-1679 F-2508,1.  
.8 Flammability: to ASTM D635-10, self extinguishing  
.9 Water absorption: to ASTM C413-01(2006), less than %.  
.10 Heat Resistance Limitations: 93 degrees Celsius.  
.11 Impact Resistance: to ASTM D-2794, exceeds 1100 kPa.

2.9 WALL SYSTEM  
STANDARD EPOXY (EP4) .1 Use either wall system A, B, C, D, E or F; pinhole free finish.  
.2 Wall and ceiling coating A: 2 part epoxy, 92% solids, clear colour, selected by Departmental Representative.  
.1 Minimum dry film thickness: 0.381 mm.  
.2 Abrasion resistance: to ASTM D4060-10, CS-17 wheel, 1,000 g load, 1,000 cycles: 0.1 gm maximum weight loss.  
.3 Impact resistance: to ASTM D2794-93(2010) (no cracking crazing or loss of adhesion): exceeds 24 in.-lbs.  
.4 Hardness: to ASTM D2240-05(2010), 80-85 Shore D.  
.5 Temperature limitations:  
.1 Continuous exposure: 60°C.  
.2 Intermittent exposure: 93°C.

2.10 EXTERIOR FLOOR  
SYSTEM EPOXY (EP5)

- .1 Floor system, for exterior work: three-component, trowelled epoxy system.
- .1 Primer: as recommended by manufacturer.
  - .2 Body coat: 3 part epoxy, 100% solids, minimum 6 mm thick, grey colour and texture selected by Departmental Representative.
    - .1 Compressive strength: to ASTM C579-01(2006), 68.94 MPa after 7 days.
    - .2 Tensile strength: to ASTM C307-03(2008), 12.06 MPa.
    - .3 Flexural strength: to ASTM C580-02 (2008), 27.57 MPa.
    - .4 Hardness: to ASTM D2240-05(2010), shore D durometer 85-90.
    - .5 Abrasion resistance: to ASTM D4060-10, CS-17 wheel, 0.1 g maximum weight loss.
    - .6 Coefficient of friction: to ASTM D2047-04, 0.6.
    - .7 Flammability: to ASTM D635-10, self extinguishing, extent of burning maximum 6 mm.
    - .8 Water absorption: to ASTM C413-01(2006), 0.2%.
  - .3 Top coat: 2 component, high performance, waterborne, polyurethane coating. Colour selected by Departmental Representative.
    - .1 Coating to be formulated to provide outstanding protection from a wide range of chemicals while increasing abrasion resistance and cleanability.
    - .2 Flammability: to ASTM D635-10, self extinguishing.

2.11 MIXES

- .1 Mix crack isolation membrane, expansion joint filler, grout, floor base coat mortar and top coat sealer in accordance with manufacturer's written instructions.

PART 3 - EXECUTION

3.1 PREPARATION OF  
SURFACES

- .1 Prepare surfaces in accordance with manufacturer's instructions.
- .2 Remove oil, dirt and grease with industrial detergent, as recommended by epoxy manufacturers representative.
- .3 Mask surrounding surfaces to provide neat, clean

junction lines.

- .4 Protect adjacent surfaces and equipment from damage by overspray.
- .5 Complete work penetrating substrate before installing coating.

3.2 PREPARATION OF FLOORS

- .1 Prepare floor accordance with epoxy flooring manufacturer's instructions.
- .2 Shot blast existing and new concrete floor surfaces.

3.3 PREPARATION OF WALLS

- .1 Apply 2 coats of block filler to walls to provide smooth surface for finish coating.

3.4 CRACK ISOLATION MEMBRANE APPLICATION

- .1 Apply crack isolation membrane minimum mm 0.762 mm (30 mils) thick, lay reinforcing and saturate surface in accordance with manufacturer's written instructions.
- .2 Apply crack isolation membrane where indicated.

3.5 EPOXY MORTAR/ GROUT APPLICATION

- .1 Apply epoxy mortar/grout in accordance with manufacturer's written instructions to provide 3 6 mm in 300 mm slope to floor drains and integral cove base. Form curbs ramps to door thresholds at slope indicated on drawings.
- .2 Co-ordinate with room finish schedule.

3.6 FLOOR SYSTEM APPLICATION

- .1 Mix in accordance with material manufacturer's instructions.
- .2 Apply primer to porous surfaces and epoxy mortar in accordance with manufacturer's written instructions.
- .3 Trowel apply body coat in accordance with manufacturer's written instructions. Minimum total dry thickness 6 mm (1/4").
- .4 Apply top coat in accordance with manufacturer's



written instructions. Minimum total dry film thickness  
0.102 mm (4 mils) 0.204 mm (8 mils).

- .5 Co-ordinate with room finish schedule.

3.7 WALL SYSTEM  
APPLICATION

- .1 Mix in accordance with material manufacturer's written instructions.
- .2 Apply wall coating by roller. Minimum dry film thickness 0.102 mm (4 mils) 0.204 mm (8 mils).
- .3 Co-ordinate with room finish schedule.

3.8 CEILING SYSTEM  
APPLICATION

- .1 Mix in accordance with material manufacturer's written instructions.
- .2 Apply ceiling coating by roller. Minimum dry film thickness 0.102 mm (4 mils) 0.204 mm (8 mils).
- .3 Co-ordinate with room finish schedule.

3.9 TESTING

- .1 Perform two pull-off strength adhesion tests per floor area and wall area.
- .2 Do pull-off strength adhesion tests in accordance with ASTM D4541-09e1.
- .3 Patch floors and walls where pull-off strength adhesion tests are performed. Patch shall not be visible when viewed 600 mm above finished floor.



# CORRECTIONAL INSTITUTIONS

## Sanitile™

### High Performance Wall Coatings

The Sanitile line of products are designed to deliver high performance in the toughest Correctional Institution environments. Demonstrating impressive chemical, abrasion and humidity resistance, Sanitile systems provide a level of performance and quality unsurpassed by any paint product on the commercial market.

Sanitile wall systems transform ordinary walls and ceilings made of concrete, brick, and drywall into attractive surfaces. There is a Sanitile system for nearly every service...a system that is designed to perform in any number of environments it is placed in.



### APPLICATIONS:

- **Holding Cells • Court Rooms • Interrogation Rooms • Medical Units**
- **Locker Rooms • Showers • Washrooms • Cafeterias**
- **Administrative Areas • Laundry Rooms • Hallways • Lobbies**

The Sanitile series has a long history of performance as the formulation was developed from Eisen-Heiss paint, used for over 60-years in a variety of applications requiring long-lasting performance. Sanitile systems provide a tile-like surface creating a hard finish that protects walls and ceilings against the aggressive attack of chemicals and cleaning agents present in many of today's environments. All Sanitile products can be used to help gain LEED Certification.

- Low Odour
- Excellent Yellowing Resistance
- Satin, Semi and High Gloss Finishes
- Brush and Roll Application
- Tintable to Match Custom Colours

- Low VOC
- Quick Drying
- User Friendly
- Outstanding Colour Retention



The StonCor Group combines the resources of three world class companies - **Stonhard**, **Carboline**, and **Fibergate**. Over 75 years of field experience has solidified StonCor's commitment to cutting edge technology and uncompromising quality. The StonCor Group provides a single source for all of your flooring, coating, lining, fireproofing, FRP (Fiberglass Reinforced Plastic) grating and structural system requirements.

# Sanitile™

High Performance Wall Coatings



- Holding Cells
- Court Rooms
- Interrogation Rooms
- Medical Units
- Locker Rooms
- Showers
- Washrooms
- Cafeterias
- Administrative Areas
  - Laundry Rooms
  - Hallways
  - Lobbies



## Correctional Institutions Proposal

The Sanitile line of products are designed to deliver high performance in the toughest Correctional Institution environments. Demonstrating impressive chemical, abrasion and humidity resistance, Sanitile systems provide a level of performance and quality unsurpassed by any paint product on the commercial market. All Sanitile products can be used to help gain LEED Certification.

Sanitile products are built around a "systems approach". Primer and finish products work in concert to provide the optimum performance for each specific environment. Systems are engineered to match the substrate with environmental service needs. Each substrate has a recommended filler/sealer for the expected service requirements. The choice of finish is based on the environmental need, whether it is for physical or chemical resistance.



# Sanitile™ Wall Systems

## *Light to Medium Duty - Drywall*

### **Sanitile 120 / Sanitile 155**

This drywall coating system can be used in corridors, office areas and any other place where non-aggressive exposures are present. Sanitile 155 is a straight (100%) acrylic, which offers excellent colour stability. Sanitile 120 is also a 100% acrylic sealer and should not be confused with inferior performing PVA-based sealers. This outstanding sealer for drywall and stained areas promotes adhesion over non-ferrous metals and other substrates and can be topcoated with two-component, solvent-containing coatings.

This drywall coating system is designed to offer service in areas where non-aggressive exposures are present. These areas include *corridors, administrative offices, and reception areas* to name a few.

### **Sanitile 120 / Sanitile 255**

This wall coating system is commonly used when a specification calls for a "water-based epoxy" for drywall. Sanitile 255 is an acrylic-modified, water-based epoxy which has moderate chemical resistance, and very good colour retention. Sanitile 120 primer is a 100% acrylic sealer that offers excellent adhesion over non-ferrous metals and other substrates and is an outstanding sealer for drywall.

The Sanitile 255 system exhibits good chemical resistance and toughness and should be used where increased cleaning of the walls is anticipated due to more frequent splash/spillage exposure. Being acrylic-modified, Sanitile 255 has very good colour stability and yellowing resistance.

This drywall coating system is designed to offer service in areas where light to moderate exposures are present. These areas include *hallways, holding cells, storage rooms, kitchens, and interrogation rooms* to name a few.

### **Sanitile 120 / Sanitile 555**

Sanitile 555 is a premium, water-based, unmodified epoxy finish. In comparison to 255, Sanitile 555 is a step-up in performance as the film is significantly tougher, more abrasion resistant and more chemically resistant. The 555 system is easy to apply and cures to an attractive high gloss finish.

Sanitile 555 offers significant improvements in film hardness and toughness when combined with a straight acrylic primer, such as Sanitile 120, and can also be paired with acrylic-epoxy sealers. This system should be used primarily in more moderate to aggressive environments. This drywall coating system is designed to offer service in areas where more aggressive exposures are present. These areas include *locker rooms, washrooms, prison cells, and laundry facilities* to name a few.



# Sanitile™ Wall Systems

## *Light to Medium Duty - Concrete/CMU*

### **Sanitile 100 / Sanitile 155, 255, 555**

These three Sanitile wall systems use the exact same finishes as the first three systems under the “drywall” recommendations, however they are paired with a heavy-duty acrylic block filler, Sanitile 100.

The same characteristics and area-use recommendations apply to the topcoats as outlined in the previous section, the only difference is that the filler is designed for use with a concrete/CMU substrate. Sanitile 100 is a heavy-duty, straight acrylic block filler that demonstrates excellent filling properties. The 100 primer is a premium filler with superior physicals, wet adhesion properties, chemical resistance, and topcoatability.



### **Sanitile 100 / Sanitile 655**

This solvent-based coating system is popular for new construction and some maintenance jobs.

Sanitile 655 offers excellent chemical resistance and can tolerate frequent, aggressive chemical cleaning. It is a high gloss coating and has good colour retention properties.

This hard, tough, abrasion resistant epoxy system also exhibits excellent brush and roll characteristics. It is primarily used in aggressive duty service with chemical and abrasion exposure to provide a durable surface on walls and structural components.

### **Sanitile 100 / Sanitile 855**

A heavy-duty acrylic block filler topcoated with a modified polyester-polyurethane are the highlights of this system. Sanitile 855 has very good chemical resistance, excellent flexibility and impact resistance, superior colour stability and low odour. It is extremely versatile and is the best recommendation for overall film toughness, colour stability, gloss retention, appearance and chemical resistance.



# Sanitile™ Wall Systems

## *Moderate to Heavy Duty - Concrete/CMU*

### **Sanitile 500 / Sanitile 555**

This straight water-based epoxy system is comprised of Sanitile 500, a two-component epoxy block filler that utilizes the same resins as formulated in Sanitile 555, resulting in a tough and chemically resistant system. Sanitile 500 exhibits greater physical properties, and higher chemical and moisture resistance than Sanitile 100 block filler.

This system is to be used for heavy-duty service and for more aggressive applications. Sanitile 500 filler can stand up against frequent moist conditions, aggressive chemicals and chemical cleaning.

### **Sanitile 500 / Sanitile 855**

The same characteristics apply to this system as the above. The only difference here is the use of a more colour stable, abrasion and scratch resistant finish.

### **Sanitile 600 (or 600 TG) / Sanitile 655**

This solvent-based epoxy system can be used in new construction because of the solvents involved. Sanitile 600 is a high solids epoxy block filler with impressive physical properties and excellent filling characteristics.

Sanitile 600 can resist impact and abrasion, has exceptional chemical resistance and can tolerate repeated washings. It has greater physical strength than Sanitile 500 and in the trowel-grade (TG) version, can fill up to 3/8" mortar joints and bug holes. This system should be used in aggressive applications where a combination of moisture, chemicals and physical abuse is anticipated.

### **Sanitile 600 (or 600 TG) / Sanitile 855**

This system is very similar to the previous system except that it utilizes a more colour stable and abrasion resistant finish, Sanitile 855. Use where epoxy-yellowing will be an issue.

### **Sanitile 755**

The appeal of Sanitile 755 is that you only need one product to seal walls made of concrete CMU. It is solvent-free and has very low odour. In just 1-2 coats, it can do a very effective job of sealing masonry surfaces. For severe service application, a fiberglass mat can be incorporated into the wet film of the first coat, followed by sanding of any protruding fibers, followed by a second "encapsulant" coat. It has excellent resistance to water, impact, abrasion and cleaning chemicals. This system is a great fill-and-finish product that can eliminate a coat of paint and provide an outstanding, tough wall coating.



The StonCor Group combines the resources of three leading corrosion protection companies - **Stonhard, Carboline, and Fibergrate**. The StonCor Group provides a single source for all of your flooring, coating, lining, fireproofing, grating and structural system requirements.

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**1 General**

**1.1 RELATED SECTIONS**

1.1.1 [SECTION - 03300 Cast In Place Concrete ]

1.1.2 [SECTION - 04220 Concrete Unit Masonry]

1.1.3 [SECTION - 07900 Joint Sealers]

**1.2 REFERENCES:**

1.2.1 Reference is made to spec standards produced by various organizations to conform to edition of standards specified or, if not specified, to last edition as amended and revised to date of contract.

1.2.1.1 ACI Committee #503/pp1139-41

- Bond Strength: >2.8 MPa (400 psi) (100% concrete failure)

1.2.1.2 ASTM C-307

- Tensile Strength: 25.5 MPa (1,700 psi)  
- Test Method for Tensile Strength of Chemical-Resistant Mortars, Grouts and Monolithic Surfacing

1.2.1.3 ASTM C-579

- Compressive Strength: 68.2 MPa (9,900 psi)  
- Test Method for Compressive Strength of Chemical-Resistant Mortars, Grouts and Monolithic Surfacing

1.2.1.4 ASTM C-580

- Flexural Strength: 25.5 MPa (3,700 psi)  
- Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts and Monolithic Surfacing

1.2.1.5 ASTM D-570

- Water Absorption: ( 24 hours in water) 0.2%  
- Test Method for Water bsorption of Plastics

1.2.1.6 ASTM D-635

- Flammability: Self Extinguishing. Extent of burning 10 mm (0.31 inches) max.  
- Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position

1.2.1.7 ASTM D-790

- Flexural Modulus of Elasticity:  $6.89 \times 10^3$  MPa ( $1.0 \times 10^6$  psi)  
- Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

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- 1.2.1.8 ASTM D-2240/Shore D. Durometer
  - Hardness: 86 - 90
  - Test Method for Rubber Property - Durometer Hardness
- 1.2.1.9 ASTM D-2794
  - Impact Resistance: Exceeds 1100 kPa (160 in./lbs) (no cracking, crazing, or loss of adhesion)
  - Test Method for Resistance of Organic Coatings on the Effects of Rapid Deformation (Impact)
- 1.2.1.10 ASTM D-4060, Taber Abrader CS-17 wheel, 1,000 gm (2.2 lb) load, 1,000 cycles
  - Abrasion Resistance: 0.75 gm (0.0026 oz) max. weight loss
  - Test method for Abrasion Resistance of Organic Coatings by the Taber Abrader
- 1.2.1.11 ASTM E-831
  - Thermal Coefficient of Linear Expansion:  $2.2 \times 10^{-5}$  m/m<sup>°C</sup>
  - Test Method for Linear Thermal Expansion of Solid Materials by Thermochemical Analysis
- 1.2.1.12 Cure Rate (at 77°F/25°C)allow:
  - 24 hours for normal operations
- 1.2.1.13 Heat Resistance Limitation:
  - 140°F/60°C (for continuous exposure),
  - 200°F/93°C (for intermittent spills)
- 1.2.1.14 Percent Solids
  - 100%

### 1.3 SUBMITTALS

- 1.3.1 **Product Data:** Submit manufacturer's technical data, installation instructions, and general recommendations for each epoxy wall material required.
- 1.3.2 **Samples:** Submit, for verification purposes, 300 mm x 300 mm (12"x12") square sample of each type of epoxy wall required, applied to a rigid backing, in colour and finish indicated.

### 1.4 QUALITY ASSURANCE

Single Source Responsibility: Obtain primary epoxy wall materials including primers, resins, hardening agents, finish or sealing coats from a single manufacturer with not less than ten years of successful experience in



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manufacturing and installing principal materials described in this section. Contractor must have completed at least five projects of similar size and complexity. Provide secondary materials only of type and from source recommended by manufacturer of primary materials.

1.4.1 Arrange a meeting not less than thirty days prior to starting work.

**1.5 DELIVERY, STORAGE AND HANDLING**

1.5.1 Deliver material to job site. Wall contractor will check material for completeness and shipping damage prior to job start.

1.5.2 All materials must be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on site mixing errors. No on site weighing or volumetric measurements allowed.

1.5.3 Store material in a dry, enclosed area protected from exposure to moisture. Temperature of storage area shall be maintained between 16° and 32°C (60° and 90°F).

**1.6 MOCK-UP**

1.6.1 At site, under manufacturer's supervision, apply for approval 9 m<sup>2</sup> (100 sq ft) of complete wall. Finish in area designated, to match submitted samples. When approved, site applied sample to be standard for appearance, colour, texture, workmanship, etc., and all work to conform to this sample.

**1.7 PROJECT CONDITIONS**

**1.7.1 ENVIRONMENT REQUIREMENTS**

1.7.2 Drywall, including jointwork, must be completely finished at least 3 days prior to wall system installation.

1.7.3 **Temperature:** Utilities, including electric, water, heat (air temperature between 60° and 90°F/16° and 32°C) and finished lighting to be supplied by General Contractor. Maintain ambient temperature of not less than [18°]C from [7] days before installation to at least 48 hours after completion of work and maintain relative humidity not higher than 40% during same period.

1.7.4 **Moisture:** Ensure substrate is within moisture limits prescribed by [flooring] manufacturer.

1.7.5 **Safety:** Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding the use, handling, storage and disposal of hazardous materials.

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1.7.6 Job area to be free of other trades during, and for a period of 24 hours, after wall installation.

1.7.7 Protection of finished wall from damage by subsequent trades is the responsibility of the General Contractor.

1.7.8 Manufacturer's representative must be on job site at start of installation.

**1.8 WARRANTY**

1.8.1 Furnish a single, written warranty covering both material and workmanship for a period of one (1) full year from date of installation.

**2 Products**

2.1 **COLOURS:** As selected by Consultant from manufacturer's standard colours.

2.1.1 **EPOXY MORTAR BASED IMPACT RESISTANT WALL SURFACING**  
100% solids, 0 VOC, 3 mm (120 mils) thick system with a penetrating, moisture tolerant, two-component primer, a high performance, three component 100% solids, 0 VOC, troweled mortar consisting of epoxy resin, curing agent and selected graded aggregates blended with inorganic pigments. Acceptable Manufacturer: Stonhard, STONGLAZE VSM

2.2.3 **JOINT SEALANT:** Type produced by manufacturer of epoxy wall system for type of service and joint condition indicated.

**3 Execution**

3.1 **PREPARATION:** Masonry will be clean and free of bond inhibiting materials such as previously applied coatings. Prepare existing coatings by mechanical means, including light sanding if necessary.

**3.2 APPLICATION**

3.2.1 **General:** Apply each component of epoxy wall system in compliance with manufacturer's directions to produce a uniform monolithic wearing surface of thickness indicated, uninterrupted except at divider strips, sawed joints or other types of joints (if any), indicated or required.

3.2.2 **Primer:** Mix and apply primer over properly prepared substrate with strict adherence to manufacturer's installation procedures and coverage rates. Manufacturer: Stonhard, STANDARD PRIMER

**STONGLAZE VSM**

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3.2.3 **Troweled Mortar:** Mix mortar materials according to manufacturer's recommended procedures. Uniformly spread mortar over substrate to manufacturer's recommended height and hand trowel to a smooth, dense finish using steel finishing trowels. Manufacturer: Stonhard, STONGLAZE VSM

**3.3 FIELD QUALITY CONTROL**

3.3.1 The right is reserved to invoke the following material testing procedure at any time, and any number of times during period of flooring application.

3.3.2 The Owner will engage service of an independent testing laboratory to sample materials being used on the jobsite. Samples of material will be taken, identified and sealed, and certified in presence of Contractor.

3.3.3 Testing laboratory will perform tests for any of characteristics specified, using applicable testing procedures referenced herein, or if none referenced, in manufacturer's product data.

3.3.4 If test results show materials being used do not comply with specified requirements, Contractor may be directed by Owner to stop work; remove non-complying materials; pay for testing; reapply flooring materials to properly prepared surfaces which had previously been coated with unacceptable materials.

**3.4 CURING, PROTECTION AND CLEANING**

3.4.1 Cure epoxy wall materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 24 hours.

3.4.2 Protect epoxy wall materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection and cleaning of surfaces after final coats.

3.4.3 Cleaning: Remove temporary covering and clean epoxy wall system prior to final inspection. Use cleaning materials and procedures recommended by epoxy wall manufacturer.

END OF SECTION

STONGLAZE VSM

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## PRODUCT DESCRIPTION

Stonglaze VSM is a three-component, 100% solids, epoxy wall surfacing material, consisting of liquid resin and curing agent, plus selected aggregates. Combined just prior to use, they form a heavy abrasion and corrosion resistant mortar for use on vertical surfaces.

## USES, APPLICATIONS

Stonglaze VSM is specifically designed for general service vertical applications where heavy abrasion and corrosion problems exist. Typical applications for Stonglaze VSM are:

- Walls in heavy industrial areas requiring additional impact, abrasion and corrosion resistance
- Vertical surfaces of concrete curbs and machinery bases
- Patching of deteriorated, cementitious industrial walls
- Walls of drainage trenches
- As a wainscot in industrial areas for added durability

## SUBSTRATE

Stonglaze VSM, in conjunction with its appropriate primer, bonds firmly to concrete, metal wood and to itself. Not recommended over mastics, painted surfaces, rust or mill scale. These materials must first be removed by mechanical means prior to application of Stonglaze VSM.

## OPTIONAL FINISHES

- |                |   |
|----------------|---|
| Stonglaze VSC: | A smooth, tile-like epoxy finish                                |
| Stonkote HT4:  | A high solids, epoxy coating with increased chemical resistance |
| Stonkote GS4:  | A high solids, general service epoxy coating                    |
| Stonglaze VSE: | A tough, waterproof urethane wall system                        |

## PHYSICAL CHARACTERISTICS

- Compressive Strength** . . . 9,900 psi after 7 days (ASTM C-579)
- Tensile Strength** . . . . . 1,700 psi (ASTM C-307)
- Flexural Strength** . . . . . 3,700 psi (ASTM C-580)
- Flexural Modulus of Elasticity** . . . . .  $1.0 \times 10^6$  psi (ASTM D-790)
- Hardness** . . . . . 86 to 90 (ASTM D-2240, Shore D)
- Bond Strength** . . . . . >400 psi (ASTM D-4541) . . . . . (100% concrete failure)
- Indentation** . . . . . no indentation (MIL-D-3134F)
- Flammability** . . . . . Self Extinguishing (ASTM D -635) Extent of burning 0.31 inches max.
- Thermal Coefficient of Linear Expansion** . . . . .  $2.2 \times 10^{-5}$  in./in.-°C (ASTM E-831)
- Water Absorption** . . . . . 0.056% (ASTM D-570, 24 hours in H<sub>2</sub>O)
- Heat Resistance Limitation** . . . . . 140°F/60C in service temperature)
- Working Time @ 75°F/24°C** . . . . . 25 to 35 minutes (ASTM C-308)
- Initial Set @ 75°F/ 24°C** . . . . . 3 1/2 hours
- Curing Time** . . . . . 8 hours at 77°F/25°C
- Impact Resistance** . . . . . Exceeds 160 in.-lbs. (ASTM D-2794) . . (No cracking, crazing or loss of adhesion)

**Note:** The above physical properties were measured in accordance with the referenced standards. Samples of the actual floor system, including binder and filler, were used as test specimens.

## PRODUCT ADVANTAGES

- Durable mortar trowels to an attractive finish
- Long-term protection against acid and chemical attack. Lightweight; adheres to vertical surfaces without slumping
- Excellent abrasion and impact resistance

## PACKAGING

Stonglaze VSM is supplied as a pre-measured unit for easy handling to eliminate on-site proportioning.

Each unit consists of:

2 cartons each containing:

4 foil bags of Part A (curing agent)

4 poly bags of Part B (resin)

8 individual bags of Part C (aggregate)

## COVERAGE

Each unit of Stonglaze VSM will cover approximately 200 sq. ft./18.58 sq. m at 1/8 in./3 mm thickness.

## STORAGE CONDITIONS

Store all components of Stonglaze VSM between 60° to 80°F/18° to 30°C in a dry area. Avoid excessive heat and do not freeze. The shelf life is 3 years in the original, unopened container.

## SUBSTRATE PREPARATION

Proper preparation is critical to ensure an adequate bond. The substrate must be dry and free of all wax, grease, oils, fats, soil, loose or foreign materials and laitance. Laitance and unbonded cement particles must be removed by mechanical methods, i.e., abrasive blasting or scarifying. Other contaminants may be removed by scrubbing with a heavy duty industrial detergent (Stonkleen DG9) and rinsing with clean water. The surface must show open pores throughout and have a sandpaper texture. For recommendations or additional information regarding substrate preparation, contact Stonhard's Technical Service Department.

## PRIMING

Standard Primer must be applied to the prepared surface before installing the Stonglaze VSM. The primer must remain tacky and not set prior to the application.

## MIXING

Empty entire contents of one foil bag Part A (liquid) and one poly bag Part B (liquid) into a mixing pail.

Place the mixing pail on a JB Power Blender and activate the timer to start blending.

When the blender stops, reactivate the timer and immediately pour the entire contents of one bag of

Part C aggregate into the rotating pail. Allow the contents to mix for the complete cycle.

When the blender stops, scrape off excess from mixing blade and remove pail, delivering it to the floor area for application.

## APPLYING

Application of Stonglaze VSM, which begins immediately after mixing, may be accomplished by either hand-troweling. Spread the Stonglaze VSM evenly over the prepared primed surface using a margin trowel, flexible spatula or steel trowel to build-up low spots. Using a 3 in. x 10 in. or a 3 in. x 7 1/2 in. steel finishing trowel, trowel the Stonglaze VSM to a smooth, dense finish. This finishing must be done as soon as possible, but no more than 30 minutes after spreading.

## CURING

Stonglaze VSM will be tack-free in 8 hours at 77°F/25° C, and may be coated at this time. Ultimate physical characteristics will be achieved in 7 days.

## RECOMMENDATIONS

- DO NOT attempt to install material if temperature of Stonclad GS components are above 85°F/30°C. High temperatures will cause material to harden more quickly than desired.
- DO NOT attempt to install if temperature of Stonclad GS components are below 65°F/18°C. Low temperature will cause the material to be stiff and difficult to apply.
- DO NOT use water or steam in the vicinity of the application. Moisture can **seriously** affect the working time and other properties.
- Application equipment must be cleaned immediately after use with scouring pads and warm soapy water or mineral spirits. The use of NIOSH/MSHA approved respirators and safety glasses is recommended.
- Avoid contact with all liquid Parts A and B as they may cause skin and/or eye irritation.
- Workmen should cover hands with rubber gloves.

## **PRECAUTIONS**

- Toluene or Xylene solvents are recommended for clean up of the unreacted Stonglaze VSM material. The reacted materials must be removed by mechanical means. Use these materials only in strict accordance with the manufacturer's recommended safety procedures.
- Dispose of waste materials in accordance with federal, state and local regulations.
- The use of NIOSH/MSHA approved respirators, safety goggles and impervious gloves is recommended.
- In case of contact, flush the area with copious amounts of water for 15 minutes and seek medical attention. Wash skin with soap and water.
- Use only with adequate ventilation.

## **NOTES**

- Material Safety Data Sheets for Stonglaze VSM are available upon request.
- A staff of technical service engineers is available to assist with installation, or to answer questions related to Stonhard's products.
- Requests for technical service or literature can be made through local sales representatives and offices, or corporate offices located worldwide.

**IMPORTANT:**

Stonhard believes the information contained here to be true and accurate as of the date of publication. Stonhard makes no warranty, expressed or implied, based on this literature and assumes no responsibility for consequential or incidental damages in the use of the systems described, including any warranty of merchantability or fitness. Information contained here is for evaluation only. We further reserve the right to modify and change products or literature at any time and without prior notice.

3/05

Rev. 3/05

# STONHARD

[www.stonhard.com](http://www.stonhard.com)

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	Canada	905-430-3333	South America	(54-3327)-44-2222	Africa	(27)-11-254-5500
	Mexico	(5255)-9140-4500	Europe	(32)-2-720-8982	Asia	(86)-755-2668-4777

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STONCLAD GS/STONKOTE GS4

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**1 General****1.1 RELATED SECTIONS**

- 1.1.1 [SECTION - 03300 Cast In Place Concrete ]
- 1.1.2 [SECTION - 04220 Concrete Unit Masonry]
- 1.1.3 [SECTION - 07900 Joint Sealers]

**1.2 REFERENCES:**

- 1.2.1 Reference is made to spec standards produced by various organizations to conform to edition of standards specified or, if not specified, to last edition as amended and revised to date of contract.
  - 1.2.1.1 ACI Committee #503/pp1139-41
    - Bond Strength: >2.8 MPa (400 psi) (100% concrete failure)
  - 1.2.1.2 ASTM C-307
    - Tensile Strength: 12 MPa (1,750 psi)
    - Test Method for Tensile Strength of Chemical-Resistant Mortars, Grouts and Monolithic Surfacing
  - 1.2.1.3 ASTM C-413
    - Water Absorption: 0.2%
    - Test Method for Absorption of Chemical- Resistant Mortars, Grouts and Monolithic Surfacing
  - 1.2.1.4 ASTM C-579
    - Compressive Strength: 69 MPa (10,000 psi)
    - Test Method for Compressive Strength of Chemical-Resistant Mortars, Grouts and Monolithic Surfacing
  - 1.2.1.5 ASTM C-580
    - Flexural Strength: 27.6 MPa (4,000 psi)
    - Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts and Monolithic Surfacing
  - 1.2.1.6 ASTM D-635
    - Flammability: Self Extinguishing. Extent of burning 6.4 mm (0.25 inches) max.
    - Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position
  - 1.2.1.7 ASTM D-638
    - Percent Elongation: 0.15
    - Test Method for Tensile Properties of Plastics
  - 1.2.1.8 ASTM D-2047
    - Coefficient of Friction: 0.6

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- Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine

## 1.2.1.9 ASTM D-2240/Shore D. Durometer

- Hardness: 85 - 90
- Test Method for Rubber Property - Durometer Hardness

## 1.2.1.10 ASTM D-4060, Taber Abrader CS-17 wheel, 1,000 gm(2.2 lbs) load, 1,000 cycles

- Abrasion Resistance: 0.1 gm (0.0035 oz)max. weight loss
- Test method for Abrasion Resistance of Organic Coatings by the Taber Abrader

## 1.2.1.11 ASTM E-831

- Thermal Coefficient of Linear Expansion:  $3.5 \times 10^{-5} \text{ m/m}^{\circ}\text{C}$
- Test Method for Linear Thermal Expansion of Solid Materials by Thermochemical Analysis

## 1.2.1.12 Cure Rate (at 77°F/25°C)allow:

- 6 hours for foot traffic
- 18 hours for light traffic
- 24 hours for normal operations

## 1.2.1.13 Heat Resistance Limitation:

- 140°F/60°C (for continuous exposure),
- 200°F/93°C (for intermittent spills)

**1.3 SUBMITTALS**

1.3.1 **Product Data:** Submit manufacturer's technical data, installation instructions, and general recommendations for each epoxy flooring material required.

1.3.2 **Samples:** Submit, for verification purposes, 300 mm x 300 mm (12"x12") square sample of each type of epoxy flooring required, applied to a rigid backing, in colour and finish indicated.

**1.4 QUALITY ASSURANCE**

Single Source Responsibility: Obtain primary epoxy flooring materials including primers, resins, hardening agents, finish or sealing coats from a

**STONCLAD GS/STONKOTE GS4**

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single manufacturer with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. Contractor must have completed at least five projects of similar size and complexity. Provide secondary materials only of type and from source recommended by manufacturer of primary materials.

1.4.1 Arrange a meeting not less than thirty days prior to starting work.

**1.5 DELIVERY, STORAGE AND HANDLING**

1.5.1 Deliver material to job site. Flooring contractor will check material for completeness and shipping damage prior to job start.

1.5.2 All materials must be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on site mixing errors. No on site weighing or volumetric measurements allowed.

1.5.3 Store material in a dry, enclosed area protected from exposure to moisture. Temperature of storage area shall be maintained between 16° and 32°C (60° and 90°F).

**1.6 MOCK-UP**

1.6.1 At site, under manufacturer's supervision, apply for approval 9 m<sup>2</sup> (100 sq ft) of complete floor finish in area designated, to match submitted samples. When approved, site applied sample to be standard for appearance, colour, texture, workmanship, etc., and all work to conform to this sample.

**1.7 PROJECT CONDITIONS****1.7.1 ENVIRONMENT REQUIREMENTS**

1.7.2 Concrete substrate must be properly cured for a minimum of 30 days. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure resistant grout must be installed prior to the epoxy flooring.

1.7.3 **Temperature:** Utilities, including electric, water, heat (air temperature between 60° and 90°F/16° and 32°C) and finished lighting to be supplied by General Contractor. Maintain ambient temperature of not less than 18°C/65°F and a floor temperature of not less than 16°C/60°F from [7] days before installation to at least 48 hours after completion of work and maintain relative humidity not higher than 40% during same period.

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- 1.7.4 **Moisture:** Ensure substrate is within moisture limits prescribed by [flooring] manufacturer.
- 1.7.5 **Safety:** Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding the use, handling, storage and disposal of hazardous materials.
- 1.7.6 Job area to be free of other trades during, and for a period of 24 hours, after floor installation.
- 1.7.7 Protection of finished floor from damage by subsequent trades is the responsibility of the General Contractor.
- 1.7.8 Manufacturer's representative must be on job site at start of installation.
- 1.8 WARRANTY**
- 1.8.1 Furnish a single, written warranty covering both material and workmanship for a period of one (1) full year from date of installation.
- 2 Products**
- 2.1 COLOURS:** As selected by Consultant from manufacturer's standard colours.
- 2.1.1 EPOXY SEAMLESS FLOORING**  
100% solids, 0 VOC, nominal 6 mm (1/4") thick system a two-component epoxy primer, a high performance, three-component troweled mortar consisting of epoxy resin, curing agent and selected, graded aggregates blended with inorganic pigments and a two-component, 100% solids, general service epoxy coating. Acceptable manufacturer: Stonhard STONCLAD GS with STONKOTE GS4
- 3 Execution**
- 3.1 PREPARATION**
- 3.1.1 **Substrate:** Prepare concrete by mechanical means by using a shot blast machine for removal of bond inhibiting materials such as curing compounds or laitance.
- 3.2 APPLICATION**

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- 3.2.1 **General:** Apply each component of epoxy flooring system in compliance with manufacturer's directions to produce a uniform monolithic wearing surface of thickness indicated, uninterrupted except at divider strips, sawed joints or other types of joints (if any), indicated or required.
- 3.2.2 **Primer:** Mix and apply primer over properly prepared substrate with strict adherence to manufacturer's installation procedures and coverage rates. Coordinate timing of primer application with application of troweled mortar to ensure optimum adhesion between epoxy flooring materials and substrate. Manufacturer: Stonhard, STANDARD PRIMER
- 3.2.3 **Troweled Mortar:** Mix mortar material according to manufacturer's recommended procedures. Uniformly spread mortar over substrate using manufacturer's specially designed screed box adjusted to manufacturer's recommended height. Hand trowel apply mixed material over freshly primed substrate using stainless steel finishing trowels. Manufacturer: Stonhard, STONCLAD GS
- 3.2.4 **Coating:** Remove any surface imperfections by lightly abrading and vacuuming the floor surface. Mix coating according to manufacturer's recommended procedures. Squeegee apply and backroll coating with strict adherence to manufacturer's installation procedures and coverage rates. Manufacturer: Stonhard, STONKOTE GS4
- 3.2.5 Terminate floors that do not abut against a vertical surface with a 13 - 19mm wide x 6 mm deep chase.
- 3.2.6 **Cove Base:** Install cove integral with the floor 10 cm (4") in height. All coves capped with manufacturer's specialty designed cove strip as per drawings.
- 3.2.7 **Joint Sealant:** Install manufacturer's epoxy or urethane sealant compatible with floor finish.

**3.3 FIELD QUALITY CONTROL**

- 3.3.1 The right is reserved to invoke the following material testing procedure at any time, and any number of times during period of flooring application.
- 3.3.2 The Owner will engage service of an independent testing laboratory to sample materials being used on the jobsite. Samples of material will be taken, identified and sealed, and certified in presence of Contractor.

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- 3.3.3 Testing laboratory will perform tests for any of characteristics specified, using applicable testing procedures referenced herein, or if none referenced, in manufacturer's product data.
- 3.3.4 If test results show materials being used do not comply with specified requirements, Contractor may be directed by Owner to stop work; remove non-complying materials; pay for testing; reapply flooring materials to properly prepared surfaces which had previously been coated with unacceptable materials.
- 3.4 CURING, PROTECTION AND CLEANING**
- 3.4.1 Cure epoxy flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 24 hours.
- 3.4.2 Protect epoxy flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection and cleaning of surfaces after final coats.
- 3.4.3 Cleaning: Remove temporary covering and clean epoxy flooring just prior to final inspection. Use cleaning materials and procedures recommended by epoxy flooring manufacturer.

END OF SECTION

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## STONCLAD CHEMICAL RESISTANCE GUIDE

The purpose of this guide is to aid in determining the potential value of the Stonclad family surfacers when exposed to the damaging effects of corrosive chemical environments.

The test procedure used to determine the values listed is as follows:

Samples of the completely cured Stonclad were totally immersed in the chemicals listed for a period of 90 days at normal room temperatures (73°F/23°C). (This is an exceptionally severe testing method since most floors subject to these types of chemical spillages are “flushed down” periodically with water as part of the normal floor maintenance operation.)

The resultant resistance of Stonclad to the various chemicals is rated using the symbols listed in the Rating key. (It is recommended that normal “good housekeeping procedures” be used, including a daily flushing with clean water.)

### RATING KEY

E – Excellent  
 G – Good  
 NR – Not Recommended  
 OS – Suitable for use where “occasional spillages” occur, when followed by immediate water flushing.

The data contained herein is based on laboratory tests performed under carefully controlled conditions. No warranty can be expressed or implied regarding the accuracy of this information, as it will apply to actual plant operational use. Plant operations vary widely, and the individual results obtained are affected by the specific conditions encountered, which are beyond our control.

**Note:** \*Staining may occur depending upon length of exposure time.

### Acids

Chemical	GS	PT	HT	UT	XP	HD
Acetic – 5%	G	G	E	E	G	G
Acetic – 10%	OS	OS	E	E	OS	OS
Acetic – 15%	NR	NR	G	E	NR	NR
Acetic – 20%	NR	NR	G	E	NR	NR
Acetic – 50%	NR	NR	OS	G	NR	NR
Acetic – Glacial	NR	NR	NR	G	NR	NR
Benzoic – 3%	E	E	E	E	E	E
Benzoic – Sat.	OS	OS	E	E	OS	OS
Boric – Sat.	E	E	E	E	E	E
Butyric – 10%	OS	OS	E	E	OS	OS
Chromic – 10%	G	G	G	G	G	G
Chromic – 20%	OS	OS	G	G	OS	OS
Chromic – 40%	NR	NR	NR	NR	NR	NR
Citric – 50%	OS	OS	G	E	OS	OS
Citric – Sat.	OS	OS	E	E	OS	OS
Cresylic – Sat.	OS	OS	G	G	OS	OS
Diglycolic – Sat.	G	G	G	G	G	G
Fatty – Sat.	G	G	E	E	G	G
Fluoboric – Sat.	G	G	OS	OS	G	G
Formic – 10%	OS	OS	OS	E	OS	OS
Formic – 50%	NR	NR	NR	G	NR	NR
Formic – over 50%	NR	NR	NR	OS	NR	NR
Heptanoic – Sat.	OS	OS	G	G	OS	OS
Hydrochloric – 15%	E	E	E	E	E	E
Hydrochloric – 37%	G	G	E	E	G	G
Hydrofluoric – 5%	G	G	G	G	OS	G
Hydrofluoric – 10%	OS	OS	OS	OS	OS	OS
Hydrofluoric – 15%	NR	NR	NR	NR	NR	NR
Hypochlorous – 5%	E	E	E	E	E	E

## *Acids (continued)*

<b>Chemical</b>	<b>GS</b>	<b>PT</b>	<b>HT</b>	<b>UT</b>	<b>XP</b>	<b>HD</b>
Lactic – 20%	G	G	E	E	G	G
Lactic – over 20%	OS	OS	G	E	OS	OS
Maleic – 30%	G	G	E	E	G	G
Maleic – 40%	OS	OS	G	G	OS	OS
Maleic – Sat.	NR	NR	G	G	NR	NR
Monochloroacetic – 5%	G	G	E	E	G	G
Monochloroacetic – 10%	OS	OS	G	E	OS	OS
Monochloroacetic – 20%	NR	NR	OS	G	NR	NR
Nitric – 10%	E	E	E	E	E	E
Nitric – 20%	G	G	E	E	G	G
Nitric – 30%	OS	OS	G	G	G	OS
Nitric – 40%	NR	NR	NR	NR	NR	NR
Oleic – Sat.	E	E	E	E	E	E
Oxalic – Sat.	E	E	E	E	E	E
Pelargonic – Sat.	OS	OS	E	E	OS	OS
Perchloric – 35%	OS	OS	OS	OS	OS	OS
Phosphoric – 50%	G	G	E	E	G	G
Phosphoric – 70%	OS	OS	E	E	G	OS
Phosphoric – 85%	NR	NR	OS	OS	NR	NR
Picric – Sat.	OS	OS	G	E	OS	OS
Phthalic – Sat.	OS	OS	G	G	OS	OS
Succinic – Sat.	E	E	E	E	E	E
Sulfuric – 20%	E	E	E	E	E	E
Sulfuric – 50%	G	G	G	G	G	G
Sulfuric – 70%	OS	OS	OS	NR	G	OS
Sulfuric – 98%	NR	NR	NR	NR	NR	NR
Tannic – Sat.	E	E	E	E	E	E
Tartanic – Sat.	E	E	E	E	E	E
Trichloroacetic – 10%	NR	NR	G	E	NR	NR
Trichloroacetic – 20%	NR	NR	OS	E	NR	NR

## *Alkalies and Salts*

<b>Chemical</b>	<b>GS</b>	<b>PT</b>	<b>HT</b>	<b>UT</b>	<b>XP</b>	<b>HD</b>
Aluminum Chloride – 50%	E	E	E	E	E	E
Ammonium Chloride – 50%	E	E	E	E	E	E
Ammonium Chloride – Sat.	E	E	E	E	E	E
Ammonium Hydroxide – up to 20%	E	E	E	E	E	E
Ammonium Hydroxide – 40%	G	G	G	G	G	G
Ammonium Hydroxide – Sat.	G	G	E	E	G	G
Ammonium Nitrate – Sat.	E	E	E	E	E	E
Ammonium Persulfate – Sat.	E	E	E	E	E	E
Ammonium Sulfate – Sat.	E	E	E	E	E	E
Calcium Chloride – Sat.	E	E	E	E	E	E
Calcium Hydroxide – Sat.	E	E	E	E	E	E
Calcium Hypochlorite – up to 15%	G	G	G	G	G	G
Calcium Hypochlorite – Sat.	OS	OS	E	E	OS	OS
Copper Fluoroborate – Sat.	E	E	E	E	E	E
Ferric Chloride – Sat.	G	G	E	E	G	G



## *Alkalies and Salts (continued)*

<b>Chemical</b>	<b>GS</b>	<b>PT</b>	<b>HT</b>	<b>UT</b>	<b>XP</b>	<b>HD</b>
Ferrous Sulfate – Sat.	G	G	E	E	G	G
Potassium Hydroxide – up to 40%	E	E	E	E	E	E
Sodium Benzoate – Sat.	E	E	E	E	E	E
Sodium Carbonate (Soda Ash) – Sat.	E	E	E	E	E	E
Sodium Bicarbonate – Sat.	E	E	E	E	E	E
Sodium Bisulfate – Sat.	E	E	E	E	E	E
Sodium Bisulfite – Sat.	E	E	E	E	E	E
Sodium Chloride (Salt) – Sat.	E	E	E	E	E	E
Sodium Glutamate – Sat.	E	E	E	E	E	E
Sodium Hydroxide – up to 50%	E	E	E	E	E	E
Sodium Hypochlorite – up to 10%	G	G	G	G	G	G
Sodium Propionate – Sat.	E	E	E	E	E	E
Sodium Sulfate – Sat.	E	E	E	E	E	E
Sodium Sulfide – Sat.	E	E	E	E	E	E
Trisodium Phosphate – Sat.	E	E	E	E	E	E
Zinc Nitrate – Sat.	G	G	E	E	G	G

## *Solvents and Other Chemicals*

<b>Chemical</b>	<b>GS</b>	<b>PT</b>	<b>HT</b>	<b>UT</b>	<b>XP</b>	<b>HD</b>
Acetone	OS	OS	OS	OS	NR	OS
Acrylonitrile	OS	OS	OS	OS	NR	OS
Aniline	NR	NR	NR	NR	NR	NR
Alcohol (Methyl)	OS	OS	G	G	OS	OS
Alcohol (Ethyl, Propyl, Isopropyl, Butyl)	G	G	G	G	G	G
Amyl Acetate	E	E	E	E	NR	E
Beer	E	E	E	E	E	E
Benzene	OS	OS	E	E	NR	OS
Butyl Acetate	G	G	G	G	NR	G
Butyl Lactate	G	G	G	G	G	G
Bromine	NR	NR	OS	OS	NR	NR
Carbon Disulfide	NR	NR	NR	NR	NR	NR
Carbon Tetrachloride	E	E	E	E	E	E
Chlorobenzene	E	E	E	E	NR	E
Corn Oil	E	E	E	E	E	E
Cyclohexane	E	E	E	E	E	E
Cyclohexanol	E	E	E	E	E	E
Cyclohexanone	OS	OS	G	G	OS	OS
Chloroform	NR	NR	NR	OS	NR	NR
Diacetone Alcohol	E	E	E	E	E	E
Diethyl Phthalate	E	E	E	E	E	E
Dimethyl Phthalate	E	E	E	E	E	E
Ethyl Acetate	OS	OS	G	G	NR	OS
Ethylene Glycol	E	E	E	E	E	E
Ether	OS	OS	G	E	OS	OS
Ethylene Dichloride	NR	NR	OS	OS	NR	NR
Formaldehyde	E	E	E	E	E	E
Gasoline	E	E	E	E	E	E
Glycerine	E	E	E	E	E	E
Gyoxal	E	E	E	E	E	E

## Solvents and Other Chemicals (continued)

Chemical	GS	PT	HT	UT	XP	HD
Hydrogen Peroxide – 10%	E	E	E	E	E	E
JP5 Jet Fuel	E	E	E	E	E	E
Juices – Fruit	E	E	E	E	E	E
Juices – Vegetable	E	E	E	E	E	E
Kerosene	OS	OS	E	E	G	OS
Lanoline	E	E	E	E	E	E
Lard	G	G	E	E	G	G
Linseed Oil	E	E	E	E	E	E
Mayonnaise	G	G	E	E	G	G
Methyl Ethyl Ketone	NR	NR	OS	OS	NR	NR
Methyl Isobutyl Ketone	NR	NR	G	G	NR	NR
Methyl Salicylate – 50% in Toluene	NR	NR	G	G	NR	NR
Methylene Chloride	NR	NR	NR	OS	NR	NR
Milk	E	E	E	E	E	E
Mineral Spirits	E	E	E	E	E	E
Mustard	E	E	E	E	E	E
Naphtha	G	G	E	E	G	G
Naphthalene	G	G	E	E	G	G
Oils – Cutting	E	E	E	E	E	E
Oils – Mineral	E	E	E	E	E	E
Oils – Vegetable	G	G	E	E	E	G
Peanut Butter	E	E	E	E	E	E
Perchloroethylene	OS	OS	E	E	OS	OS
Phenol – 5%	NR	NR	OS	E	NR	NR
Pyridine	NR	NR	OS	OS	NR	NR
Skydrol	E	E	E	E	G	E
Sucrose (Sugar) – Sat.	E	E	E	E	E	E
Toluene	OS	OS	E	E	NR	OS
Triacetin	E	E	E	E	E	E
Trichloroethane	G	G	G	G	OS	G
Trichloroethylene	OS	OS	OS	OS	NR	OS
Triethanolamine	OS	OS	OS	G	OS	OS
Triethylene Glycol	E	E	E	E	E	E
Urea	E	E	E	E	E	E
Vinegar (Household)	E	E	E	E	E	E
Water	E	E	E	E	E	E
Wine	E	E	E	E	E	E
Xylene	G	G	E	E	OS	G

**IMPORTANT:**

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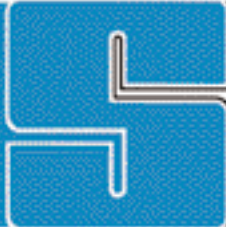
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### PRODUCT DESCRIPTION

The Stonclad family is comprised of seamless flooring systems. These high performance polymer floors are designed to provide the foundation for any industrial setting. Stonclad floors are ideal for applications where chemical, abrasion and impact resistance are the main concerns. These areas include: chemical and food processing, traffic aisles, warehouses, and production areas. Durability and low maintenance are the hallmarks of these systems. The following maintenance procedures are recommended.

### PROTECTING THE FLOOR

On new construction and major renovation projects, it is important to recognize that the floor must be protected during the remainder of the construction process. Steps that should be taken to provide this protection are:

1. Allow for sufficient cure time (24 to 72 hours).
2. Protect the newly installed floor during initial curing by cordoning off access areas to the floor.
3. Cover the newly cured floor with plastic in conjunction with plywood, corrugated plastic or cardboard to minimize abuse from other workers operating in the area.
4. Begin a quality maintenance program as soon as possible, but no later than 30 days after the installation of the flooring has been completed.

By following these steps, problems associated with the introduction of dirt, dust, and foreign debris on the Stonclad floor can be minimized. Additionally, scarring of the floor from premature traffic can be avoided. The result will be a quality Stonclad flooring system, easy to clean and maintain.

### DEVELOPING A MAINTENANCE SCHEDULE

The texture of a Stonclad flooring system and its usage conditions will determine what combination of the following procedures should be used to keep the floor clean. Mop cleaning is generally performed daily or weekly to remove surface dirt, whereas scrubbing may be required to remove ground in dirt or stains weekly, monthly or not at all. A schedule based on the individual application needs should be established and strictly followed.

The following recommendations are the result of extensive testing of both cleaning products and methods by Stonhard. Although every customer's cleaning needs are specific, the following guidelines should help establish an effective maintenance schedule.

### NECESSARY MAINTENANCE EQUIPMENT

To properly maintain a Stonclad floor you will need some or all of the following tools:

- Mop
- Industrial Scrubber
- Squeegees
- Wet/Dry Vacuum
- Stiff Bristle Nylon Scrub Brush
- Rubber Gloves

### MOP CLEANING

1. Sweep all loose debris from the floor.
2. Dilute a residue-free cleaner such as Stonkleen DG9 or Stonkleen NC9 to the recommended concentration.
3. Dip and ring the mop as needed to properly remove the soil from the floor.
4. Using clean, warm water, mop the floor again. Ring the mop frequently in order to prevent detergent build-up.

**Note:** Mop cleaning is not recommended for textured Stonclad systems. Use a nylon scrub brush or power scrubber.

### POWER SCRUBBING

1. Dilute Stonkleen DG9 or similar residue-free, non-foaming cleaning solution to the recommended concentration.
2. A rotating drum type power scrubber, such as the Karcher BR400, works best for cleaning the floor and removing excess detergent. Cylindrical nylon bristle brushes, provided with the machine, achieve the desired abrasiveness without damaging the finish of the floor.
3. Let the cleaning solution stand for 5 minutes and re-scrub if necessary. Do not allow the detergent to dry on the floor.

4. Remove excess detergent from the floor using the Karcher machine's built in vacuum system or a wet/dry vacuum.
5. Rinse thoroughly using warm water.
6. Remove excess water.

**Note:** On an untextured Stonclad/Stonkote system, there is the potential for scratching the floor finish using the Karcher BR400 and the red brushes supplied with the unit. Softer, black brushes are available (Product #89011). A test area should be cleaned to evaluate any effects to the finish prior to cleaning the entire area.

## STONHARD CLEANING PRODUCTS

- **Stonkleen DG9:** degreasing cleaner (Product #8000A5 or #8000A9)
- **Stonkleen DC9:** disinfectant cleaner (Product #8001A5 or #8001A9)
- **Stonkleen AS9:** acrylic stripper (Product #8002A5 or #8002A9)
- **Stonkleen AF2:** acrylic wax (Product #8003A5 or #8003A9)
- **Stonkleen NC9:** neutral cleaner (Product #8004A5 or #8004A9)

## HEAVY SOIL SPOT REMOVAL

1. Heavy soil deposits may need to be removed prior to general cleaning.
2. Use concentrated Stonkleen DG9 or similar non-butyl degreaser detergent.
3. Pour a small amount of Stonkleen DG9 onto the spot and scrub with a stiff bristle nylon scrub brush.
4. Tough build-ups may require a five minute saturation period before rinsing with warm water.
5. Remove water with a squeegee or a wet/dry vacuum.

## INSOLUBLE DEPOSIT REMOVAL

1. Hard water or alkali deposits must be removed prior to general cleaning.
2. Use Lime-Away, Oakite 31 or equivalent acidic cleaning solution to remove hard water or alkali deposits.
3. After diluting to the desired strength, scrub the solution into the stained areas with a stiff bristle nylon scrub brush.
4. Let stand for 5 minutes before re-scrubbing and rinsing with warm water.
5. Remove water with a squeegee or a wet/dry vacuum.

### IMPORTANT:

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Stonclad is a family of seamless, high performance epoxy floor systems offering outstanding impact and abrasion resistant qualities, in addition to excellent chemical resistance.

### Stonclad GS®

General service epoxy system.

### Stonclad HT®\*

Advanced epoxy formulation for superior chemical resistance.

### Stonclad UT®

Troweled polyurethane, textured mortar system.

Not available in Silver Gray

### Stonclad XP®

Conductive and spark-proof epoxy floor. Stonclad XP is produced in a black base, however colour adjustments can be made using pigmented coatings.

\*U.S. Patent 4,980,400

All samples shown are coated. Stonhard coatings include high solids and solvent-based epoxies and urethanes. All coatings are available in the colours shown here in addition to Clear, Black and OSHA Safety Yellow. Urethane coatings are also available in White.

Colour matching available with additional lead time, minimum order requirements and a slight premium.

Colour reproductions are as accurate as modern photography and quality printing methods can produce. For actual colour, see flooring sample.

## STONHARD

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USA (800) 257-7953

Mexico (52) 55-9140-4500

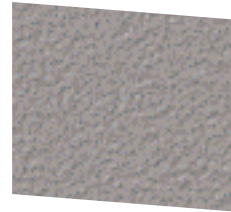
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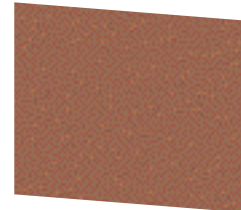
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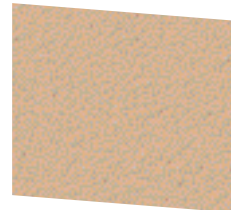
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STEEL GRAY



BRICK RED



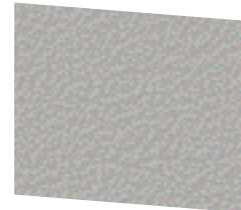
DESERT TAN



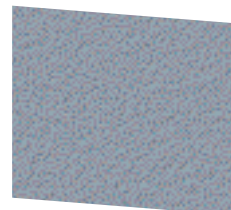
SILVER GRAY



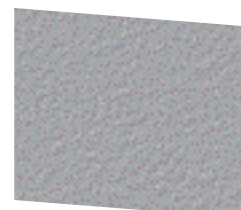
PEWTER



SAGE



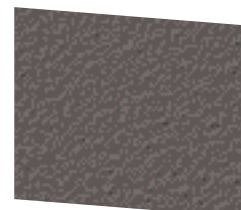
TEAL BLUE



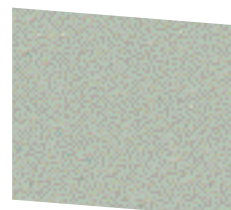
SLATE



REEF GREEN



CHARCOAL



MINT



BEECHWOOD



### PRODUCT DESCRIPTION

Stonclad GS is a three-component, troweled, epoxy mortar system. The system consists of an epoxy resin, amine curing agent and selected, graded aggregates blended with inorganic pigments. The standard thickness for Stonclad GS is a nominal 1/4 in./6 mm. Stonclad GS cures to an extremely hard, impact resistant mortar which exhibits excellent abrasion, wear and chemical resistance.

### USES, APPLICATIONS

Stonclad GS is formulated as a general service epoxy system for applications requiring superior impact and abrasion resistance with good chemical resistance. Stonclad GS may be used as a protective overlay on new floors, or to repair and restore old, worn surfaces.

### SUBSTRATE

Stonclad GS, with the appropriate primer, is suitable for application over concrete, wood, brick, quarry tile or metal. Not recommended for use on asphalt, mastic, gypsum based products or painted surfaces. These must first be removed by mechanical means to expose the substrate prior to priming and overlayment.

### SYSTEM OPTIONS

#### Coatings

To improve cleanability and increase the resistance to damage from abrasion and chemical spillages, the following coatings are recommended: Stonkote GS4, Stonkote HT4, Stoncrest GS3, Stonseal GS6 and Stonseal GS7.

#### Waterproofing

Where the total system must be waterproof, use of Stonhard's Stonproof ME7 membrane system is required, with strict adherence to application instructions.

#### Cove Base

To provide for an integral seal at the joint between the floor and the wall, cove bases in heights from 2 to 6 in./5 to 15 cm may be specified.

#### Fiberglass Reinforcement

To provide additional surface strength to the system, a surface veil of fiberglass reinforcement should be installed for areas exposed to instantaneous temperature changes of greater than 100°F/38°C.

### PHYSICAL CHARACTERISTICS

<b>Compressive Strength</b> . . . . .	10,000 psi
(ASTM C-579)	after 7 days
<b>Tensile Strength</b> . . . . .	1,750 psi
(ASTM C-307)	
<b>Flexural Strength</b> . . . . .	4,000 psi
(ASTM C-580)	
<b>Flexural Modulus of Elasticity</b> . . . . .	2.0 x 10 <sup>6</sup> psi
(ASTM C-580)	
<b>Hardness</b> . . . . .	85 to 90
(ASTM D-2240, Shore D)	
<b>Bond Strength</b> . . . . .	>400 psi
(ASTM D-4541)	(100% concrete failure)
<b>Impact Resistance</b> . . . . .	>160 in./lbs.
(ASTM D-4226)	
<b>Abrasion Resistance</b> . . . . .	0.1 gm max. weight loss*
(ASTM D-4060, CS-17)	
<b>Coefficient of Friction (Dry)</b> . . . . .	0.83*
(ASTM F-1679)	
<b>Slip Resistance Index (Wet)</b> . . . . .	0.66*
(ASTM F-1679)	
<b>Flammability</b> . . . . .	Class 1
(ASTM E-648)	
<b>Thermal Coefficient of</b>	
<b>Linear Expansion</b> . . . . .	1.5 x 10 <sup>-5</sup> in./in.°C
(ASTM C-531)	
<b>Water Absorption</b> . . . . .	0.2%
(ASTM C-413)	
<b>Heat Resistance Limitation</b> . . . . .	140°F/60°C
	(continuous exposure)
	200°F/93°C
	(intermittent spills)
<b>Cure Rate</b> . . . . .	24 hours for normal operations
(at 75°F/25°C)	

*\*Test samples finished with one coat of high solids epoxy coating*

**Note:** The above physical properties were measured in accordance with the referenced standards. Samples of the actual floor system, including binder and filler, were used as test specimens.

### PACKAGING

Stonclad GS is packaged in units for easy handling. Each unit consists of:

2 cartons, each containing:

- 6 foil bags of Part A (curing agent)
- 6 poly bags of Part B (resin)

12 individual bags of Part C (aggregate)

## COVERAGE

Each unit of Stonclad GS will cover approximately 200 sq. ft./18.58 sq. m of surface at a nominal 1/4 in./6 mm thickness.

## STORAGE CONDITIONS

Store all components of Stonclad GS between 60 to 85°F/16 to 30°C in a dry area. Avoid excessive heat and do not freeze. The shelf life is 3 years in the original, unopened container.

## COLOUR

Stonclad GS is available in 12 standard colours. Refer to the Stonclad Colour Sheet.

## SUBSTRATE PREPARATION

Proper preparation is critical to ensure an adequate bond. The substrate must be dry and free of all wax, grease, oils, fats, soil, loose or foreign materials and laitance. Laitance and unbonded cement particles must be removed by mechanical methods, i.e., abrasive blasting or scarifying. Other contaminants may be removed by scrubbing with a heavy-duty industrial detergent (Stonkleen DG9) and rinsing with clean water. The surface must show open pores throughout and have a sandpaper texture. For recommendations or additional information regarding substrate preparation, contact Stonhard's Technical Service Department.

## PRIMING

The use of Standard Primer is necessary for all applications of Stonclad GS over all substrates except Stonset grouts. Over Stonset grouts, Stonhard's Stonset Primer is used. The Standard or Stonset Primer must be tacky during the application of Stonclad GS. If the primer becomes tack-free, the area must be re-primed prior to continuing the application.

## MIXING

- Empty the entire contents of one foil bag of Part A (liquid) and one poly bag of Part B (liquid) into a mixing pail.
- Place the mixing pail on a JB Power Blender and activate the timer to start the one minute blending cycle.
- When the blender stops, reactivate the timer and immediately pour the entire contents of one bag of Part C (aggregate) into the rotating pail. Allow the contents to mix for the complete one minute cycle.

- When the blender stops, scrape off excess from the mixing blade and remove the pail, delivering it to the floor area for application.

## POT LIFE

After mixing, Stonclad GS has a working time of approximately 25 minutes at 70°F/21°C. The working time will vary depending upon temperature.

## APPLYING

- Material must be used immediately after mixing.
- A Screed Applicator is used to distribute the mixed Stonclad GS onto the floor.
- Steel finishing trowels are used to compact and smooth the surface of the material to the required 1/4 in./6 mm thickness.
- Detailed instructions on application and installation can be found in Stonhard's Stonclad GS Directions.

## RECOMMENDATIONS

- DO NOT attempt to install material if the temperature of Stonclad GS components and substrate are not within 60 to 85°F/16 to 30°C. **The cure time and application properties of the material are severely affected at temperatures outside of this range.**
- DO NOT use water or steam in the vicinity of the application. **Moisture can seriously affect the working time and other properties.**
- The use of NIOSH/MSHA approved respirators and safety glasses is recommended.
- Avoid contact with all liquid Parts A and B as they may cause skin and/or eye irritation. Workmen should cover hands with rubber gloves.
- Use only with adequate ventilation.

## NOTES

- Procedures for maintenance of the flooring system during operations are described in the Stonclad Cleaning Procedures.
- Specific information regarding chemical resistance is available in the Stonclad Chemical Resistance Guide.
- Material Safety Data Sheets for Stonclad GS are available upon request.
- A staff of technical service engineers is available to assist with installation or to answer questions related to Stonhard's flooring products.
- Requests for technical service or literature can be made through local sales representatives and offices, or corporate offices located worldwide.

### IMPORTANT:

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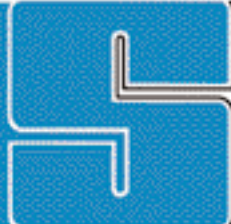
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Africa (27)-11-254-5500  
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# STONCLAD GS



# DIRECTIONS

**BEFORE YOU START...**Read these directions carefully! The surface to be covered must be properly prepared, and the temperatures of both the floor and the Stonclad GS components must be at least 60°F/16°C BEFORE beginning application.

## USES/APPLICATIONS

Stonclad GS is a three-component, epoxy based floor surfacing system. It was specifically designed for surfacing and patching industrial floors exposed to corrosive spillages and abrasive, wheeled traffic.

After mixing and application, Stonclad GS cures quickly, forming an exceptionally durable, slip-resistant floor surface. These properties make Stonclad GS ideal for use in areas where the floors are subject to impact, heavy or abrasive traffic, and spillages of acids, alkalies, solvents, fats, oils, sugars and other corrosive substances.

## LIMITATIONS

- Do not use Stonclad GS in areas where floor temperatures will exceed 140°F/60°C on a continuous basis.
- Do not apply Stonclad GS over gypsum based products, asphalt, mastic or painted surfaces. These must first be removed by mechanical means to expose the substrate prior to applying primer and overlayment.

## PACKAGING

Stonclad GS is packaged in units for easy handling. Each unit consists of:

2 cartons, each containing:

- 6 foil bags of Part A (curing agent)
- 6 poly bags of Part B (resin)

12 individual bags of Part C (aggregate)

## COVERAGE

Each unit of Stonclad GS will cover approximately 200 sq. ft./18.58 sq. m of surface at a nominal 1/4 in./ 6 mm thickness. If the surface being covered is rough, additional material should be allowed for the area.

A batch of Stonclad GS is made up of one foil bag of Part A, one poly bag of Part B, and one bag of Part C. When mixed, each batch will cover approximately 16 to 17 sq. ft./1.49 to 1.58 sq. m.

## EVALUATION OF AREA BEFORE APPLICATION

The floor area to be surfaced must be:

### 1. STRUCTURALLY SOUND

- No loose or crumbling concrete.
- No "laitance" or unbonded cement particles.
- No previously applied sealers or paints.
- If a metal surface, no rust or mill scale, and no flexing under load.
- If wood, no flexing under load and no splintering.

### 2. CLEAN

- No wax, grease, oils, fats, dirt or other foreign matter.
- Metal surfaces must be free of oil, grease and other similar contaminants.
- Wood surfaces must not be oil-impregnated or badly splintered.

### 3. DRY

- All traces of moisture must be removed. Also, moisture must not be allowed to come in contact with the Stonclad GS during installation and curing. Do not use water or steam in the vicinity of the application. Moisture can **seriously** affect working time and other properties of the Stonclad GS and **MUST BE AVOIDED!**

### 4. WARM

- Temperature of both the floor and the Stonclad GS components must be at least 60°F/16°C. Do not attempt to install the material if the temperature of the components is above 85°F/30°C. High temperatures will cause the material to harden (cure) more quickly than desired. If the temperature of the components is 60°F/16°C or lower, the Stonclad GS will be stiff and difficult to apply.

## TOOLS NEEDED TO MIX AND INSTALL

When installing Stonclad GS, use JB Power Blenders, 5 gallon mixing pails, blender timers, a screed box, a 3 in. x 12 in. steel finishing trowel and a power trowel.



## ARRANGEMENT OF THE MIXING AREA

The mixing area should be set up using the following guidelines:

1. Position two JB Power Blenders (Product #88002) side by side with the Blender Timer (Product #87008) between them (Figure 1).
2. Carefully arrange the cartons of Part A and Part B to one side of the two blenders.

**Note:** When handling cartons containing Part A and Part B, you will see a “caution” notice printed on them. The notice warns you to use only a SHALLOW cut (1/4 in./6 mm or less) when using a knife to open the carton. Using a knife with a longer blade risks the possibility of cutting through the carton and into the plastic and foil bags inside.

3. The bags of Part C should be lined up on the other side of the two blenders.
4. Set the blender timer for 60 seconds.
5. Place an empty carton close to the blenders, where it will be handy for trash and storage of the blender paddle between mixing cycles.

## PRIMING

Stonhard's Standard Primer must be applied to the prepared floor surface before installing Stonclad GS.

Use of Standard Primer ensures a secure bond to the substrate, prevents draining of liquids from the Stonclad GS and makes application of the overlayment easier. See Standard Primer Product Data for details.

## MIXING STONCLAD GS

1. Empty the contents of one foil bag of Part A (liquid) into a 5 gallon mixing pail.
2. Then, empty the entire contents of one poly bag of Part B (liquid) into the mixing pail containing the Part A.

**Note:** It is important to allow sufficient time for ALL of the Part A and Part B liquids to drain into the mixing pail.

3. Transfer the mixing pail to a JB Blender, insert the mixing paddle (Product #89000) and activate the timer to start the blender.
4. When the blender stops, re-activate the timer and immediately pour the entire contents of one bag of Part C (aggregate) into the rotating mixing pail. Allow the three components to mix for the entire cycle.

5. When the blender stops, scrape off any mixed material that may be adhering to the mixing paddle, then place the paddle in the empty carton, where it will be on hand for use when mixing the next batch. Remove the mixing pail and deliver the mixed material to the workers who will be applying it to the floor.

By structuring the sequence of operations as just described, there should always be a fresh batch of Stonclad GS ready to be transferred to the workers who will be applying it to the floor. Also, by following the structured sequence of operations, one can eliminate the chance of mistakes occurring.

**Note:** Once the material has been mixed, it has an approximate 20 minute working time.

## PLACING AND FINISHING STONCLAD GS

1. A Screed Applicator (Figure 2) is used to apply the mixed Stonclad GS to the floor. Before use, the Screed Applicator must be set to apply a 5/16 in./8 mm layer of material. This will result in a nominal 1/4 in./6 mm topping after the material has been compacted and trowel finished.

**Note:** The Stonclad GS has already begun to cure, so troweling must proceed without delay.

2. After screeding the Stonclad GS, steel finishing trowels are used to compact and smooth the surface of the material (Figure 3). Use enough pressure to compact the Stonclad GS to the required 1/4 in./6 mm thickness. Then, holding the trowel at a slightly lower angle, smooth out any trowel marks. If the mortar “pulls”, creating a rough or open surface, either the trowel has become sticky or it is being held at the wrong angle. Keep the trowel clean by frequently cleaning it with scouring pads and warm, soapy water, remembering to **WIPE IT DRY BEFORE USING IT AGAIN** on the Stonclad GS. The finished Stonclad GS surface should be level, free of trowel marks and tightly closed to prevent a porous topping.
3. In large, open areas, a power trowel is used to compact and smooth the surface of the material (Figure 4). (See Stonclad PT Directions for further information.)
4. The mixing, screeding, troweling procedure is repeated as needed until the entire area has been covered. Coverage and thickness can usually be judged by the eye, but **DO** check the actual thickness at frequent intervals during the entire installation.

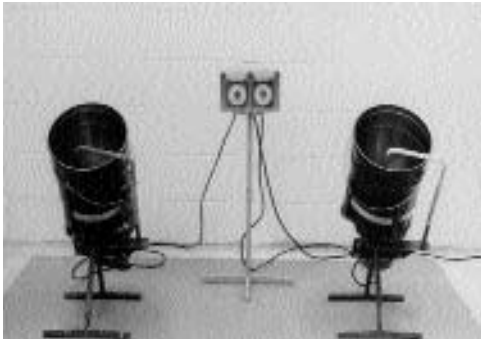


FIGURE 1

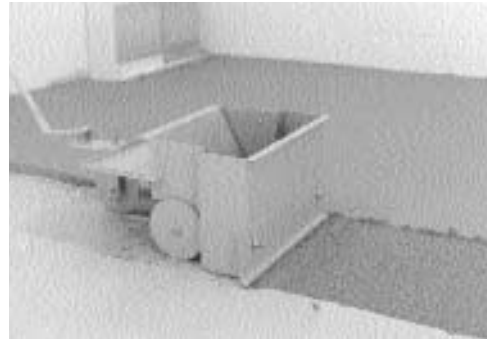


FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6

5. Where Stonclad GS does not abut a vertical surface, trowel the Stonclad GS into a chase (groove) cut into the concrete.
6. If applying a cove, the cove should be troweled along with the floor to provide a seamless transition. The same Stonclad GS material is used for the cove base and the floor.

### HARDENING TIME

At 72 °F/22 °C allow:

- 8 hours for foot traffic.
- 24 hours for moderate wheeled loads.
- 48 hours for common industrial spillages and heavy traffic.
- 72 hours for strong chemical spillages.

**Note:** When installing Stonclad GS in a cold environment, temperature must be kept at 60 °F/16 °C for at least 18 hours after installation before the cooling system can be turned back on. After the Stonclad GS is cured, cooling of the area must be done slowly (max. 10 °F/12 °C per 24 hour period) to avoid cracking or delamination of the Stonclad GS.

### CLEANING UP

Clean all equipment IMMEDIATELY AFTER USE with scouring pads and warm, soapy water or with mineral spirits. Hardened material will require mechanical means of removal.

**IMPORTANT:** If any unusually long delay should arise, such as a break for lunch, it will be necessary to completely clean all mixing paddles and pails BEFORE ceasing operation. **THIS IS EXTREMELY IMPORTANT!** This will prevent the future contamination of new batches of Stonclad GS with particles of partially cured material when the mixing operation resumes. The presence of such particles can **seriously** affect the troweling and finishing of the floor, and **MUST BE AVOIDED!**

### COATING STONCLAD GS

To achieve maximum performance from a Stonclad GS floor, application of a Stonhard coating is recommended. Application of Stonkote GS4, Stonkote HT4, Stoncrest GS3 or Stonseal GS6 will improve the cleanability and appearance of the floor while enhancing the chemical and abrasion resistance. Before coating a Stonhard floor, all trowel marks and surface imperfections must be removed to produce a smooth, level surface. Grind the floor using a floor grinder with medium stones (Figure 5) and vacuum to remove all dust particles (Figure 6). Mixing and application instructions vary for each coating. See the appropriate Product Data sheet for details.

### CAUTION

Avoid contact with Parts A and B as they may cause skin and/or eye irritation. In case of contact, immediately flush the area with copious amounts of clean water for at least 15 minutes and seek medical attention. Workmen should cover hands with rubber gloves. Wash hands thoroughly with SOAP AND WATER after use, and before eating, smoking, etc.

Use only with adequate ventilation.

### STORAGE

Store all components of Stonclad GS between 60 to 85 °F/16 to 30 °C in a dry area. Avoid excessive heat and do not freeze. The shelf life is three years in the original, unopened container.

**DO NOT STACK SKIDS OF PART C ON PARTS A & B - LEAKAGE MAY OCCUR**

#### IMPORTANT:

Stonhard believes the information contained here to be true and accurate as of the date of publication. Stonhard makes no warranty, expressed or implied, based on this literature and assumes no responsibility for consequential or incidental damages in the use of the systems described, including any warranty of merchantability or fitness. Information contained here is for evaluation only. We further reserve the right to modify and change products or literature at any time and without prior notice.

3/04

Rev. 3/04

# STONHARD

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## 1 General

### 1.1 RELATED SECTIONS

- 1.1.1 [SECTION - 03300 Cast In Place Concrete ]
- 1.1.2 [SECTION - 04220 Concrete Unit Masonry]
- 1.1.3 [SECTION - 07900 Joint Sealers]

### 1.2 REFERENCES:

- 1.2.1 Reference is made to spec standards produced by various organizations to conform to edition of standards specified or, if not specified, to last edition as amended and revised to date of contract.
  - 1.2.1.1 ACI Committee #503/pp1139-41
    - Bond Strength: >2.8 MPa (400 psi) (100% concrete failure)
  - 1.2.1.2 ASTM D-2240/Shore D. Durometer
    - Hardness: 80 - 85
    - Test Method for Rubber Property - Durometer Hardness
  - 1.2.1.3 ASTM D-2369
    - V.O.C.: 45 grams/litre (0.4 lbs/gal.)
    - Test Method for Volatile Content Coatings
  - 1.2.1.4 ASTM D-2794
    - Impact Resistance: Exceeds 275 kPa (40 in./lbs) (no cracking, crazing, or loss of adhesion)
    - Test Method for Resistance of Organic Coatings on the Effects of Rapid Deformation (Impact)
  - 1.2.1.5 ASTM D-4060, Taber Abrader CS-17 wheel, 1,000 gm (2.2 lbs) load, 1,000 cycles
    - Abrasion Resistance: 0.08 gm (0.0028 oz) max. weight loss
    - Test method for Abrasion Resistance of Organic Coatings by the Taber Abrader
  - 1.2.1.6 Cure Rate (at 77°F/25°C)allow:
    - 8 hours for tack free surface
    - 24 hours minimum for normal operations
  - 1.2.1.7 Fire Resistance of Dry Film: Self Extinguishing
  - 1.2.1.8 Heat Resistance Limitation:
    - 140°F/60°C (for continuous exposure),

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200°F/93°C (for intermittent spills)

1.2.1.9 Minimum Dry Film Thickness: 254 microns (10 mils)

1.2.1.10 Percent Solids - 92%

1.2.1.11 Pot Life - 45 minutes @ 25°C/70°F

1.2.1.12 Suggested Number of Coats: Spray: - One  
Roller: - Two

### 1.3 SUBMITTALS

1.3.1 **Product Data:** Submit manufacturer's technical data, installation instructions, and general recommendations for each epoxy wall material required.

1.3.2 **Samples:** Submit, for verification purposes, 300 mm x 300 mm (12"x12") square sample of each type of epoxy wall required, applied to a rigid backing, in colour and finish indicated.

### 1.4 QUALITY ASSURANCE

Single Source Responsibility: Obtain primary epoxy wall materials including primers, resins, hardening agents, finish or sealing coats from a single manufacturer with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. Contractor must have completed at least five projects of similar size and complexity. Provide secondary materials only of type and from source recommended by manufacturer of primary materials.

1.4.1 Arrange a meeting not less than thirty days prior to starting work.

### 1.5 DELIVERY, STORAGE AND HANDLING

1.5.1 Deliver material to job site. Wall contractor will check material for completeness and shipping damage prior to job start.

1.5.2 All materials must be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on site mixing errors. No on site weighing or volumetric measurements allowed.

1.5.3 Store material in a dry, enclosed area protected from exposure to moisture. Temperature of storage area shall be maintained between 16° and 32°C (60° and 90°F).

### 1.6 MOCK-UP

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1.6.1 At site, under manufacturer's supervision, apply for approval 9 m<sup>2</sup> (100 sq ft) of complete wall. Finish in area designated, to match submitted samples. When approved, site applied sample to be standard for appearance, colour, texture, workmanship, etc., and all work to conform to this sample.

## 1.7 PROJECT CONDITIONS

### 1.7.1 ENVIRONMENT REQUIREMENTS

1.7.2 Drywall, including jointwork, must be completely finished at least 3 days prior to wall system installation.

1.7.3 **Temperature:** Utilities, including electric, water, heat (air temperature between 60° and 90°F/16° and 32°C) and finished lighting to be supplied by General Contractor. Maintain ambient temperature of not less than [18°C] from [7] days before installation to at least 48 hours after completion of work and maintain relative humidity not higher than 40% during same period.

1.7.4 **Moisture:** Ensure substrate is within moisture limits prescribed by [flooring] manufacturer.

1.7.5 **Safety:** Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding the use, handling, storage and disposal of hazardous materials.

1.7.6 Ventilate enclosed spaces in accordance with MSDS requirements.

1.7.7 Provide continuous ventilation during and after flooring material application.

1.7.8 Job area to be free of other trades during, and for a period of 24 hours, after wall installation.

1.7.9 Protection of finished wall from damage by subsequent trades is the responsibility of the General Contractor.

1.7.10 Manufacturer's representative must be on job site at start of installation.

## 1.8 WARRANTY

1.8.1 Furnish a single, written warranty covering both material and workmanship for a period of one (1) full year from date of installation.

## 2 Products

2.1 **COLOURS:** As selected by Consultant from manufacturer's standard colours.

### 2.1.1 HIGH BUILD GLAZE WALL COATING

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92% solids, two-component epoxy glaze coatings. Acceptable Manufacturer: Stonhard, STONGLAZE VSC

- 2.2.3 JOINT SEALANT:** Type produced by manufacturer of epoxy wall system for type of service and joint condition indicated.

### **3 Execution**

#### **3.1 APPLICATION**

- 3.1.1 General:** Apply each component of epoxy wall system in compliance with manufacturer's directions to produce a uniform monolithic wearing surface of thickness indicated, uninterrupted except at divider strips, sawed joints or other types of joints (if any), indicated or required.

- 3.1.2 Primer:** Mix and apply primer over properly prepared substrate with strict adherence to manufacturer's installation procedures and coverage rates.

- 3.1.3 Coating:** Mix coating according to manufacturer's recommended procedures. Please note that solvent reduction of any kind is strictly prohibited. Apply material immediately after mixing, using high quality rollers or an airless sprayer. Apply coating with strict adherence to manufacturers recommended procedures. Manufacturer: Stonhard, STONGLAZE VSC

#### **3.2 FIELD QUALITY CONTROL**

- 3.2.1** The right is reserved to invoke the following material testing procedure at any time, and any number of times during period of flooring application.

- 3.2.2** The Owner will engage service of an independent testing laboratory to sample materials being used on the jobsite. Samples of material will be taken, identified and sealed, and certified in presence of Contractor.

- 3.2.3** Testing laboratory will perform tests for any of characteristics specified, using applicable testing procedures referenced herein, or if none referenced, in manufacturer's product data.

- 3.2.4** If test results show materials being used do not comply with specified requirements, Contractor may be directed by Owner to stop work; remove non-complying materials; pay for testing; reapply flooring materials to properly prepared surfaces which had previously been coated with unacceptable materials.

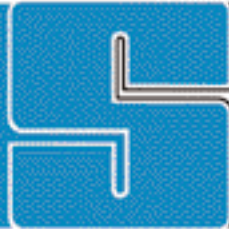
#### **3.3 CURING, PROTECTION AND CLEANING**

- 3.3.1 Cure epoxy wall materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 24 hours.
- 3.3.2 Protect epoxy wall materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection and cleaning of surfaces after final coats.
- 3.3.3 Cleaning: Remove temporary covering and clean epoxy wall system prior to final inspection. Use cleaning materials and procedures recommended by epoxy wall manufacturer.

END OF SECTION

12/09/94





### PRODUCT DESCRIPTION

Stonglaze VSC is a two component, high performance, high solids, epoxy glaze coating. It is formulated to provide long-term protection to vertical surfaces with a single application. Stonglaze VSC cures to a hard, tile-like finish that exhibits excellent chemical and abrasion resistance. Stonglaze VSC is an aesthetically pleasing and easy to clean wall coating.

### USES, APPLICATIONS

Stonglaze VSC is specifically designed for use where a hard, smooth, tile-like finish is desired on a vertical surface. Stonglaze VSC is an ideal maintenance product for institutional and industrial facilities. Some typical wall applications for Stonglaze VSC include:

- Medical facilities
- Educational facilities
- Pharmaceutical facilities
- Food processing facilities
- Animal holding areas
- Detention facilities

### SUBSTRATE

Stonglaze VSC, in conjunction with its appropriate primer, bonds firmly to concrete, masonry block, metal, wood and drywall surfaces. Not recommended over mastics, painted surfaces, rust or mill scale. These materials must be removed by mechanical means prior to application of Stonglaze VSC.

### PRODUCT ADVANTAGES

- Durable glaze finish that is aesthetically pleasing and easy to clean.
- Long-term abrasion and chemical resistance.
- Stain resistant.
- Excellent bond strength assures good adhesion to concrete, steel, drywall and masonry surfaces.
- Easily applied by brush, roller or spray application.
- Available in standard and custom colors.

### PACKAGING

Stonglaze VSC is packaged in units for easy handling. Each unit consists of:

- 2 cartons, each containing:
  - 2 foil bags of Part A (curing agent)
  - 2 gallon cans of Part B (resin)

### PHYSICAL CHARACTERISTICS

<b>Percent Solids</b> . . . . .	92%
<b>Abrasion Resistance</b> . . . . .	0.08 gm max. weight loss (ASTM D-4060 Taber Abrader, CS-17 wheel 1,000 gm load, 1,000 cycles)
<b>Impact Resistance</b> . . . . .	Exceeds 40 in./lbs. (ASTM D-2794) (No cracking, crazing, or loss of adhesion)
<b>Pot Life</b> . . . . .	45 minutes @ 70°F/21°C
<b>Suggested Number of Coats</b> . . . . .	Spray - One Roller - Two
<b>Minimum Dry Film Thickness</b> . . . . .	10 mil/ 635 microns
<b>Cure Rate</b> . . . . .	6 to 8 hours (@ 77°F/25°C) for tack-free surface 24 hours minimum for normal operations
<b>Temperature Limitations</b> . . . . .	140°F/60°C (continuous exposure) 200°F/93°C (intermittent exposure)
<b>Fire Resistance of Dry Film</b> . . . . .	Self-extinguishing
<b>Bond Strength</b> . . . . .	>400 psi (ASTM D-4541) (100% concrete failure)
<b>Hardness</b> . . . . .	80 to 85 (ASTM D-2240, Shore D)
<b>V.O.C.</b> . . . . .	0.4 lbs./gal./ (ASTM D-2369) 45 gm/l

**Note:** The above physical properties were measured in accordance with the referenced standards. Samples of the actual floor system, including binder and filler, were used as test specimens.

### COVERAGE

Each unit of Stonglaze VSC will cover approximately 500 sq. ft./46.45 sq. m at a 10 mil/254 micron thickness (DFT) over relatively smooth surfaces.

### STORAGE CONDITIONS

Store all components of Stonglaze VSC at or above 60°F/16°C in a dry area. Avoid excessive heat. Do not freeze. The shelf life is one year in the original unopened container.

## COLOUR

Stonglaze VSC is available in 6 dynamic colours. Refer to the Stonglaze Colour Sheet. Custom colours are available upon request.

## SURFACE PREPARATION

Proper preparation is critical to ensure a proper bond. The substrate must be dry and free of all wax, grease, oils, fats, soil, loose or foreign materials and laitance. Laitance and unbonded cement particles must be removed by mechanical methods, i.e., abrasive blasting or scarifying. Other contaminants may be removed by scrubbing with a heavy-duty industrial detergent (Stonkleen DG9) and rinsing with clean water. The surface must show open pores throughout and have a sandpaper texture. For recommendations or additional information regarding substrate preparation, contact Stonhard's Technical Service Department.

## PRIMING

- When applying Stonglaze VSC over concrete or block, Stonglaze Block Primer should be used to fill any existing pores in the block. This will not only create a relatively smooth substrate, but will also reduce the amount of glaze coating needed to achieve the final finish. Stonglaze Block Primer may be overcoated in 8 to 12 hours.
- When applying Stonglaze VSC over drywall, Stonglaze VSC cut with 3 to 5% acetone should be used as the primer to ensure proper adhesion and serve as a sealer coat between the glaze coating and the wall board. This will prevent the basecoat from soaking into the wall material, therefore reducing the amount of Stonglaze VSC needed to complete the job.
- The use of Stoncrest GS3 is recommended in all applications of Stonglaze VSC over metal substrates. Stoncrest GS3 may be overcoated in 8 to 12 hours.

## MIXING

Stonglaze VSC is mixed, just prior to use, and must be applied immediately. Mixing is accomplished as follows:

1. Pour the contents of Part B into a 5 gal./18.93 l bucket or appropriate mixing container.
2. Using a heavy-duty, slow speed drill (400 to 600 rpm) with a mixing paddle or a Jiffy mixer (Product #87024), pre-mix the Part B material to ensure the suspension of solids.
3. Add Part A and continue to mix thoroughly to a uniform consistency for 3 to 5 minutes. While mixing, scrape the sides of the bucket to ensure that the Part B is being mixed completely with the Part A.

**Note:** Avoid high-speed mixing that will entrain air bubbles.

## APPLYING

The application of Stonglaze VSC, which begins immediately after mixing, may be accomplished using a high quality medium nap roller or an airless sprayer.

Application of Stonglaze VSC by roller method should be accomplished in **two** coats of 5 mil/127 microns, each to achieve a final thickness of 10 mil/254 microns. Application of the second 5 mil/127 microns must be performed when the initial coat is tack-free (8 hours at 77°F/25°C). For a smooth finish sand between coats. IMMEDIATELY after rolling the second coat, a saturated medium nap roller should be used to remove roller lines and drips. Finish roll in one direction only, picking the roller up between passes.

**Note:** Use a heavy nap roller for rough surfaces to ensure uniform coverage. Rough surfaces, such as unprimed concrete block, may reduce your coverage by as much as 100 sq. ft./9.29 sq. m per unit.

To spray Stonglaze VSC, suitable NIOSH/MSHA approved respirators should be worn by all personnel in the area. Stonglaze VSC can be spray applied in a single application at a thickness ranging from 10 to 20 mil/254 to 508 microns (DFT.) Spray applying this material should be done using the Graco King System or comparable equipment with the following specifications:

**63:1 pump - 2 1/2 gallons per minute**  
**0.019 - 0.035 inch spray tip**  
**3,000 - 4,000 psi spray tip pressure**

It is recommended that the spray equipment be purged with Xylene every 30 minutes of use to avoid potential line damage. It should also be noted that the finished texture of a sprayed surface will be much smoother than the orange peel texture that is associated with roller applications. For more information on spraying Stonglaze VSC, contact Stonhard's Technical Service Department.

## CURING

The surface of Stonglaze VSC will be tack-free in 6 to 8 hours at 77°F/25°C. The coated area may be put into service in 24 hours. Ultimate physical characteristics will be achieved in 7 days.

## CHEMICAL RESISTANCE GUIDE

The purpose of this guide is to aid in determining the potential value of Stonglaze VSC when exposed to the damaging effects of corrosive chemical environments.

## RATING CODE

E - Excellent  
 G - Good  
 NR - Not Recommended  
 OS - Suitable for use where "occasional spillages" occur, when flushing with water immediately follows.

### ACIDS

RATING	RATING
Acetic - 5% . . . . . G	Hypochlorous - 5% . . . . . E
Acetic -20% . . . . . OS	Lactic -up to 20% . . . . . OS
Acetic - Glacial. . . . . NR	Maleic - 30% . . . . . G
Benzoic - Sat. 3% . . . . . E	Maleic - 40% . . . . . OS
Boric - Sat. 30% . . . . . E	Maleic - 50% . . . . . NR
Butyric -10% . . . . . OS	Nitric - 10% . . . . . G
Chromic - 10% . . . . . G	Nitric - 30% . . . . . OS
Chromic - 20% . . . . . OS	Oleic . . . . . G
Citric - 50% . . . . . E	Oxalic - Sat. . . . . E
Cresylic . . . . . OS	Perchloric - 35% . . . . . OS
Diglycolic . . . . . G	Phosphoric -up to 50% . . . . . OS
Fatty . . . . . G	Picric - Sat. . . . . E
Fluoboric . . . . . G	Phthalic . . . . . OS
Formic -up to 10% . . . . . OS	Succinic - Sat. . . . . E
Heptanoic . . . . . OS	Sulfuric - 20% . . . . . E
Hydrochloric -15% . . . . . G	Sulfuric - 50% . . . . . G
Hydrochloric - 37% . . . . . OS	Sulfuric - 70% . . . . . OS
Hydrofluoric - 5% . . . . . G	Tannic - Sat. . . . . G
Hydrofluoric -10% . . . . . OS	Tartaric - Sat. . . . . E

### ALKALIES AND SALTS

Stonglaze VSC is rated *Good* to *Excellent* when exposed to most commonly known alkalies and salts.

### SOLVENTS AND OTHER CHEMICALS

RATING	RATING
Acetone . . . . . NR	Methyl Ethyl Ketone . . . . . NR
Alcohol (Methyl) . . . . . OS	Methylene Chloride . . . . . NR
Alcohol (Ethyl, Propyl, Isopropyl, Butyl). . . . . G	Milk . . . . . E
Benzene . . . . . OS	Mineral Spirits . . . . . G
Carbon Tetrachloride . . . . . OS	Mustard . . . . . G
Corn Oil . . . . . E	Naphtha . . . . . OS
Cyclohexane . . . . . G	Oils - Cutting . . . . . G
Diacetone Alcohol . . . . . OS	Oils - Mineral . . . . . E
Ethylene Glycol . . . . . G	Oils - Vegetable . . . . . G
Ether . . . . . OS	Perchloroethylene . . . . . OS
Formaldehyde . . . . . G	Skydrol. . . . . G
Gasoline . . . . . E	Sucrose - Sat. (Sugar) . . . . . E
Glycerine . . . . . E	Toluene . . . . . OS
Hydrogen Peroxide - 10% . . . . . G	Trichloroethylene . . . . . NR
JP5 Jet Fuel. . . . . G	Urea. . . . . G
Juices - Fruit. . . . . E	Vinegar (Household). . . . . G
Juices - Vegetable . . . . . E	Water . . . . . E
Lard . . . . . G	Wine. . . . . E
Linseed Oil. . . . . G	Xylene . . . . . OS

**Note:** This data is based on laboratory tests performed under carefully controlled conditions. (All solutions are at ambient temperatures.) No warranty can be expressed or implied regarding the accuracy of this information as it will apply to actual plant operation or job site use. Plant operations and job site uses vary widely, and the individual results obtained are affected by the specific conditions encountered, which are beyond our control.

## PRECAUTIONS

- Do not use water or steam in the vicinity of the application. The relative humidity in the area should be less than 80%. Moisture can seriously affect the working time and properties of the material, including gloss level.
- Application time (45 min.) and curing time (6 to 8 hrs.) are dependent upon ambient and surface conditions.
- The use of NIOSH/MSHA approved respirators, safety goggles and impervious gloves is recommended.
- In case of contact, flush the area with copious amounts of water for 15 minutes and seek medical attention. Wash skin with soap and water.
- Use only with adequate ventilation.
- Material, air and substrate temperatures should be 60 to 85°F/16 to 30°C during installation.

## NOTES

- For environments not referenced in the Chemical Resistance Guide, consult Stonhard for recommendations.
- Material Safety Data Sheets for Stonglaze VSC are available upon request.
- A staff of technical service engineers is available to assist with product application or to answer any questions related to Stonhard's products.
- Requests for technical literature or service can be made through local sales representatives and offices, or corporate offices located worldwide.

### IMPORTANT:

Stonhard believes the information contained here to be true and accurate as of the date of publication. Stonhard makes no warranty, expressed or implied, based on this literature and assumes no responsibility for consequential or incidental damages in the use of the systems described, including any warranty of merchantability or fitness. Information contained here is for evaluation only. We further reserve the right to modify and change products or literature at any time and without prior notice.

8/04

Rev. 8/04

# STONHARD

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	Mexico	(5255)-9140-4500	Europe	(32)-2-720-8982	Asia	(86)-755-2668-4777

A Division of  **StonCor**



Stonglaze is a family of high performance wall systems formulated for application over concrete, block, or drywall. Each system features a smooth, seamless, stain resistant surface. Ideal for environments where sanitary conditions are a requirement.

**Stonglaze® VSC**

A high performance, high solids epoxy wall glaze coating.

**Stonglaze® VSI**

A high performance, epoxy wall coating reinforced with a micro-fiberglass additive for extra protection against cracking and chipping.

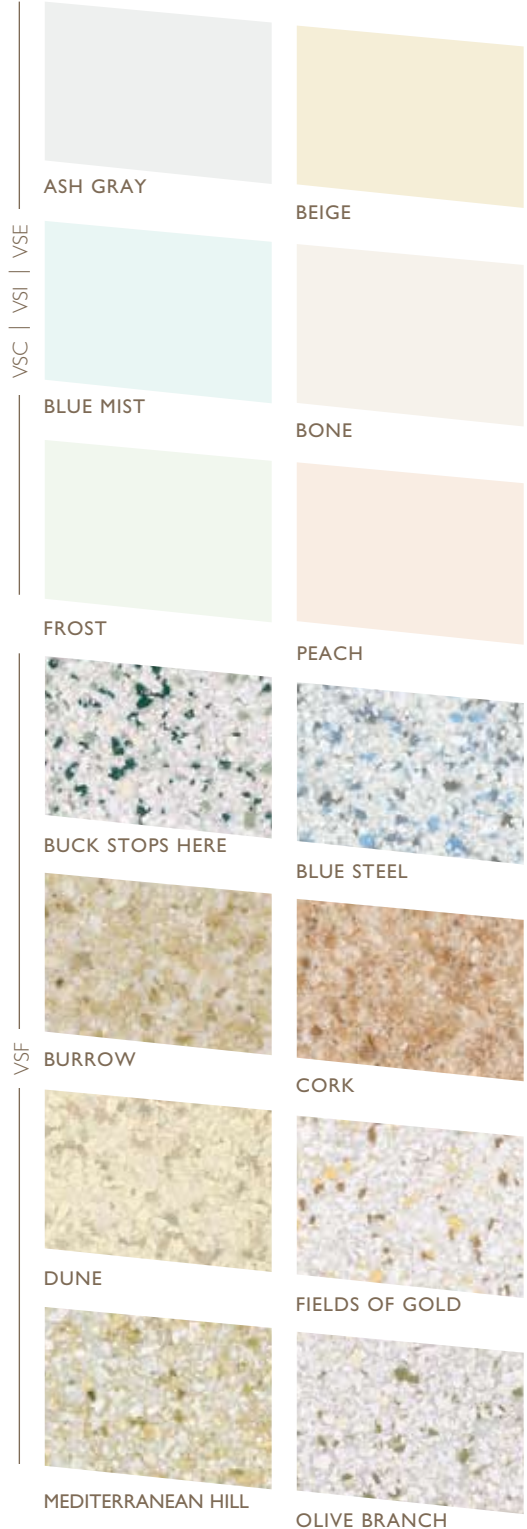
**Stonglaze® VSE**

A multi-layer, liquid-applied, flexible urethane wall system for sterile environments. Can stand up to rigorous conditions.

**Stonglaze® VSF**

A decorative, high gloss wall system for use in commercial and industrial applications that breaks away from the traditional painted look. Also available for fast track installations.

Color matching available with additional lead time, minimum order requirements and a slight premium. Color reproductions are only as accurate as modern photography and quality printing methods can produce. For actual color, see flooring sample.



## STONHARD

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 Mexico (52) 55.9140.4500  
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 Middle East (971) 4.3470460  
 Africa (27) 11.254.5500  
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## SECTION 09705 - RESINOUS FLOORING

### PART I GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. Definitions: Resinous flooring includes a high performance, four-component mortar consisting of urethane resin, curing agent, selected, graded aggregates and inorganic pigments, brightly colored quartz silica aggregate broadcast and sealed with a two-component, urethane coating.
- B. Related Work
  1. Division 3 Section Cast-in-place Concrete
  2. Division 7 Section Fluid Applied Waterproofing
  3. Division 7 Section Joint Sealers

#### 1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data, installation instructions, and general recommendations for each resinous flooring material required. Include certification indicating compliance of materials with requirements.
- B. Samples: Submit, for verification purposes, 4-inch square samples of each type of resinous flooring required, applied to a rigid backing, in color and finish indicated.
  1. For initial selection of colors and finishes, submit manufacturer's color charts showing full range of colors and finishes available.

#### 1.04 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain primary resinous flooring materials including resins, hardening agents, finish or sealing coats from a single manufacturer with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. Contractor shall have completed at least five projects of similar size and complexity; Stonhard or approved equal. Provide secondary materials only of type and from source recommended by manufacturer of primary materials.

- B. Pre-Installation Conference
  - 1. General contractor shall arrange a meeting not less than thirty days prior to starting work.
  - 2. Attendance
    - a. General Contractor
    - b. Architect/Owner's Representative
    - c. Manufacturer/Installer's Representative
  
- C. ISO 9002: All materials, including primers, resins, curing agents, finish coats, aggregates and sealants are manufactured and tested under an ISO 9002 registered quality system.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Material shall be delivered to job site and checked by flooring contractor for completeness and shipping damage prior to job start.
  
- B. All materials used shall be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on site mixing errors. No on site weighing or volumetric measurements allowed.
  
- C. Material shall be stored in a dry, enclosed area protected from exposure to moisture. Temperature of storage area shall be maintained between 45 and 85°F/7 and 30°C.

1.06 PROJECT CONDITIONS

- A. Concrete substrate shall be properly cured for a minimum of 30 days. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure resistant grout must be installed prior to the resinous flooring.
  
- B. Utilities, including electric, water, heat (air temperature between 45 and 85°F/7 and 30°C) and finished lighting to be supplied by General Contractor.
  
- C. Job area to be free of other trades during, and for a period of 24 hours, after floor installation.
  
- D. Protection of finished floor from damage by subsequent trades shall be the responsibility of the General Contractor.

1.07 WARRANTY

- A. Manufacturer shall furnish a single, written warranty covering both material and workmanship for a period of one (1) full year from date of installation.

PART II PRODUCTS

2.01 COLORS

- A. Colors: As selected by Architect from manufacturer's standard colors.

2.02 EPOXY FLOORING

- A. Stonshield UTS as manufactured by Stonhard, Inc., Maple Shade, NJ, (800) 257-7953 is a nominal 1/4"/6mm thick system comprised of a high performance, four-component mortar consisting of urethane resin, curing agent, selected, graded aggregates and inorganic pigments brightly colored quartz silica aggregate broadcast and sealed with a two-component, 100% solids, urethane coating.

- 1. Physical Properties: Provide flooring system in which physical properties of topping including aggregate, when tested in accordance with standards or procedures referenced below, are as follows:

Table with 2 columns: Property Name and Value. Rows include Compressive Strength (7,700 psi), Tensile Strength (1,000 psi), Flexural Strength (2,400 psi), Hardness (80-84), Bond Strength (>400 psi), Impact Resistance (> 160 in. lbs.), Abrasion Resistance (0.05 gm max. weight loss), and Coefficient of Friction (Dependent upon broadcast texture selection).



Flexural Modulus of Elasticity .....	2.6 x 10 <sup>6</sup> psi
(ASTM C-580)	
Flammability .....	Self Extinguishing
(ASTM D-635)	Extent of burning 0.31 inches max.
Thermal Coefficient of	
Linear Expansion .....	1.1 x 10 <sup>-5</sup> in/in°C
(ASTM C-531)	
Water Absorption.....	0.056%
(ASTM C-413)	
Heat Resistance Limitation.....	200°F/93°C
	(for continuous exposure)
	.....250°F/132°C
	(for intermittent spills)
Cure Rate allow .....	6 hours for foot traffic
(at 77°F/25°C)	18 hours for normal operations

2.03 JOINT SEALANT MATERIALS

- A. Type produced by manufacturer of resinous flooring system for type of service and joint condition indicated.

PART III EXECUTION

3.01 PREPARATION

- A. Substrate: Concrete preparation shall be by mechanical means and include use of a scabber, scarifier or shot blast machine for removal of bond inhibiting materials such as curing compounds or laitance.

3.02 APPLICATION

- A. General: Apply each component of resinous flooring system in compliance with manufacturer's directions to produce a uniform monolithic wearing surface of thickness indicated, uninterrupted except at divider strips, sawn joints or other types of joints (if any), indicated or required.
- B. Troweled Mortar: Mix mortar material according to manufacturer's recommended procedures. Uniformly spread mortar over substrate at manufacturer's recommended height using specially designed trowel. Broadcast colored quartz aggregate texture directly into mortar base.

- C. Coating: Vacuum the floor surface. Mix and apply coating with strict adherence to manufacturer's installation procedures and coverage rates.

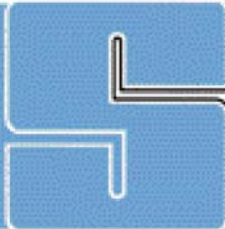
3.03 FIELD QUALITY CONTROL

- A. The right is reserved to invoke the following material testing procedure at any time, and any number of times during period of flooring application.
- B. The Owner will engage service of an independent testing laboratory to sample materials being used on the job site. Samples of material will be taken, identified and sealed, and certified in presence of Contractor.
- C. Testing laboratory will perform tests for any of characteristics specified, using applicable testing procedures referenced herein, or if none referenced, in manufacturer's product data.
- D. If test results show materials being used do not comply with specified requirements, Contractor may be directed by Owner to stop work; remove non-complying materials; pay for testing; reapply flooring materials to properly prepared surfaces which had previously been coated with unacceptable materials.

3.04 CURING, PROTECTION AND CLEANING

- A. Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 18 hours.
- B. Protect resinous flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection and cleaning of surfaces after final coats.
- C. Cleaning: Remove temporary covering and clean resinous flooring just prior to final inspection. Use cleaning materials and procedures recommended by resinous flooring manufacturer.

END OF SECTION  
9/10/00



## PRODUCT DESCRIPTION

Stonshield UTS is a self-priming, textured, four-component, polyurethane mortar system consisting of a urethane-urea binder, pigments, powders and quartz aggregates. The system also includes a high performance, chemically resistant polyaspartic urethane sealer. Stonshield UTS is a nominal 1/4 in./6 mm system that cures to an extremely hard, high impact resistant mortar which exhibits excellent abrasion, wear, temperature and chemical resistance.

## USES, APPLICATIONS

Stonshield UTS is formulated specifically for the food and beverage industry using a revolutionary multi-functional urethane-urea resin. Stonshield UTS provides excellent protection against attack from chemicals such as strong oxidizing agents and organic acids while maintaining outstanding resistance to thermal shock and thermal cycling.

## SUBSTRATE

Stonshield UTS is suitable for application over concrete and Stonset TG6 grout. Consult Stonhard's Technical Service Department for application over other substrates. Not recommended on asphalt, mastic or painted surfaces. These must first be removed by mechanical means to expose the substrate prior to overlayment.

## SYSTEM OPTIONS

### Cove Base

To provide for an integral seal at the joint between the floor and the wall, cove bases in heights from 2 to 6 in./5 to 15 cm are available.

## PACKAGING

Stonshield UTS is packaged in units for easy handling. Each unit consists of:

### Mortar

2 cartons, each containing:

- 4 foil bags of isocyanate (curing agent)
- 4 poly bags of polyol (resin)

8 individual bags of Part C-1 (aggregate)

### Pigment

1.3 cartons, each containing:

- 6 bags of Part C-2 pigment packs (powder)

## PHYSICAL CHARACTERISTICS

<b>Compressive Strength</b> . . . . .	7,700 psi
(ASTM C-579)	after 7 days
<b>Tensile Strength</b> . . . . .	1,000 psi
(ASTM C-307)	
<b>Flexural Strength</b> . . . . .	2,400 psi
(ASTM C-580)	
<b>Flexural Modulus of Elasticity</b> . . . . .	$2.6 \times 10^6$ psi
(ASTM C-580)	
<b>Hardness</b> . . . . .	80 to 84
(ASTM D-2240, Shore D)	
<b>Bond Strength</b> . . . . .	>400 psi
(ASTM D-7234)	(100% concrete failure)
<b>Impact Resistance</b> . . . . .	160 in./lbs.
(ASTM D-2794)	
<b>Abrasion Resistance</b> . . . . .	0.05 gm max. weight loss
(ASTM D-4060, CS-17)	
<b>Slip Resistance Index</b> . . . . .	>1.0
(ASTM F-1679)	
<b>Thermal Coefficient of Linear Expansion</b> . . . . .	$1.1 \times 10^{-5}$ in./in.°C
(ASTM C-531)	
<b>Water Absorption</b> . . . . .	0.056%
(ASTM C-413)	
<b>Heat Resistance Limitation</b> . . . . .	200°F/93°C
	(continuous exposure)
	250°F/121°C
	(intermittent spills)
<b>Cure Rate</b> . . . . .	6 hours for foot traffic
(at 77°F/25°C)	24 hours for normal operations

**Note:** The above physical properties were measured in accordance with the referenced standards. Samples of the actual floor system, including binder and filler, were used as test specimens.

### Broadcast

6 individual bags of Stonshield broadcast aggregate

### Stonshield UTS Sealer

1 carton containing:

- 2 foil bags of isocyanate (curing agent)
- (2) 1 gallon cans of polyol (resin)

## COVERAGE

Each unit of Stonshield UTS will cover approximately 200 sq. ft./18.58 sq. m at a nominal thickness of 1/4 in./6 mm.

## STORAGE CONDITIONS

Store all components of Stonshield UTS between 60 to 85°F/16 to 30°C in a dry area. Avoid excessive heat and do not freeze. The shelf life is one year for the the isocyanate and polyol and 6 months for Part C-1 in their original, unopened containers.

## COLOR

Stonshield UTS is available in 3 solid colors and 12 tweed patterns as standard colors. Refer to the Stonshield Color Sheet. Custom colors are available upon request.

## SUBSTRATE PREPARATION

Proper preparation is critical to ensure an adequate bond. The substrate must be dry and free of all wax, grease, oils, fats, soil, loose or foreign materials and laitance. Laitance and unbonded cement particles must be removed by mechanical methods, i.e., abrasive blasting or scarifying. Other contaminants may be removed by scrubbing with a heavy-duty industrial detergent (Stonkleen DG9) and rinsing with clean water. The surface must show open pores throughout and have a sandpaper texture. For recommendations or additional information regarding substrate preparation, contact Stonhard's Technical Service Department.

## PRIMING

No priming is necessary over concrete or Stonset TG6.

## POT LIFE

After mixing, Stonclad UT Mortar and Stonshield UTS Sealer have a working time of approximately 20 minutes at 70°F/21°C. The working time will vary depending upon temperature and humidity.

## APPLYING

1. Stonclad UT Mortar base material is mixed just prior to use in accordance with prescribed directions. Material must be used immediately after mixing.
2. A Screed Applicator is used to distribute the mixed Stonclad UT Mortar onto the floor.
3. Notched finishing trowels and spiked rollers are used to smooth the surface of the material to the required thickness.
4. Stonshield aggregate is broadcast into the wet mortar using a Stonhard Spraycaster to ensure even distribution of the aggregate.
5. Allow to cure 6 to 8 hours and apply sealer coat.

**Note:** Detailed instructions on application and installation can be found in Stonhard's Stonshield UTS Directions.

## RECOMMENDATIONS

- DO NOT attempt to install the material if the temperature of Stonshield UTS components is not within 60 to 85°F/16 to 30°C. **The cure time and application properties of the material are severely affected.**
- The use of NIOSH/MSHA approved respirators and safety glasses is recommended.
- Avoid contact with all liquids as they may cause skin and/or eye irritation. Applicators should cover hands with impervious rubber gloves.

## NOTES

- Procedures for maintenance of the flooring system during operations are described in the Stonshield Cleaning Procedures.
- Specific information regarding chemical resistance is available in the Stonshield Chemical Resistance Guide.
- Material Safety Data Sheets for Stonshield UTS are available upon request.
- A staff of technical service engineers is available to assist with installation or to answer questions related Stonhard products.
- Requests for technical service or literature can be made through local sales representatives and offices, or corporate offices located worldwide.

### IMPORTANT:

Stonhard believes the information contained here to be true and accurate as of the date of publication. Stonhard makes no warranty, expressed or implied, based on this literature and assumes no responsibility for consequential or incidental damages in the use of the systems described, including any warranty of merchantability or fitness. Information contained here is for evaluation only. We further reserve the right to modify and change products or literature at any time and without prior notice.

2/07

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USA	800-257-7953	South America	(54-3327)-44-2222	Middle East	(971)-4-3470460	Asia	(86)-21-5466-5118

**BEFORE YOU START...**Read these directions carefully! The surface to be covered must be properly prepared, and the temperature of the floor must be at least 35°F/2°C with the Stonshield UTS material temperature between 60 to 85°F/16 to 30°C BEFORE beginning application.

### USES, APPLICATIONS

Stonshield UTS is a decorative, textured floor surfacing system formulated specifically for the food and beverage industry using a multifunctional urethane-urea resin. This system is specifically designed for surfacing and patching industrial floors exposed to corrosive spillages, abrasion and temperatures up to 250°F/121°C.

After mixing and application, Stonshield UTS cures quickly, forming an exceptionally durable, slip-resistant floor surface. It is ideal for use in areas where floors are subject to impact and heavy or abrasive traffic. Stonshield UTS also exhibits excellent chemical resistance to acids, alkalis, solvents, fats, oils, sugars and other corrosive substances while maintaining outstanding resistance to thermal shock and thermal cycling. The system is sealed with a polyaspartic clear sealer.

### LIMITATIONS

Do not apply Stonshield UTS over asphalt, mastic or painted surfaces. These must first be removed by mechanical means to expose the substrate prior to applying overlayment.

### PACKAGING

Stonshield UTS is supplied in units for easy handling. Each unit consists of:

#### **Mortar**

- 2 cartons, each containing:
  - 4 foil bags of isocyanate
  - 4 poly bags of polyol

8 individual bags of Part C-1 (aggregate)

1.3 cartons containing:

- 6 bags of Part C-2 pigment packs (powder)

#### **Broadcast**

6 individual bags of Stonshield broadcast aggregate

#### **Stonshield UTS Sealer**

- 1 carton containing:
  - 2 foil bags of isocyanate
  - (2) 1 gallon cans of polyaspartic

### COVERAGE

Each unit of Stonshield UTS will cover approximately 200 sq. ft./18.58 sq. m of surface at a nominal 1/4 in./ 6 mm thickness. If the surface being covered is rough, additional material should be allowed for the area.

### EVALUATION OF AREA BEFORE APPLICATION

The floor area to be surfaced must be:

#### 1. STRUCTURALLY SOUND

- No loose or crumbling concrete
- No "laitance" or unbonded cement particles
- No previously applied toppings, sealers or paints
- If a metal surface, no rust or mill scale and no flexing under load
- If wood, no flexing under load and no splintering

#### 2. CLEAN

- No wax, grease, oils, fats, soil, loose or foreign materials
- Metal surfaces must be free of oil, grease and other similar contaminants
- Wood surfaces may not be oil-impregnated or badly splintered

#### 3. DRY

- Minimize the use of water or steam in the vicinity of the application

#### 4. WARM

- Temperature of the floor must be at least 35°F/2°C. Do not attempt to install the material if the temperature of the components is above 85°F/30°C. High temperatures will cause the material to harden (cure) more quickly than desired. Conversely, if the temperature of the components is 60°F/16°C or lower, Stonshield UTS will be stiff and difficult to apply.

### TOOLS NEEDED TO MIX AND INSTALL

When installing Stonshield UTS, use JB Power Blenders (Product #88002), 5 gallon mixing pails (Product #88000), blender timers (Product #87008), Stonclad UT notched trowels (Product #87043), a screed box for open areas (Product #88203), spiked rollers (Product #88044), a Stonhard sprycaster (Product #87791), several roller cages (Product #88067) and nap rollers (Product #88060).

### PREPARATION

Proper preparation is critical to ensure an adequate bond. The substrate must be dry and free of all wax, grease, oils, fats, soil, loose or foreign materials and laitance. Laitance and unbonded cement particles must be removed by mechanical methods, i.e., abrasive blasting or scarifying. Other contaminants may be removed by scrubbing with a heavy-duty industrial detergent (Stonkleen DG9) and rinsing with clean water. The surface must show open pores

throughout and have a sandpaper texture. For recommendations or additional information regarding substrate preparation, contact Stonhard's Technical Service Department.

A right angle grinder and chipping hammer should be used to make 1/4 in./6 mm chases at all doorways and areas where Stonshield UTS will not abut a vertical surface. On large installations, it may be necessary to divide the area with a chase or false joint. This allows for an endpoint where the installation can stop at a neat, straight line while maintaining the desired thickness.

### ARRANGEMENT OF THE MIXING AREA

The mixing area should be set up using the following guidelines:

1. Position the two JB Power Blenders side by side with the blender timer between them.
2. Set the blender timer for a 90 second cycle.
3. Open the carton containing isocyanate and polyol liquids, then carefully arrange the cartons to one side of the two blenders.
4. The bags of Part C-1 should be lined up on the opposite side of the JB Power Blender with the Stonclad Part C-2 packets.
5. Separate the broadcast aggregate and place along the border of the installation area.

### PRIMING

Stonshield UTS is a self-priming system. No separate primer is required.

### MIXING STONSHIELD UTS

1. Empty the entire contents of the Polyol (liquid) into a 5 gallon mixing pail.
2. Place the mixing pail on a JB Power Blender and empty the entire contents of the isocyanate (liquid) and Part C-2 (pigmented powder) into the mixing pail.
3. Activate the timer to start the 90 second blending cycle and allow the contents to mix for the complete 90 second cycle.
4. When the blender stops, reactivate the timer and immediately pour the entire contents of one bag of Part C-1 (aggregate) into the pail. Allow the contents to mix for the complete 90 second cycle.
5. When the blender stops, scrape the excess material from the mixing blade, remove the pail, and deliver it to the floor area for application.

By structuring the sequence of operations as described above, there should always be a fresh batch of Stonshield UTS mortar ready to be transferred to the workers applying it to the floor. Also, by following the structured sequence of operations, one can reduce the possibility of mixing mistakes.

**Note:** Once the material has been mixed, it has an approximate 15 minute working time. Limit your width to 25 feet to avoid transition lines from one pass to the next.

### APPLYING AND FINISHING STONSHIELD UTS

#### *Stonshield UTS Mortar*

1. A Screed Applicator is used to apply the mixed Stonshield UTS mortar to the floor. Before use, the Screed Applicator must be set to apply a 3/16 in./4 mm layer of material. This will result in a nominal 1/4 in./6 mm system after the material has been broadcast.

**Note:** The Stonshield UTS mortar has already begun to cure, so troweling must proceed without delay.

2. After screeding the Stonshield UTS mortar, notched trowels are used to even the thickness of the material. Hold the trowel at a 45° angle to ensure a level thickness. Notched trowels are also used to apply the material in hard to reach areas. Leveling of the Stonshield UTS mortar is achieved by using a spike roller. The Stonshield UTS mortar surface should be level and smooth to prevent an inconsistent finish before broadcasting the texture into the mortar.
3. Broadcast the Stonshield aggregate directly into the wet mortar with a Stonhard Spraycaster. Broadcasting must begin less than 15 minutes after applying the mortar. It is important to broadcast the aggregate until a uniform, dry surface exists.
4. After the mortar has cured, remove any excess aggregate using a medium bristle nylon push broom and an industrial vacuum. The floor should be uniform in texture. The surface will be rough to the touch, like that of coarse sandpaper. The floor is now ready to be sealed using Stonshield UTS Sealer.

#### *Stonshield UTS Sealer*

Before mixing, make sure the area is ready for application of the Stonshield UTS Sealer. Once mixed, the material has a working time of approximately 15 minutes.

1. Empty one foil bag of the isocyanate (liquid) and one metal can of polyaspartic (liquid) into a clean mixing container.
2. Using the Jiffy Mixer, mix the two liquids for 90 seconds.

**Note:** It is imperative that the two liquids, isocyanate and polyaspartic, be completely mixed. Due to the rapid cure, avoid mixing more than one batch at a time.

3. After mixing, pour the combined material into a bead on the floor.
4. Stonshield UTS Sealer is applied with a rubber squeegee and backrolled with a medium nap roller. The roller is used to remove squeegee lines and smooth out the surface. When applying the sealer, the roller covers tend to become over-saturated and/or hardened by the cured material. If this occurs, the roller covers must be replaced to avoid puddling of the sealer.

### HARDENING TIME

At 72°F/22°C allow:

- 6 hours for foot traffic
- 12 hours for moderate wheeled loads
- 24 hours for common industrial spillages and heavy traffic
- 48 hours for strong chemical spillages and hot washdowns

## CLEANING UP

Clean all equipment IMMEDIATELY AFTER USE with scouring pads and warm, soapy water or acetone. Hardened material will require mechanical means of removal.

**IMPORTANT:** If any unusually long delay should occur, such as a break for lunch, it will be necessary to completely clean all mixing paddles and pails **BEFORE** ceasing operation. This is **extremely** important. This will prevent future contamination of new batches of Stonshield UTS with particles of partially cured material when the mixing operation resumes. The presence of such particles will **seriously** affect the troweling and finishing of the floor and **MUST BE AVOIDED!**

## CAUTION

Avoid contact with isocyanates, polyols and polyaspartics as they may cause skin and/or eye irritation. In case of contact, immediately flush the area with copious amounts of clean water for at least 15 minutes. Seek medical attention. Applicators should cover hands with impervious gloves. Wash hands thoroughly with soap and water after use, and before eating, smoking, etc.

Stonshield UTS Part C-1 contains Portland cement and silica fines. A NIOSH/MSHA approved dust/mist respirator is required during mixing.

Use only with adequate ventilation.

## STORAGE

Prior to mixing, Stonshield UTS components must be stored at temperatures of 60 to 85°F/16 to 30°C. The shelf life is 2 years for the mortar liquids and 6 months for the Part C-1 in the original unopened container. The shelf life of the sealer liquids is one year in the original unopened container. Do not store outdoors, in boiler rooms, compressor rooms, refrigerators, or near radiators, steam pipes, etc.

**DO NOT STACK SKIDS OF PART C ON PARTS A & B – LEAKAGE MAY OCCUR.**

**IMPORTANT:**

Stonhard believes the information contained here to be true and accurate as of the date of publication. Stonhard makes no warranty, expressed or implied, based on this literature and assumes no responsibility for consequential or incidental damages in the use of the systems described, including any warranty of merchantability or fitness. Information contained here is for evaluation only. We further reserve the right to modify and change products or literature at any time and without prior notice.

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**1 General**

**1.1 RELATED SECTIONS**

- 1.1.1 [SECTION - 03300 Cast In Place Concrete ]
- 1.1.2 [SECTION - 04220 Concrete Unit Masonry]
- 1.1.3 [SECTION - 07900 Joint Sealers]

**1.2 REFERENCES:**

- 1.2.1 Reference is made to spec standards produced by various organizations to conform to edition of standards specified or, if not specified, to last edition as amended and revised to date of contract.
  - 1.2.1.1 ACI Committee #503/pp1139-41
    - Bond Strength: >2.8 MPa (400 psi) (100% concrete failure)
  - 1.2.1.2 ASTM C-307
    - Tensile Strength: 13.8 MPa (2,000 psi)
    - Test Method for Tensile Strength of Chemical-Resistant Mortars, Grouts and Monolithic Surfacing
  - 1.2.1.3 ASTM C-413
    - Water Absorption: 0.1%
    - Test Method for Absorption of Chemical- Resistant Mortars, Grouts and Monolithic Surfacing
  - 1.2.1.4 ASTM C-579
    - Compressive Strength: 69 MPa (10,000 psi)
    - Test Method for Compressive Strength of Chemical-Resistant Mortars, Grouts and Monolithic Surfacing
  - 1.2.1.5 ASTM C-580
    - Flexural Strength: 29.65 MPa (4,300 psi)
    - Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts and Monolithic Surfacing
  - 1.2.1.6 ASTM D-635
    - Flammability: Self Extinguishing. Extent of burning 6.4 mm (0.25 inches) max.
    - Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position
  - 1.2.1.7 ASTM D-790
    - Flexural Modulus of Elasticity: 13.8 x 10<sup>3</sup> MPa (2.0 x 10<sup>6</sup> psi)
    - Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

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- 1.2.1.8 ASTM D-2047 - Coefficient of Friction: 0.8 - 1.0  
- Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine
- 1.2.1.9 ASTM D-2240/Shore D. Durometer  
- Hardness: 85 - 90  
- Test Method for Rubber Property - Durometer Hardness
- 1.2.1.10 ASTM D-4060, Taber Abrader CS-17 wheel, 1,000 gm (2.2 lbs) load, 1,000 cycles  
- Abrasion Resistance: 0.1 gm (0.0035 oz) max. weight loss  
- Test method for Abrasion Resistance of Organic Coatings by the Taber Abrader
- 1.2.1.11 ASTM E-831 - Thermal Coefficient of Linear Expansion:  $3.5 \times 10^{-5}$  m/m°C  
- Test Method for Linear Thermal Expansion of Solid Materials by Thermochemical Analysis
- 1.2.1.12 Cure Rate (at 77°F/25°C)allow:  
6 hours for foot traffic  
18 hours for light traffic  
24 hours for normal operations
- 1.2.1.13 Heat Resistance Limitation:  
140°F/60°C (for continuous exposure),  
200°F/93°C (for intermittent spills)
- 1.2.1.14 MIL - D -3134F - Indentation: No indentation

**1.3 SUBMITTALS**

- 1.3.1 **Product Data:** Submit manufacturer's technical data, installation instructions, and general recommendations for each epoxy flooring material required.
- 1.3.2 **Samples:** Submit, for verification purposes, 300 mm x 300 mm (12"x12") square sample of each type of epoxy flooring required, applied to a rigid backing, in colour and finish indicated.

**1.4 QUALITY ASSURANCE**

Single Source Responsibility: Obtain primary epoxy flooring materials including primers, resins, hardening agents, finish or sealing coats from a single manufacturer with not less than ten years of successful experience in

## STONSHIELD HRI

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manufacturing and installing principal materials described in this section. Contractor must have completed at least five projects of similar size and complexity. Provide secondary materials only of type and from source recommended by manufacturer of primary materials.

1.4.1 Arrange a meeting not less than thirty days prior to starting work.

## 1.5 DELIVERY, STORAGE AND HANDLING

1.5.1 Deliver material to job site. Flooring contractor will check material for completeness and shipping damage prior to job start.

1.5.2 All materials must be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on site mixing errors. No on site weighing or volumetric measurements allowed.

1.5.3 Store material in a dry, enclosed area protected from exposure to moisture. Temperature of storage area shall be maintained between 16° and 32°C (60° and 90°F).

## 1.6 MOCK-UP

1.6.1 At site, under manufacturer's supervision, apply for approval 9 m<sup>2</sup> (100 sq ft) of complete floor finish in area designated, to match submitted samples. When approved, site applied sample to be standard for appearance, colour, texture, workmanship, etc., and all work to conform to this sample.

## 1.7 PROJECT CONDITIONS

### 1.7.1 ENVIRONMENT REQUIREMENTS

1.7.2 Concrete substrate must be properly cured for a minimum of 30 days. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure resistant grout must be installed prior to the epoxy flooring.

1.7.3 **Temperature:** Utilities, including electric, water, heat (air temperature between 60° and 90°F/16° and 32°C) and finished lighting to be supplied by General Contractor. Maintain ambient temperature of not less than 18°C/65°F and a floor temperature of not less than 16°C/60°F from [7] days

## STONSHIELD HRI

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before installation to at least 48 hours after completion of work and maintain relative humidity not higher than 40% during same period.

1.7.4 **Moisture:** Ensure substrate is within moisture limits prescribed by [flooring] manufacturer.

1.7.5 **Safety:** Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding the use, handling, storage and disposal of hazardous materials.

1.7.6 Job area to be free of other trades during, and for a period of 24 hours, after floor installation.

1.7.7 Protection of finished floor from damage by subsequent trades is the responsibility of the General Contractor.

1.7.8 Manufacturer's representative must be on job site at start of installation.

## 1.8 WARRANTY

1.8.1 Furnish a single, written warranty covering both material and workmanship for a period of one (1) full year from date of installation.

## 2 Products

2.1 **COLOURS:** As selected by Consultant from manufacturer's standard colours.

### 2.1.1 SEAMLESS QUARTZ EPOXY FLOORING

100% solids, 0 VOC, 5 mm (3/16") thick system comprised of a penetrating, two-component epoxy primer, three-component troweled mortar consisting of epoxy resin, curing agent and finely graded non-silica aggregate, two-component, epoxy undercoat, brightly coloured, quartz silica aggregate broadcast and a high performance, two-component, clear epoxy sealer. Acceptable manufacturer: Stonhard STONSHIELD HRI

## 3 Execution

### 3.1 PREPARATION

3.1.1 **Substrate:** Prepare concrete by mechanical means by using a shot blast machine for removal of bond inhibiting materials such as curing compounds or laitance.

## STONSHIELD HRI

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### 3.2 APPLICATION

- 3.2.1 **General:** Apply each component of epoxy flooring system in compliance with manufacturer's directions to produce a uniform monolithic wearing surface of thickness indicated, uninterrupted except at divider strips, sawed joints or other types of joints (if any), indicated or required.
- 3.2.2 **Primer:** Mix and apply primer over properly prepared substrate with strict adherence to manufacturer's installation procedures and coverage rates. Coordinate timing of primer application with application of troweled mortar to ensure optimum adhesion between epoxy flooring materials and substrate. Manufacturer: Stonhard, STANDARD PRIMER
- 3.2.3 **Troweled Mortar:** Mix mortar material according to manufacturer's recommended procedures. Uniformly spread mortar over substrate using manufacturer's specially designed screed box adjusted to manufacturer's recommended height. Hand trowel apply mixed material over freshly primed substrate using stainless steel finishing trowels. Manufacturer: Stonhard, STONSHIELD HRI BASE
- 3.2.4 **Undercoat:** Remove any surface irregularities by lightly abrading and vacuuming the floor surface. Mix and apply undercoat with strict adherence to manufacturer's installation procedures and coverage rates. Manufacturer: Stonhard, STONSHIELD UNDERCOAT
- 3.2.5 **Broadcast:** Immediately broadcast quartz silica aggregate into the undercoat using manufacturer's specially designed sprayer. Strict adherence to manufacturer's installation procedures and coverage rates is imperative. Manufacturer: Stonhard, STONSHIELD AGGREGATE
- 3.2.6 **Sealer:** Remove any surface imperfections by lightly abrading and vacuuming the floor surface. Mix and squeegee apply sealer with strict adherence to manufacturer's installation procedures and coverage rates. Manufacturer: Stonhard, STONSHIELD SEALER
- 3.2.6 Terminate floors that do not abut against a vertical surface with a 13 - 19mm wide x 6 mm deep chase.
- 3.2.7 **Cove Base:** Install cove integral with the floor 10 cm (4") in height. All coves capped with manufacturer's specialty designed cove strip, as per drawings.
- 3.2.7 **Joint Sealant:** Install manufacturer's epoxy or urethane sealant compatible with floor finish.

### 3.3 FIELD QUALITY CONTROL

- 3.3.1 The right is reserved to invoke the following material testing procedure at any time, and any number of times during period of flooring application.

STONSHIELD HRI

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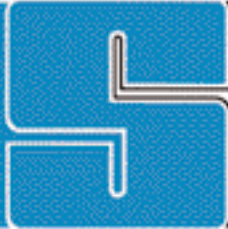
- 3.3.2 The Owner will engage service of an independent testing laboratory to sample materials being used on the jobsite. Samples of material will be taken, identified and sealed, and certified in presence of Contractor.
- 3.3.3 Testing laboratory will perform tests for any of characteristics specified, using applicable testing procedures referenced herein, or if none referenced, in manufacturer's product data.
- 3.3.4 If test results show materials being used do not comply with specified requirements, Contractor may be directed by Owner to stop work; remove non-complying materials; pay for testing; reapply flooring materials to properly prepared surfaces which had previously been coated with unacceptable materials.

**3.4 CURING, PROTECTION AND CLEANING**

- 3.4.1 Cure epoxy flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 24 hours.
- 3.4.2 Protect epoxy flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection and cleaning of surfaces after final coats.
- 3.4.3 Cleaning: Remove temporary covering and clean epoxy flooring just prior to final inspection. Use cleaning materials and procedures recommended by epoxy flooring manufacturer.

END OF SECTION

12/09/94



## PRODUCT DESCRIPTION

Stonshield HRI is a nominal 3/16 in./5 mm thick durable flooring system with a decorative, slip resistant surface. Its troweled base provides superior impact resistance and allows the Stonshield HRI to be applied over rough substrates. The colour quartz broadcast topshield layer results in a very aesthetic floor surface that is textured for safety. This seamless overlayment has no joints or seams to harbour dirt and bacteria and resists attack by most acids and alkalis.

It is comprised of:

### **Stonshield HRI Base**

A three-component, troweled mortar base consisting of epoxy resin, curing agent and finely graded silica aggregate

### **Stonshield Undercoat**

A three-component, free flowing epoxy formulation consisting of resin, curing agent and fine aggregate

### **Stonshield Aggregate**

Brightly colored, quartz broadcast aggregate

### **Stonshield Sealer**

A two-component, high performance, UV resistant, clear epoxy sealer

## USES, APPLICATIONS

Stonshield HRI is ideally suited for a wide variety of applications, such as food preparation areas, supermarkets, bakeries, wet packaging and light manufacturing areas.

## SUBSTRATE

Stonshield HRI, in conjunction with its appropriate primer, is suitable for application over properly prepared concrete, both new and old. It is also designed for renovation work over wood or sound brick and quarry tile. Stonshield HRI is not recommended over asphalt, mastic, gypsum based products or painted surfaces. These must first be removed by mechanical means prior to priming and overlayment.

## SYSTEM OPTIONS

### **Waterproofing**

Where the total system must be waterproof, use of Stonhard's Stonproof ME7 membrane system is required with strict adherence to application instructions.

## PHYSICAL CHARACTERISTICS

<b>Compressive Strength</b> . . . . .	10,000 psi
(ASTM C-579)	after 7 days
<b>Tensile Strength</b> . . . . .	2,000 psi
(ASTM C-307)	
<b>Flexural Strength</b> . . . . .	4,300 psi
(ASTM C-580)	
<b>Flexural Modulus of Elasticity</b> . . . .	$2.0 \times 10^6$ psi
(ASTM C-580)	
<b>Hardness</b> . . . . .	.85 to 90
(ASTM D-2240, Shore D)	
<b>Bond Strength</b> . . . . .	>400 psi
(ASTM D-7234)	(100% concrete failure)
<b>Impact Resistance</b> . . . . .	>160 in./lbs.
(ASTM D-4226)	
<b>Abrasion Resistance</b> . . . . .	0.06 gm max. weight loss
(ASTM D-4060, CS-17)	
<b>Coefficient of Friction (Dry)</b>	
(ASTM F-1679). . . . .	Standard Texture >1.0
	Medium Texture 0.96
<b>Slip Resistance Index (Wet)</b>	
(ASTM F-1679). . . . .	Standard Texture >1.0
	Medium Texture 0.93
<b>Flammability</b> . . . . .	Class 1
(ASTM E-648)	
<b>Thermal Coefficient of</b>	
<b>Linear Expansion</b> . . . . .	$1.8 \times 10^{-5}$ mm/mm $\Delta$ C
(ASTM C-531)	
<b>Water Absorption</b> . . . . .	0.1%
(ASTM C-413)	
<b>Heat Resistance Limitation</b> . . . . .	140°F/60°C
	(for continuous exposure)
	200°F/93°C
	(for intermittent spills)
<b>Cure Rate</b> . . . . .	12 hours for foot traffic
(@ 77°F/25°C)	24 hours for normal operations

**Note:** The above physical properties were measured in accordance with the referenced standards. Samples of the actual floor system, including binder and filler, were used as test specimens.

### **Cove Base**

To provide an integral seal at the joint between the floor and the wall, cove bases in heights from 2 to 6 in./5 to 15 cm are available.

### **Standard or Medium Texture**

Stonshield Sealer is applied at a thickness that will produce the desired texture.

### **PACKAGING**

Stonshield HRI is packaged in units for easy handling. Each unit consists of:

#### **Stonshield HRI Base**

2 cartons, each containing:

- 6 foil bags of Part A (curing agent)
- 6 poly bags of Part B (resin)

12 individual bags of Part C (aggregate)

#### **Stonshield Undercoat**

0.75 carton containing:

- 6 foil bags of Part A (curing agent)
- 6 poly bags of Part B (resin)

0.75 carton containing:

- 6 bags of Part C-1 (aggregate)

#### **Stonshield Aggregate**

6 individual bags of coloured quartz aggregate

#### **Stonshield Sealer**

1 carton containing:

- 6 foil bags of Part A (curing agent)
- 6 poly bags of Part B (resin)

### **COVERAGE**

Each unit of Stonshield HRI will cover approximately 300 sq. ft./27.9 sq. m of surface at a nominal 3/16 in./5 mm thickness.

### **STORAGE CONDITIONS**

Store all components of Stonshield HRI between 60 to 85°F/16 to 30°C in a dry area. Avoid excessive heat and do not freeze. The shelf life is 3 years in the original, unopened container.

### **COLOUR**

Stonshield HRI is available in 3 solid colours and 12 tweed patterns as standard colours. Refer to the Stonshield Colour Sheet. Custom colours are available upon request.

### **SUBSTRATE PREPARATION**

Proper preparation is critical to ensure an adequate bond. The substrate must be dry and free of all wax, grease, oils, fats, soil, loose or foreign materials and laitance. Laitance and unbonded cement particles must be removed by mechanical methods, i.e., abrasive blasting or scarifying. Other contaminants may be removed by scrubbing with a heavy-duty industrial detergent (Stonkleen DG9) and rinsing with clean water. The surface must show open pores throughout and have a sandpaper texture. For recommendations

or additional information regarding substrate preparation, contact Stonhard's Technical Service Department.

### **PRIMING**

The use of Standard Primer is necessary for all applications of Stonshield HRI base over all substrates except Stonset grouts. Over Stonset grouts, Stonhard's Stonset Primer is used. Standard or Stonset Primer must be tacky during the application of Stonshield HRI base. If the primer becomes tack-free, the area must be re-primed prior to continuing the application.

### **MIXING**

Due to the variety of system configurations available for Stonshield HRI, consult the Stonshield HRI Directions for details.

### **APPLYING**

Application of the Stonshield HRI system is accomplished as follows:

1. Stonshield HRI Base is mixed, screed applied and troweled to a tightly closed finish. Allow for at least an 8 hour cure.
2. Next, lightly grind the HRI Base. Then the Stonshield Undercoat is mixed and applied to the floor surface using a steel squeegee and looped roller to uniformly distribute the material and promote surface leveling.
3. Stonshield Aggregate is broadcast into the freshly rolled undercoat using a Stonhard Spraycaster to ensure even distribution of the aggregate. Allow at least 8 hours to cure.
4. Scrape the floor with a steel squeegee, sweep to remove loose aggregate, then vacuum.
5. Stonshield Sealer is then mixed and applied. For a standard texture, the sealer is applied using a rubber squeegee and then rolled using a medium nap roller. For a medium texture, the sealer is applied using a rigid rubber squeegee and then rolled using a saturated medium nap roller.

Refer to Stonshield HRI Directions for further detail.



## RECOMMENDATIONS

- DO NOT attempt to install material if the temperature of Stonshield HRI components and substrate are not within 60 to 85°F/16 to 30°C. The cure time and application properties of the material are severely affected.
- DO NOT use water or steam in the vicinity of the application. **Moisture can seriously affect the working time and other properties.**
- The use of NIOSH/MSHA approved respirators and safety glasses are recommended.
- Avoid contact with all liquid Parts A and B as they may cause skin and/or eye irritation. Workmen should cover hands with rubber gloves.
- Use only with adequate ventilation.

## NOTES

- Procedures for maintenance of the flooring system during operations are described in the Stonshield Cleaning Procedures.
- Specific information regarding chemical resistance is available in the Stonshield Chemical Resistance Guide.
- Material Safety Data Sheets for Stonshield HRI are available upon request.
- A staff of technical service engineers is available to assist with installation or to answer questions related to Stonhard flooring products.
- Requests for technical service or literature can be made through local sales representatives and offices, or corporate offices located worldwide.

### IMPORTANT:

Stonhard believes the information contained here to be true and accurate as of the date of publication. Stonhard makes no warranty, expressed or implied, based on this literature and assumes no responsibility for consequential or incidental damages in the use of the systems described, including any warranty of merchantability or fitness. Information contained here is for evaluation only. We further reserve the right to modify and change products or literature at any time and without prior notice.

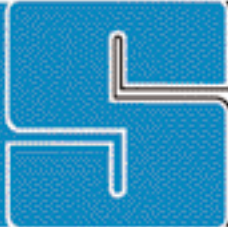
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[www.stonhard.com](http://www.stonhard.com)

### Worldwide Offices:

Canada	905-430-3333	Mexico	(52)-55-9140-4500	Europe	(32)-2-720-8982	Africa	(27)-11-254-5500
USA	800-257-7953	South America	(54-3327)-44-2222	Middle East	(971)-4-3470460	Asia	(86)-21-54665118



**BEFORE YOU START . . .** Read these directions carefully! The surface to be covered must be properly prepared, and the temperatures of both the floor and the Stonshield HRI components must be between 60-85°F/16-30°C BEFORE beginning application.

#### DESCRIPTION/USES

Stonshield HRI is a decorative, textured, epoxy-based floor surfacing system specifically designed to produce a cleanable, attractive, slip resistant floor surface. Stonshield HRI bonds securely to most surfaces to form a durable, chemical resistant overlayment that can be used in moderate to heavy traffic areas. It is ideal for use in light manufacturing and process areas in the food and pharmaceutical industries, as well as a variety of commercial applications. Stonshield HRI is available in solid or tweed color patterns.

#### LIMITATIONS

Do not apply Stonshield HRI over asphalt, mastic or painted surfaces. These must first be removed by mechanical means to expose the substrate prior to applying overlayment.

#### PACKAGING

Stonshield HRI is packaged in units for easy handling. Each unit consists of:

##### **HRI Base**

2 cartons containing:

6 foil bags of Part A (curing agent)

6 poly bags of Part B (resin)

12 individual bags of Part C (aggregate)

##### **Stonshield Aggregate**

6 bags of colored quartz aggregate

##### **Stonshield Undercoat**

0.75 cartons containing:

6 foil bags of Part A (curing agent)

6 poly bags of Part B (resin)

6 individual bags of Part C-1 (aggregate)

##### **Stonshield Sealer**

1 carton containing

6 foil bags of Part A (curing agent)

6 poly bags of Part B (resin)

#### COVERAGE

Each unit of Stonshield HRI will cover approximately 300 sq.ft./27.9 sq.m. of relatively smooth surface at a nominal 3/16 in./5 mm thickness.

#### EVALUATION OF AREA BEFORE APPLICATION

The floor to be surfaced must be:

##### 1. STRUCTURALLY SOUND

- No loose or crumbling concrete.
- No "laitance" or unbonded cement particles.
- No previously applied toppings, sealers or paints.
- If a metal surface, no rust or mill scale, and no flexing under load.
- If wood, no flexing under load and no splintering.

##### 2. CLEAN

- No wax, grease, oils, fats, dirt or other foreign matter.

##### 3. DRY

- All traces of moisture must be removed. Also, moisture must not be allowed to come in contact with the Stonshield HRI during installation and curing. Do not use water or steam in the vicinity of the application. Moisture can seriously affect working time and other properties of the Stonshield HRI and MUST BE AVOIDED!

##### 4. WARM

- Temperature of both the floor and the Stonshield HRI components must be at least 60°F/16°C. Do not attempt to install the material if the temperature of the components is above 85°F/30°C. High temperatures will cause the mortar to cure more quickly than desired. Conversely, if the temperature of the components is 60°F/16°C or lower, the Stonshield HRI will be stiff and difficult to apply.

#### TOOLS NEEDED TO MIX AND INSTALL

When installing the HRI base, use JB Power Blenders, 5 gallon mixing pails, a blender timer, a screed box and possibly a power trowel for open areas, a screed rake for confined areas, a 3 x 12 inch trowel, and a floor grinder. In order to properly install the Stonshield Undercoat, you will need a slow-speed drill, a 2-5 gallon Jiffy Mixer, a steel squeegee, looped rollers, and golf shoes. The tools needed to apply the Stonshield Aggregate and Sealer include: a Stonhard Spraycaster, a floor scrubber with a nylon bristle brush attachment, a stiff nylon bristle push broom, an industrial vacuum, 12-14 inch flat rubber squeegees for standard texture, stiff gray rubber squeegees for medium texture, and high quality medium nap rollers.

#### PREPARATION

Proper preparation is critical to ensure an adequate bond. The substrate must be dry and free of all wax, grease, oils, fats, soil, loose or foreign materials and lai-

tance. Laitance and unbonded cement particles must be removed by mechanical methods, i.e., abrasive blasting or scarifying. Other contaminants may be removed by scrubbing with a heavy-duty industrial detergent (Stonkleen DG9) and rinsing with clean water. The surface must show open pores throughout and have a sandpaper texture. For recommendations or additional information regarding substrate preparation, please contact Stonhard's Technical Service Department.

A right angle grinder and chipping hammer should be used to make 1/4 in./6 mm chases at all doorways and areas where Stonshield HRI will not abut a vertical surface. On large installations, it may be necessary to divide the area with a chase or false joint. The purpose of this is to allow for an endpoint, where the installation can stop at a neat straight line with the desired thickness still maintained.

### ARRANGEMENT OF THE MIXING AREA

The mixing area should be set up using the following guidelines:

1. Position the two JB Power Blenders side by side with the Blender Timer between them (Figure 1).
2. Open the cartons containing the Part A and Part B liquids, then carefully arrange the cartons to one side of the two blenders.
3. The bags of Part C should be lined up on the other side of the Power Blender.

### PRIMING

Stonhard Standard Primer must be applied to the prepared floor surface before installing the Stonshield HRI Base.

Use of Primer ensures a secure bond to the substrate, prevents draining of liquids from the Stonshield HRI Base, and makes application of the overlayment easier. (See Standard Primer Directions for details.)

### MIXING STONSHIELD HRI BASE

1. Pour the contents of one Part A foil bag into a 5 gallon mixing pail.
2. Then, empty the entire contents of the plastic bag of Part B liquid into the mixing pail already containing the Part A.

**Note:** ALL of the liquid must be completely removed from the Part A and B bags.

3. Transfer the mixing pail to a JB Blender, insert the JB paddle and activate the timer to start the 60 second blending cycle.
4. When the blender stops, reactivate the timer and immediately pour the entire contents of one bag of Part C aggregate into the rotating mixing pail. Allow the three components to mix for the entire cycle.
5. When the blender stops, scrape off any mixing material that may be adhering to the mixing paddle. Place the paddle in the empty carton where it will be on hand for use when mixing the next batch of liquids. Deliver the mixed material to the workers who will be applying it to the floor.

**Note:** Once the material has been mixed, it has an approximate 25 minute working time.

### PLACING AND FINISHING STONSHIELD HRI BASE

1. A "Screed Applicator" (#87796) is used to apply the mixed Stonshield HRI Base to the floor (Figure 2). The Screed Applicator must be set to apply a 3/16 in./5 mm layer of material. This will result in a nominal 1/8 in./3 mm topping after the material has been compacted and trowel-finished.

**Note:** The Stonshield HRI Base has already begun to cure, so troweling must proceed without delay.

2. Steel finishing trowels (#87012) are used to compact and smooth the surface of the material (Figure 3). Use enough pressure to compact the Stonshield HRI Base to the required 1/8 in./3 mm thickness. Then, holding the trowel at a slightly higher angle, smooth out any trowel marks. If the mortar "pulls" creating a rough or open surface, either the trowel has become sticky or it is being held at the wrong angle. Keep the trowel clean by frequently cleaning it with scouring pads and warm soapy water or denatured alcohol – remembering to WIPE IT DRY BEFORE USING IT AGAIN on the Stonshield HRI Base. The finished Stonshield HRI Base surface should be level, free of trowel marks, and tightly closed to prevent a porous topping.
3. If the Stonshield HRI Base does not abut a vertical surface, trowel the Stonshield HRI Base into a chase (groove) cut into the concrete.
4. If applying a cove, the cove base material should be troweled, along with the HRI Base, to provide a smooth transition. (See Tech Line Volume 34 - Cove Base.)

### HARDENING TIME OF HRI BASE

At 72°F/22°C, allow AT LEAST eight hours cure before beginning application of the Stonshield Undercoat. IT IS IMPORTANT that you carefully inspect the finish of the Stonshield HRI Base at this stage in the installation. Any trowel marks, cold joints, etc. that may be present MUST BE REMOVED BEFORE APPLYING the Stonshield Undercoat. This cosmetic enhancement is accomplished using either a sander or a terrazzo grinder. The Stonshield HRI Base must be flat, smooth and clean. Any imperfections noticeable at this point in the installation will become MORE NOTICEABLE after the Stonshield Sealer is applied.

### APPLYING STONSHIELD UNDERCOAT

Do not start mixing the Stonshield Undercoat components until the floor has been properly prepared and is DRY. The temperature of the floor AND the Stonshield Undercoat components must be between 65-80°F/18-30°C.

1. Empty the entire contents of one foil bag of Part A and one plastic bag of Part B into a mixing container.
2. Mix the two components using a slow-speed drill (400-600 rpm) with a Jiffy Mixer. Mix to a uniform consistency for 60 seconds (Figure 4).
3. Add Part C-1 and mix for an additional 30 seconds.
4. After mixing, pour the Stonshield Undercoat onto the floor in the form of a bead three to six inches in width.

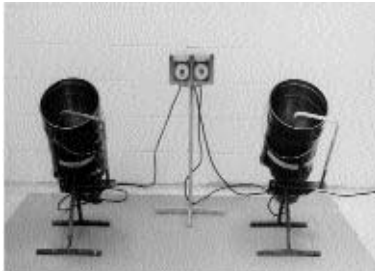


FIGURE 1

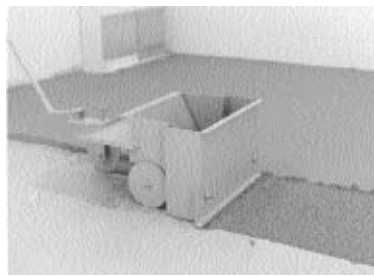


FIGURE 2



FIGURE 3



FIGURE 4

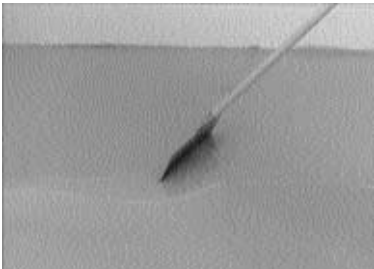


FIGURE 5

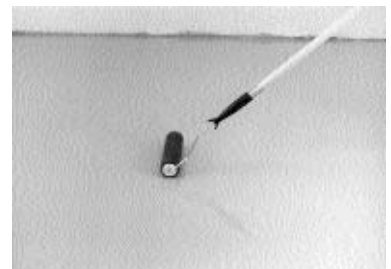


FIGURE 6



FIGURE 7



FIGURE 8

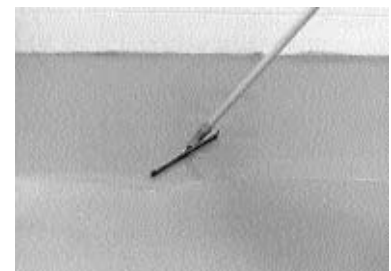


FIGURE 9

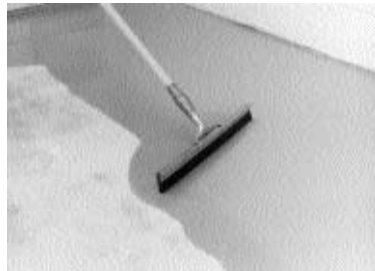


FIGURE 10

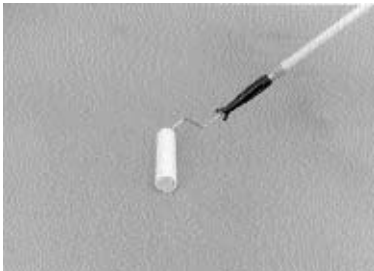


FIGURE 11

5. Using a steel squeegee (#88066), distribute the Stonshield Undercoat over the surface of the floor using firm pressure. The squeegee action should be from right to left, then reverse, always pulling the material toward you (Figure 5).
6. Next, a nine inch, medium nap roller (#88060) is used to remove any lap marks or puddles that may be present. Finish rolling using a texture roller (#88064). Use pressure when rolling to ensure that squeegee lines are removed (Figure 6). Periodically check the thickness of the liquid using a wet film gauge. This thickness should average 7 to 8 mils.

**Note:** Make sure that the Undercoat does not flow up the cove. Aggregate will stick to the cove when broadcast and leave a textured surface.

Repeat the above steps until at least 100 sq.ft./9 sq.m. of surface has been covered. It is at this point that the Stonshield Aggregate is broadcast onto the freshly rolled

Stonshield Undercoat. (See "Application of Stonshield Aggregate.")

Do not allow the Stonshield Undercoat liquids (Parts A and B) to puddle at the bottom of the coves.

REMEMBER, any ridges, overlap marks or puddles left in the Stonshield Undercoating WILL show through the Stonshield Sealer and affect the appearance of the finished floor surface.

#### APPLYING STONSHIELD AGGREGATE

The application of the Stonshield Aggregate takes place DURING the installation of the Stonshield Undercoat. Depending on the temperature of the slab, a period of five to fifteen minutes may be necessary for the undercoat to flow evenly. The surface of the undercoat must develop a glass-like appearance before broadcasting the aggregate. A special Stonhard Spraycaster (#87791 or #87700 for 220V applications) should be used to ensure even distribution of the Aggregate (Figure 7).

DO NOT ALLOW the Stonshield Aggregate to fall onto any of the Stonshield Undercoat still being squeegeed or rolled. Any particles present during these operations will be extremely difficult to blend in with the other properly applied components.

After waiting a period of at least eight hours at 72°F/22°C, use a stiff nylon bristle industrial push broom and an industrial vacuum to remove any excess Stonshield Aggregate from the surface of the floor (Figure 8). When the sweep down has been completed, the floor should have a relatively uniform, dull appearance. The surface will be rough to the touch, much like that of coarse sandpaper. The floor is now ready to be sealed using the Stonshield Sealer.

### MIXING/APPLYING STONSHIELD SEALER

BEFORE MIXING, make sure the area is ready for application of the Stonshield Sealer. Once mixed, the material has a pot life of about 20 minutes.

1. Empty one foil bag of Part A liquid and one plastic bag of Part B liquid into a clean mixing bucket.
2. Mix the two liquids for about 60 seconds with a Jiffy Mixer until the material has a uniform color and appearance.
3. After mixing, pour the combined Parts A and B onto the floor in the form of a bead about six inch wide.

#### A. STANDARD TEXTURE

- 1) Using a soft rubber squeegee (#88068), slowly pull the liquid across the floor surface (Figure 9). Heavy pressure is necessary to achieve the proper texture.
- 2) To make sure all lap marks and puddles of liquid are removed, roll the wet surface with a good quality, saturated, medium nap paint roller. Use only light pressure when rolling (Figure 11).

#### B. MEDIUM TEXTURE

- 1) Using a stiff gray rubber squeegee (#88033), slowly pull the liquid toward you (Figure 10). It may be necessary to use a hand trowel in corners and tight areas to pull the liquid. Medium to heavy pressure should be used to apply the sealer. Be sure to pull the material slowly to avoid puddling and splashing, and to remove any lap marks.
- 2) Backroll the material using a medium nap roller. The roller should be saturated with sealer at all times. This will smooth and level the sealer (Figure 11).

### HARDENING TIME FOR STONSHIELD SEALER

At 72°F/22°C allow:

- 12 hours for foot traffic
- 24 hours for normal operations

**Note:** When installing Stonshield HRI in an area where the temperature will eventually be cold (60°F/16°C or below), the temperature must be maintained at 65°F/18°C for at least 18 hours after the product has been installed before any type of cooling system can be re-started.

### CLEANING UP

Clean all equipment IMMEDIATELY AFTER USE with scouring pads and warm soapy water, or with mineral spirits. Hardened material will require require mechanical means for removal.

**IMPORTANT:** If any unusually long delay should arise, such as a break for lunch, it will be necessary to completely clean all mixing paddles and pails BEFORE ceasing operation. This is extremely important. Doing this will prevent the future contamination of new batches of Stonshield HRI with particles of partially cured material when the mixing operation resumes. The presence of such particles will seriously affect the troweling and finishing of the floor and MUST be avoided!

### CAUTION

Avoid contact with Parts A and B as they may cause skin and/or eye irritation. In case of contact, immediately flush area with copious amounts of clean water for at least 15 minutes and seek medical attention. Workmen should cover their hands with rubber gloves. Wash hands thoroughly with SOAP AND WATER after use, and before eating, smoking, etc.

Use only with adequate ventilation.

### STORAGE

Prior to mixing, Stonshield HRI components must be stored at room temperatures only (65-85°F/18-30°C). Shelf life of product is one year. Do not store outdoors, in boiler rooms, compressor rooms, refrigerators, or near radiators, steam pipes, etc.

**DO NOT STACK SKIDS OF PART C ON PARTS A AND B – LEAKAGE MAY OCCUR.**

#### IMPORTANT:

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12/01

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A Division of **StonCOR**

## STONSHIELD CHEMICAL RESISTANCE GUIDE

The purpose of this guide is to aid in determining the potential value of Stonshield when exposed to the damaging effects of corrosive chemical spillages. The test procedure used was to totally immerse cured samples of Stonshield in the chemicals listed for a period of 90 days at normal room temperatures. (This is an exceptionally severe test, since most floors subject to chemical spillages such as these are “flushed down” periodically with water as part of the normal floor maintenance operation.)

The resultant resistance of Stonshield to the various chemicals is rated using the symbols listed to the right. (It is recommended that normal “good housekeeping procedures” are used, including a daily flushing with clean water.)

### RATING CODE

E - Excellent  
 G - Good  
 NR - Not Recommended  
 OS - Suitable for use where “occasional spillages” occur, when followed by immediate water flushing

The data contained here is based on laboratory tests performed under carefully controlled conditions. No warranty can be expressed nor implied regarding the accuracy of this information as it will apply to actual plant operational use. Plant operations vary widely, and the individual results obtained are affected by the specific conditions encountered, which are beyond our control.

**Note:** \* Staining may occur depending upon length of exposure time.

### Acids

Chemical	HRI	SLT	MRT	ATS	UTS	ART	URT
Acetic – 5%	G	G	G	G	E	E	E
Acetic – 10%	G	G	G	G	E	E	E
Acetic – 15%	G	G	G	G	E	E	E
Acetic – 20%	OS	OS	OS	OS	E	G	E
Acetic – 50%	NR	NR	NR	NR	G	OS	G
Acetic Glacial	NR	NR	NR	NR	OS	NR	OS
Benzoic – Sat. 3%	E	E	E	E	E	E	E
Boric – Sat. 30%	E	E	E	E	E	E	E
Butyric – 10%	OS	OS	OS	OS	E	OS	E
Chromic – 10%*	G	G	G	G	G	G	G
Chromic – 15%*	OS	OS	OS	OS	OS	G	OS
Chromic – 40%*	NR	NR	NR	NR	NR	OS	NR
Citric – 50%	E	E	E	E	E	OS	E
Cresylic	OS	OS	OS	OS	G		G
Diglycolic	G	G	G	G	G	OS	G
Fatty	G	G	G	G	E	G	E
Fluoboric	G	G	G	G	OS	OS	OS
Formic – up to 10%	OS	OS	OS	OS	G	G	G
Formic – over 10%	NR	NR	NR	NR	OS	OS	OS
Heptanoic	OS	OS	OS	OS	G	NR	G
Hydrochloric – 15%	E	E	E	E	E	E	E
Hydrochloric – 37%*	G	G	G	G	G	OS	G
Hydrofluoric – 5%	G	G	G	G	G	G	G
Hydrofluoric – 10%	OS	OS	OS	OS	OS	OS	OS
Hydrofluoric – 15%	OS	OS	OS	OS	NR	NR	NR
Hypochlorus – 5%	E	E	E	E	E	OS	E
Lactic – up to 20%	G	G	G	G	E	G	E
Lactic – over 20%	OS	OS	OS	OS	G	G	G
Maleic – up to 10%	G	G	G	G	E	E	E

**Acids** (continued)

Chemical	HRI	SLT	MRT	ATS	UTS	ART	URT
Maleic – 40%	G	G	G	G	E	OS	E
Maleic – Sat.	NR	NR	NR	NR	G	G	G
Monochloroacetic – 5%	G	G	G	G	G	OS	G
Monochloroacetic – 10%	OS	OS	OS	OS	G	NR	G
Monochloroacetic – 20%	NR	NR	NR	NR	OS	NR	OS
Nitric – 10%*	E	E	E	E	E	E	E
Nitric – 20%*	G	G	G	G	E	G	E
Nitric – 30%*	OS	OS	OS	OS	G	OS	G
Nitric – over 40%*	NR	NR	NR	NR	NR	NR	NR
Oleic	E	E	E	E	E	E	E
Oxalic – Sat.	E	E	E	E	E	G	E
Perchloric – 35%	OS	OS	OS	OS	OS	NR	OS
Phosphoric – up to 70%*	OS	OS	OS	OS	E	G	E
Phosphoric – Conc.85%*	NR	NR	NR	NR	OS	OS	OS
Picric – Sat.	E	E	E	E	E	E	E
Phthalic	G	G	G	G	G	OS	G
Succinic – Sat.	E	E	E	E	E	E	E
Sulfuric – 20%	E	E	E	E	E	E	E
Sulfuric – 50%*	G	G	G	G	G	OS	G
Sulfuric – 70%*	OS	OS	OS	OS	NR	OS	NR
Sulfuric – 98%*	NR	NR	NR	NR	NR	NR	NR
Tannic – Sat.	E	E	E	E	E	E	E
Tartaric – Sat.	E	E	E	E	E	E	E
Trichloroacetic 10%	OS	OS	OS	OS	G	NR	G
Trichloroacetic 20%	NR	NR	NR	NR	OS	NR	OS

**Alkalies and Salts**

Chemical	HRI	SLT	MRT	ATS	UTS	ART	URT
Aluminum Chloride – 50%	E	E	E	E	E	E	E
Ammonium Chloride – 50%	E	E	E	E	E	E	E
Ammonium Hydroxide – up to 20%	E	E	E	E	E	E	E
Ammonium Hydroxide – 40%	G	G	G	G	E	E	E
Ammonium Nitrate – Sat.	E	E	E	E	E	E	E
Ammonium Sulfate – Sat.	E	E	E	E	E	E	E
Calcium Chloride – Sat.	E	E	E	E	E	E	E
Calcium Hydroxide – Sat.	E	E	E	E	E	E	E
Calcium Hypochlorite – up to 15%	G	G	G	G	E	E	E
Copper Fluoroborate	E	E	E	E	E	E	E
Ferric Chloride – Sat.	G	G	G	G	E	E	E
Ferrous Sulfate	G	G	G	G	E	E	E
Potassium Hydroxide – up to 40%	E	E	E	E	E	E	E
Sodium Benzoate	E	E	E	E	E	E	E
Sodium Carbonate (Soda Ash) – Sat.	E	E	E	E	E	E	E
Sodium Bicarbonate – Sat.	E	E	E	E	E	E	E
Sodium Bisulfate – Sat.	E	E	E	E	E	E	E
Sodium Bisulfite – Sat.	E	E	E	E	E	E	E
Sodium Chloride (Salt) – Sat.	E	E	E	E	E	E	E
Sodium Glutamate	E	E	E	E	E	E	E
Sodium Hydroxide – up to 50%	E	E	E	E	E	E	E
Sodium Hypochlorite – up to 10%	G	G	G	G	G	E	G

### **Alkalies and Salts (continued)**

<b>Chemical</b>	<b>HRI</b>	<b>SLT</b>	<b>MRT</b>	<b>ATS</b>	<b>UTS</b>	<b>ART</b>	<b>URT</b>
Sodium Sulfate – Sat.	E	E	E	E	E	E	E
Sodium Sulfite – Sat.	E	E	E	E	E	E	E
Sodium Sulfide – Sat.	E	E	E	E	E	E	E
Trisodium Phosphate – Sat.	E	E	E	E	E	E	E
Zinc Nitrate	G	G	G	G	E	E	E

### **Solvents and Other Chemicals**

<b>Chemical</b>	<b>HRI</b>	<b>SLT</b>	<b>MRT</b>	<b>ATS</b>	<b>UTS</b>	<b>ART</b>	<b>URT</b>
Acetone	OS	OS	OS	OS	OS	NR	OS
Acrylonitrile	OS	OS	OS	OS	OS	NR	OS
Aniline	NR	NR	NR	NR	NR	NR	NR
Alcohol (Methyl)	OS	OS	OS	OS	OS	NR	OS
Alcohol (Ethyl, Propyl, Isopropyl, Butyl)	G	G	G	G	G	OS	G
Amyl Acetate	E	E	E	E	E	OS	E
Beer	E	E	E	E	E	E	E
Benzene	OS	OS	OS	OS	OS	NR	OS
Bromine	NR	NR	G	G	NR	NR	NR
Butyl Acetate	G	G	G	G	G	NR	G
Butyl Lactate	G	G	G	G	G		G
Carbon Disulfide	NR	NR	NR	NR	NR		NR
Carbon Tetrachloride	E	E	E	E	E	NR	E
Chlorobenzene	E	E	E	E	E	NR	E
Corn Oil	E	E	E	E	E	E	E
Cyclohexane	E	E	E	E	E	OS	E
Cyclohexanol	E	E	E	E	E	E	E
Cyclohexanone	OS	OS	OS	OS	OS	NR	OS
Chloroform	NR	NR	NR	NR	NR	NR	NR
Diacetone Alcohol	E	E	E	E	E	NR	E
Diethyl Phthalate	E	E	E	E	E	NR	E
Dimethyl Phthalate	E	E	E	E	E	NR	E
Ethyl Acetate	OS	OS	OS	OS	G	OS	G
Ethylene Glycol	E	E	E	E	E	G	E
Ether	OS	OS	OS	OS	OS	OS	OS
Ethylene Dichloride	NR	NR	NR	NR	NR	NR	NR
Formaldehyde	E	E	E	E	E	G	E
Gasoline	E	E	E	E	E	OS	E
Glycerine	E	E	E	E	E	OS	E
Gyoxal	E	E	E	E	E		E
Hydrogen Peroxide – 10%	E	E	E	E	E	E	E
JP5 Jet Fuel	E	E	E	E	E	OS	E
Juices – Fruit*	E	E	E	E	E	E	E
Juices – Vegetable	E	E	E	E	E	E	E
Kerosene	OS	OS	OS	OS	OS	G	OS
Lanoline	E	E	E	E	E		E
Lard	G	G	G	G	E	E	E
Linseed Oil	E	E	E	E	E	E	E
Mayonnaise	G	G	G	G	E	G	E
Methyl Ethyl Ketone	NR	NR	NR	NR	NR	NR	NR
Methyl Isobutyl Ketone	NR	NR	NR	NR	NR	NR	NR
Methylene Chloride	NR	NR	NR	NR	NR	NR	NR
Milk	E	E	E	E	E	E	E
Mineral Spirits	E	E	E	E	E	OS	E



## Solvents and Other Chemicals *(continued)*

Chemical	HRI	SLT	MRT	ATS	UTS	ART	URT
Muriatic Acid (See Hydrochloric Acid)							
Mustard*	E	E	E	E	E	G	E
Naphtha	G	G	G	G	E	NR	E
Naphthalene	G	G	G	G	E		E
Oils – Cutting	E	E	E	E	E	E	E
Oils – Mineral	E	E	E	E	E	E	E
Oils – Vegetable	G	G	G	G	E	G	E
Peanut Butter	E	E	E	E	E	E	E
Perchloroethylene	OS	OS	OS	OS	OS	OS	OS
Phenol – 5%	NR	NR	NR	NR	NR	OS	NR
Pyridine	NR	NR	NR	NR	NR		NR
Skydrol	E	E	E	E	E		E
Sucrose – Sat. (Sugar)	E	E	E	E	E	E	E
Toluene	G	G	G	G	E	NR	E
Triacetin	E	E	E	E	E		E
Trichloroethane	G	G	G	G	G	NR	G
Trichloroethylene	OS	OS	OS	OS	OS	OS	OS
Triethanolamine	E	E	E	E	E	E	E
Triethylene Glycol	E	E	E	E	E		E
Urea	E	E	E	E	E	E	E
Vinegar (Household)	E	E	E	E	E	E	E
Water	E	E	E	E	E	E	E
Wine *	E	E	E	E	E	E	E
Xylene	G	G	G	G	G	NR	G

**IMPORTANT:**

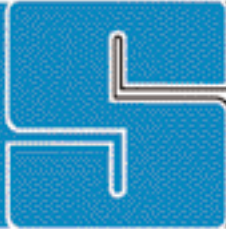
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### PRODUCT DESCRIPTION

The Stonshield family is comprised of textured flooring systems which are designed to provide both durability and aesthetics. They are also designed to be easily maintained. This unique combination of physical properties makes Stonshield floors ideal for use in a wide range of applications where appearance and slip resistance are main concerns. These include, but are not limited to: food processing and service areas, supermarkets, laboratories, animal holding rooms and many other similar areas. Hygiene is an important consideration in these environments, therefore, following proper maintenance schedules and procedures is recommended.

### PROTECTING THE FLOOR

On new construction and major renovation projects, it is important to recognize that the floor must be protected during the remainder of the construction process. Steps that should be taken to ensure this protection are:

1. Allow for sufficient cure time (48 to 72 hours).
2. Protect the newly installed floor during initial curing by cordoning off access to the floor.
3. Cover the newly cured floor with heavy construction paper, plywood or cardboard to minimize abuse from other workers operating in the area. If there is a possibility of water exposure, apply a layer of plastic before using the materials noted above.
4. Begin a quality maintenance program as soon as possible, but no later than 30 days after the installation of the flooring has been completed.

By following these steps, problems associated with the introduction of dirt, dust and foreign debris on the Stonshield floor can be minimized. Additionally, scarring of the floor from premature traffic can be avoided. The result will be a quality Stonshield flooring system, easy to clean and attractive in appearance.

### DEVELOPING A MAINTENANCE SCHEDULE

The texture of a Stonshield flooring system and its usage conditions will determine what combination of the following procedures should be used to keep the floor clean. A schedule based on the individual application needs should be established and strictly followed.

The following recommendations are the result of extensive testing of both cleaning products and methods by Stonhard. Although every customer's cleaning needs are specific, the following guidelines should help establish a maintenance schedule.

### NECESSARY MAINTENANCE EQUIPMENT

To properly maintain a Stonshield floor, you will need some or all of the following tools:

- Mop
- Industrial Scrubber
- Squeegees
- Wet/Dry Vacuum
- Stiff Bristle Nylon Scrub Brush
- Rubber Gloves

### MOP CLEANING (Medium texture only)

1. Sweep all loose debris from the floor.
2. Dilute a residue-free cleaner, such as Stonkleen DG9 or Stonkleen NC9, to the recommended concentration.
3. Dip and ring the mop as needed to properly remove the soil from the floor.
4. Using clean, warm water, mop the floor again. Ring the mop frequently in order to prevent detergent build up.

**Note:** Mop cleaning is not recommended for Standard texture Stonshield applications. Use a nylon scrub brush or power scrubber.

### POWER SCRUBBING

1. Dilute Stonkleen DG9 or similar residue-free, non-foaming cleaning solution to the recommended concentration.
2. A rotating drum type power scrubber works best for cleaning the floor and removing excess detergent. Cylindrical nylon bristle brushes, provided with the machine, achieve the desired abrasiveness without damaging the finish of the floor.
3. Let the cleaning solution stand for five minutes and re-scrub if necessary. Do not allow the detergent to dry on the floor.
4. Remove excess detergent from the floor using the power scrubber's built in vacuum system or a wet/dry vacuum.
5. Rinse thoroughly using warm water.
6. Remove excess water.

## HEAVY SOIL SPOT REMOVAL

1. Heavy soil deposits may need to be removed prior to general cleaning.
2. Use concentrated Stonkleen DG9 or similar non-butyl degreaser detergent.
3. Pour a small amount of Stonkleen DG9 onto the spot and scrub in with a stiff bristle nylon scrub brush.
4. Tough build-ups may require a five minute saturation period before rinsing with warm water.
5. Remove water with a squeegee or a wet/dry vacuum.

## INSOLUBLE DEPOSIT REMOVAL

1. Hard water or alkali deposits must be removed prior to general cleaning.
2. Use Lime-Away, Oakite 31 or equivalent acidic cleaning solution to remove hard water or alkali deposits.
3. After diluting to the desired strength, scrub the solution into the stained areas with a stiff bristle nylon scrub brush.
4. Let stand for five minutes before re-scrubbing and rinsing with warm water.
5. Remove water with a squeegee or a wet/dry vacuum.

## STONHARD CLEANING PRODUCTS

- **Stonkleen DC9:** Disinfectant cleaner  
(Product #8001A5 or #8001A9)
- **Stonkleen AS9:** Acrylic stripper  
(Product #8002A5 or #8002A9)
- **Stonkleen AF2:** Acrylic wax  
(Product #8003A5 or #8003A9)
- **Stonkleen DG9:** Degreasing cleaner  
(Product #8000A5 or #8000A9)
- **Stonkleen NC9:** Neutral cleaner  
(Product #8004A5 or #8004A9)

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The Stonshield product line is engineered to provide attractive, slip resistant surfaces. Available in varying degrees of texture, Stonshield floors are also durable, chemical resistant and easy to clean. These systems are offered in gloss or flat finishes to meet a wide spectrum of aesthetic needs.

### Stonshield HRI®

Slip resistant epoxy system for heavy-duty applications over rough or deteriorated concrete.

### Stonshield SLT®

Light-duty, slip resistant epoxy system for use over new or smooth concrete. Available in 2 or 3mm.

### Stonshield ART®

Light-duty, acrylic polymer-based system for increased stain resistance and rapid installation time.

### Stonshield URT®

Urethane-based system with exceptional UV, stain and organic acid chemical resistance.

### Stonshield UTS®

Troweled polyurethane mortar system, textured with Stonshield's quartz aggregate.

### Stonshield ATS®

Conductive epoxy system providing outstanding static control properties and durability. Due to conductive elements this product will appear different than the colour reproductions seen here.

Colour matching available with additional lead time, minimum order requirements and a slight premium.

Colour reproductions are as accurate as modern photography and quality printing methods can produce. For actual colour, see flooring sample.

## STONHARD

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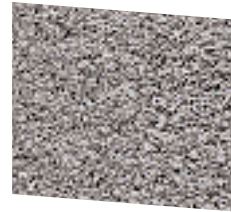
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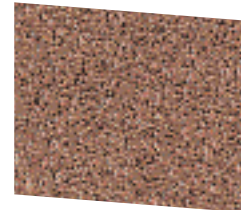
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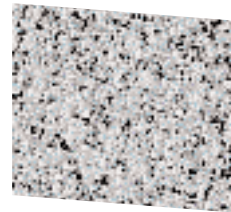
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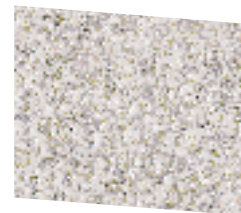
STEEL GRAY



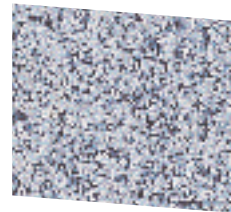
BRICK RED



GLACIER



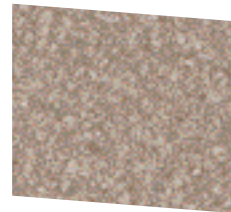
FLAGSTONE



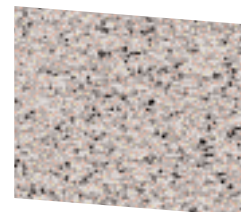
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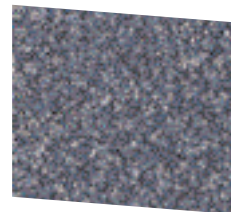
MALT



ACORN



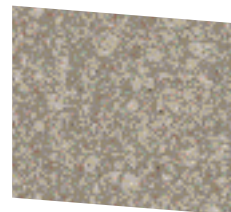
DRIFTWOOD



TWILIGHT



ASH



CYPRESS



NUTMEG

# STONPROOF ME7



# PRODUCT DATA

## PRODUCT DESCRIPTION

Stonproof ME7 is a two-component, liquid applied, urethane membrane for use on horizontal applications as a positive moisture barrier or as a crack bridging isolation layer. It is 100% solids, making it ideal for use in confined areas. Stonproof ME7 can be used as a light traffic bearing membrane and as a membrane under most of Stonhard's flooring systems. Both applications provide a positive barrier against water transmission.

## USES, APPLICATIONS

- Kitchens
- Wet mezzanine areas
- Mechanical rooms
- As a positive side waterproofing membrane
- As a crack/substrate movement isolation layer

## PRODUCT ADVANTAGES

- 100% solids
- Excellent bond strength ensures superior adhesion
- Excellent low temperature property retention
- Seamless and monolithic
- Permanently elastic
- Non-deteriorating
- Easily applied to horizontal surfaces
- Factory proportioned packaging ensures consistent, high quality, and simplified mixing

## PACKAGING

Stonproof ME7 is packaged in units for easy handling. Each unit consists of:

- (1) 2 gallon container of Part A (curing agent)
- (1) 5 gallon container of Part B (resin)

## COVERAGE

Approximately 300 sq. ft./27.87 sq. m per unit at an application thickness of 25 mil.

## STORAGE CONDITIONS

Store Stonproof ME7 at 60 to 85°F/16 to 30°C in a dry area. Avoid excessive heat and do not freeze. The shelf life is 2 years in the original, unopened container.

## PHYSICAL CHARACTERISTICS

<b>Tensile Strength</b> . . . . .	1,200 psi
(ASTM D-412)	
<b>Elongation</b> . . . . .	200%
(ASTM D-412)	
<b>Hardness</b> . . . . .	70
(ASTM D-2240, Shore A)	
<b>Bond Strength</b> . . . . .	>400 psi
(ASTM D-4541)	(100% concrete failure)
<b>Suggested Application Thickness</b> . . . . .	25 mil
<b>Theoretical Coverage</b> . . . . .	300 sq. ft./27.87 sq. m
<b>Pot Life</b> . . . . .	30 to 35 minutes
(@ 77°F/25°C)	
<b>Cure Rate</b> . . . . .	8 to 10 hours
(@ 77°F/25°C)	for tack-free surface
	24 hours
	for normal operations

### Notes:

1. Passes ANSI A 118.10-1999 required by the Uniform Building Code for use as a membrane applied shower pan liner.
2. The above physical properties were measured in accordance with the referenced standards. Samples of the actual system, including binder and filler, were used as test specimens.

## SUBSTRATE PREPARATION

Proper preparation is critical to ensure an adequate bond. The substrate must be dry and free of all wax, grease, oils, fats, soil, loose or foreign materials, and laitance. Laitance and unbonded cement particles must be removed by mechanical methods, i.e., abrasive blasting or scarifying. Other contaminants may be removed by scrubbing with a heavy-duty industrial detergent (Stonkleen DG9) and rinsing with clean water. The surface must show open pores throughout and have a sandpaper texture. For recommendations or additional information regarding substrate preparation, contact Stonhard's Technical Service Department.

## PATCHING

For proper membrane application, all cavities and voids in the concrete should be filled with a patching compound prior to priming to make the surface as smooth as possible.

## PRIMING

Stonhard's Standard Primer/SL Primer system must be applied to the prepared floor surface before installing Stonproof ME7 for all waterproofing applications. For all other applications, apply HT Primer only. Allow the primer to cure before applying Stonproof ME7.

## MIXING STONPROOF ME7

Stonproof ME7 is supplied in pre-measured quantities. Mixing must be achieved by mechanical means. Mechanical mixing should be done using a heavy-duty, slow-speed drill (400 to 600 rpm) with a Jiffler Mixer (Product #87028). Open the pail of Part B and pre-mix to ensure the suspension of solids. Add the Part A and continue to mix for approximately 3 minutes. Avoid high-speed mixing that will entrain air into the mix. Thorough mixing of the two components is required.

## POT LIFE

Stonproof ME7 has a working time of approximately 30 to 35 minutes at 77°F/25°C. The working time may vary depending upon ambient and surface conditions.

## APPLYING STONPROOF ME7

Stonproof ME7 can be applied at ambient and surface temperatures of 60 to 85°F/16 to 30°C. This membrane must be applied immediately after mixing the two components. Stonproof ME7 may be applied by using a 30 mil notched squeegee (Product #88038). Backrolling with a spiked roller (Product #88044) will aid in air release. Any questions regarding the application of Stonproof ME7 should be directed to Stonhard's Technical Service Department.

## CURING

The surface of Stonproof ME7 will be tack-free in 8 to 10 hours at 77°F/25°C. Ultimate physical characteristics will be achieved in 7 days.

## RECOMMENDATIONS

- Apply only on a clean, sound and properly prepared substrate.
- Minimum ambient and surface temperatures are 60°F/16°C at the time of application.
- Do not use water or steam in the vicinity of the application. Moisture can **seriously** affect the working time and properties of the material.
- Application and curing times are dependent upon ambient and surface conditions.

## PRECAUTIONS

- Toluene or Xylene solvents are recommended for clean up of the unreacted Stonproof ME7 material. The reacted materials must be removed by mechanical means. Use these materials only in strict accordance with manufacturer's recommended safety procedures.
- Dispose of waste materials in accordance with federal, state and local regulations.
- The use of NIOSH/MSHA approved respirators, safety goggles and impermeable gloves is recommended.
- In case of contact, flush the area with copious amounts of water for 15 minutes and seek medical attention. Wash skin with soap and water.
- Use only with adequate ventilation.

## NOTES

- Material Safety Data Sheets for Stonproof ME7 are available upon request.
- A staff of technical service engineers is available to assist with application or to answer questions related to Stonhard's products.
- Requests for technical literature or service can be made through local sales representatives and offices, or corporate offices located worldwide.

### IMPORTANT:

Stonhard believes the information contained here to be true and accurate as of the date of publication. Stonhard makes no warranty, expressed or implied, based on this literature and assumes no responsibility for consequential or incidental damages in the use of the systems described, including any warranty of merchantability or fitness. Information contained here is for evaluation only. We further reserve the right to modify and change products or literature at any time and without prior notice.

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