On Site Application Of Flexcrete CEMENT BASED Waterproofing Systems

FLEXCRETE WATERPROOFING PROCEDURES

Procedural Application Guidelines

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ON SITE
FLEXCRETE
WATERPROOFING EQUIPMENT CHECKLIST

The following equipment may be required to complete the work in an efficient and workmanlike manner incorporating good concrete practice and safety at all times. Equipment you may need based on the surface you are waterproofing and the method in which you apply it. *Note: It is important that you read and understand the science and the mechanisms of methods employed as described, which will achieve a monolithic, pinhole free, flexible and bonded cement based waterproof membrane. These factors not only affect the quality and permanence of the Flexcrete but coverage and ease of application as well.*

- **Primary Surface Preparation**
  - **Pressure Washer /3500-4000 psi minimum at 4-5 gpm**
  - **Wet or Dry vacuum**
  - **Pump Type Garden Sprayer with adjustable orifice for spray and pattern design Note: If etching or chemical profiling you will need a a plastic sprayer that acidic or corrosive solutions will not affect. Generally it is good to have one for each product for simplicity and ease of use.**
  - **Rotating 0 degree / 360 degree rotating tip for pressure washer**
  - **Acid or chemical resistant stiff brush.**

- **Surface Densification & Water Application For SSD Condition**
  - **Pump Type Garden Sprayer with adjustable orifice for spray and pattern design**
  - **Pump type sprayer for water or direct spray nozzle connected to hose for fogging.**

- **Waterproofing Mixing**
  - **Dual bladed drill mixer**
  - **1/2" high speed electric drill**
  - **Empty 5 gallon buckets**
  - **Margin trowel**
  - **Graduated liquid measuring vessel**

- **Spray Application**
  - **Compressor with hose and Hopper Gun or Pattern Pistol.**

- **Trowel Application**
  - **Trowels of various shapes and sizes predicated on application**

- **Brush**
  - **Hand held or long handled (pole type) masons brush**
  - **24" concrete finishing brush for toothing**

- **Roller**
  - **Heavy Duty Roller Frame**
  - **1 1/4" - 1 1/2" Nap Roller Cover**

ON SITE APPLICATION DETAILS

GENERAL SURFACE PREPARATION
POOLS, BASINS, WATER TANKS, CONCRETE TANKS WITH A CONCRETE SUBSTRATE

General Surface Preparation

It should be noted that proper surface preparation is a prerequisite in attaining a long term waterproofing system. As it is the single most important factor in assuring that the system to be applied is bonded to a truly sound and properly prepared surface. When done appropriately bond failure is never an issue. Remove all heavy debris, dirt, rebound and surface oriented laitenance on all surfaces.

Surface Preparation For A New Pool Shell

1. Using a stiff brush and scraper assure all surface imperfections have been flattened and all primary surface debris has been removed.
2. Cut back and excavate per engineering details all thru wall fittings and appurtenances.
3. Pressure clean with a minimum 3000 psi pressure washer utilizing a 360 degree rotating 0 degree tip to assure all particulates and non bonded surface materials are removed.
4. Pump all wash water from surfaces. Vacuum all remaining particulate and water.
5. Allow surface to dry.
6. Apply FX-180 at 150-200 square feet per gallon and allow to dry overnight.

Surface Preparation For An Old Pool Shell

1. Sound the shell locating all hollows and delaminations.
2. Remove all hollows, spalls etc.
3. Cut back and excavate per engineering details all thru wall fittings and appurtenances.
4. Apply ETCHEX @ 150-200 square feet per gallon.
5. Allow to dwell 10-15 minutes.
6. Apply GELTEKK mixed 1-1 with water and sprayed over ETCHEX saturating the surface completely.
7. Scrub the surface vigorously with a brush and rinse with water.
8. Pressure clean with a minimum 3000 psi pressure washer utilizing a 360 degree rotating 0 degree tip to assure all particulates and non bonded surface materials are removed.
9. Pump all wash water from surfaces. Vacuum all remaining particulate and water.
10. Allow surface to dry.
11. Apply FX-180 at 150-200 square feet per gallon and allow to dry overnight.

Specific On Site Details

There are various on site conditions which are relevant to any tank or vessel holding liquids that must addressed , as well as transition, cold joints, cracks and spalls. This section addresses those details as well as others in conjunction with Technical Bulletin AED-2 2014.

Pre Waterproofing Surface Details

New Pool Shells Or Concrete Walls

1. Using a stiff brush and scraper assure all surface imperfections have been flattened and all primary surface debris has been removed.
2. Cut back all thru wall/cold joint/etc. fittings and appurtenances.
3. Fill all bug holes, honeycomb, voids and cavities with compound or sand/topping mix. Mix with Flexcrete polymer 1 part polymer to 2 parts water to a trowelable consistency. Profile to match existing surface plane. Allow to cure.

Existing Pool Shells Or Poured Concrete Walls

1. Cut back all thru wall/cold joint/etc. fittings and appurtenances.
2. Fill all bug holes, honeycomb, voids and cavities with compound or sand/topping mix. Mix with Flexcrete polymer 1 part polymer to 2 parts water to a trowelable consistency. Profile to match existing surface plane. Allow to cure.

Cracks All Substrate Types

Cracks vary in their size, reason for their occurrence, whether they are moving (dynamic) or non moving (static). Below is listed the details and application for non moving static cracks. If a dynamic or moving condition is present it is suggested you address the condition with Valcon's Flex N Seal System which bridges and flexes beyond the capacity of the membrane itself for additional security when such conditions are prevalent. See detail number 6 on Technical Bulletin AED-2 2014

1. Rout crack or cold joint with v groove diamond tool or diamond cutting tool.
2. Clean completely
3. Apply Flexcrete to the cracked area in a width of 4” on either side of crack or a total of 8” wide. Fill routed joint as well as laying down a 8” layer in width. Allow this layer to cure overnight.
4. Apply Flexcrete mesh to the Flexcrete fill overlay.
5. Apply an additional layer of Flexcrete over the mesh, fully embedding and covering the mesh itself.

Cold Joints All Substrate Types

1. Use the above method as described for cracks in all substrates. See detail number 6 on Technical Bulletin AED-2 2014

Vertical and Horizontal Wall Intersection All Substrate Types

1. Build cant and reinforced section. See detail number 4 on Technical Bulletin AED-2 2014

Coved Base All Substrate Types

1. See detail number 5 on Technical Bulletin AED-2 2014

Gutter/Trough Detail All Substrate Types

1. See detail number 1 on Technical Bulletin AED-2 2014

MIXING AND APPLICATION OF FLEXCRETE

Site Factors - Application - Mixing

Mixing Fluid Ratios and Requirements

The fluid to dry mix ratio or requirements is predicated primarily on application method. For example to spray or brush it is generally recommended that 1.5 - 2.0 gallons of mixing fluid be used per 50 pounds of dry compound mix. Troweling on the other hand would be satisfactory between .85 and 1.2 gallons of mixing fluid to attain a stiffer mix.

Temperature and Moisture Factors Regarding Placement and Pot Life Of FLEXCRETE

Mixture Temperature

The temperatures of the dry mix as well as the Flexcrete polymer significantly affect the pot life, mix and workability of the product to be applied as well as coverage and ease of use. Care should be taken to keep the dry mix and polymer solution out of direct sunlight to reduce heat gain in the materials themselves. The hotter the material the faster the set time and loss of workability. The use of chemical retarders is not recommended as it may alter the unique chemistry that is developed between the polymer and the dry compound.

Cooling Materials

Lowering the temperature of the material will allow up to thirty minutes additional working time and improved workability in application to the substrate. To achieve this use a garbage can that is larger than the five gallon bucket and add several bags of ice. To this add water so the bucket will easily slip in and out of the cold solution. Allow to set for 20-30 minutes before use.

Keep dry goods in shaded are and covered prior to use.

Wall Temperature and Moisture Content

The moisture content and substrate or wall temperature will significantly affect the ease and rate of application. Moisture content will determine the initial set time and adhesion quality. Moisture content and wall temperature are directly related. When the moisture content is right the wall temperature should be in an acceptable range.

Achieving A SSD (Saturated Surface Dry) Condition

Water shall be sprayed onto the substrate in a fine spray allowing the water to penetrate into the substrate. Water shall be allowed to soak and then sprayed again. When the water begins to pond or collect on the surface the substrate is now in a SSD condition. Moisture needs to be present on the application of the Flexcrete material to assure proper bonding and hydration/cure of the membrane itself.

On Site Mixing

1. In a clean 5 gallon bucket place the desired amount of liquid into the bucket.
2. Using a dual bladed mixer (Jiffler Type) slowly add the dry compound to the liquid while the mixer is running at medium speed.
3. Continue adding powder until a creamy, homogeneous, pancake like batter is achieved with no lumps or non mixed materials.
4. Continue mixing for 5 minutes and stop. Allow material to fatten or dwell for a period of five minutes.
5. Remix tempered material adding additional liquid of necessary to achieve the pancake batter consistency.

Application Method and Types

There are various methods for application of the Flexcrete Waterproofing System. There are four primary types being, brush, roller, trowel or spray. It is the preferred method to spray and brush or brush alone on the first coat to achieve maximum bonding capacity.

Brush:
- Using a mason type brush, wet out the brush and shake out.
- Assure a SSD condition is present on substrate prior to application.
- Dip brush into bucket and apply left to right or east and west filling all voids , pits and holes.

Roller:
- Using an 1 1/4" - 1 1/2" roller cover wet out the roller and shake out.
- Assure a SSD condition is present on substrate prior to application.
- Dip roller into bucket and apply left to right or east and west filling all voids , pits and holes.

Trowel:
- Assure a SSD condition is present on substrate prior to application.
- Apply material with a trowel covering and filling all voids and surfaces.

Spray:
- Assure a SSD condition is present on substrate prior to application.
- Apply material with a hopper/pattern pistol/texture gun, covering and filling all voids and surfaces.

FLEXCRETE Applications

To achieve a cement based waterproof condition requires two applications of the Flexcrete compound. Each coat shall be perpendicular to the other to assure a monolithic, pinhole free condition. Each application shall be allowed to cure overnight. Each application shall be treated independent of the other. If used as a waterproofing bond coat the surface is best brushed or broomed on the last coat to provide a mechanical bonding feature.

CLEAN UP

All materials tools, equipment can be cleaned with potable water prior to set.