

## **SPECIFICATIONS-CONCRETE FLOORS**

### **(CONTRACTOR TO USE THE BELOW SPECIFICATION FOR BID SECTIONS NO.1 & NO.2)**

#### **SCOPE OF WORK AND MATERIAL:**

All work must be performed on weekday, weekends, non-student days, and district holidays or after school hours when students are not present.

- Project start date must be coordinated with district to allow over site from district chosen inspector.
- The Contractor will be expected to adjust their work schedule to accommodate the district's needs. The District will not be responsible for paying overtime.
- The Contractor will provide their own storage (lockable container, etc.) for all necessary equipment and materials.

**\*District requesting the contractor use ULTRAFLOOR Architectural Polished concrete System by DIAMATIC (or equal) complete installation specification are available in the DIAMATIC Technical Brochures available at [www.diamaticusa.com](http://www.diamaticusa.com), [www.ultrafloor.com](http://www.ultrafloor.com)**

**\*If Contractor is using a product other than the above mentioned they are to provide specifications to the District for approval.**

#### **FLOOR PREPARATION:**

##### **Product Testing:**

**Mock Up:** Before performing the work, and adequate on-site mock-up of the ULTRAFLOOR (**or Equal**) Architectural Polished Concrete System of specified process, surface, finish, color and joint design-treatments must be installed for review and approval. These mock-ups should be installed using the same size machine and personnel who will perform the works. The minimum size shall be 10'x10' to show the complete process. Approved mock-ups may become part of the completed work, if undisturbed at time of substantial completion.

**Static Coefficient of Friction:** A reading of not less than 0.5 for level floor surfaces shall be achieved and documented as determined by certified an NFSI walkway auditor using the ASTM D-2047 quality control test.

**Dynamic Coefficient of Friction:** A reading not less than 0.6 for level floor surfaces shall be achieved and documented as determined by a certified NFSI walkway auditor using the ANSI B101.3 quality control test.

**Floor Moisture Testing:** A reading of not less than 80% RH shall be accepted as measured by ASTM F-2170 Standards. Acceptable MVER shall be 6 pounds or less as measured by ASTM F-1896-04.

Test Reports: Comply with the provisions of the following specifications and standards, except as otherwise noted or specified or as accepted or directed by the owner. All test data shall be recorded and submitted upon completion.

- \*Cast in place Concrete (**refer to Gloss Attainment section**)

- \*ASTM E1155 Standard test method for determining floor flatness and levelness using the “F” number system

- \*ASTM D-523-14 Standard test method for measurement of gloss of high gloss surfaces by abridged goniphotometry

- \*ASTM D—5767-95 Distinctness of image

- \*ACI 302 1R-15 Guide for Concrete floor and slab construction

- \*ACI 117-10 Specification for tolerances for concrete construction

- \*ACI 310 R-13 Guide for Decorative Concrete

### **Delivery, storage and Handling:**

- \*Deliver all materials in original container, bearing manufactures labels indicating brand name and directions for storage, factory numbered and sealed until ready for installation.

- \*Maintain copies of all chemical MSDS and Technical data sheets for all products

- \*Store all materials in a dry climate controlled environment at a minimum of 55 degrees F (13 degree C) and a maximum of 85 degrees F (29 degrees C)

### **Site Conditions:**

- \*Comply w/manufacturers written instructions for substrate temperature and moisture content ambient temperature and humidity, ventilation and other conditions affecting the floor finish.

- \*Close area to traffic during and after ULTRSFLOOR (**or equal**) Architectural Polished Concrete System application for a time period that is recommended.

- \*Inspect the existing substrate and document unsatisfactory conditions in writing. Verify that surfaces and site conditions are ready to receive work. Correct unacceptable conditions prior to installation of system. Commencement of work constitutes acceptance of substrate conditions.

- \*Existing concrete must be cured for a sufficient time period as recommended by DIAMATIC (**or equal**) before the application can begin.

- \*Protect existing concrete and the new ULTRAFLOOR(**or equal**) Architectural polished concrete system from contamination by petroleum, oil, hydraulic fluid, acid and acidic detergents, paint and other liquid dripping from trades and equipment working over these substrates. If construction equipment must be used on these substrates, diaper all components that may drip fluids.

- \*Prohibit the placement and storage of construction materials over new ULTRAFLOOR (**or equal**) Architectural Polished Concrete System, to include ferrous metals and steel members.

- \*Prohibit vehicle parking and pipe cutting operations over concrete before and after the ULTRFLOR(**or equal**) architectural Polished concrete system.

### **System Integrity:**

The ULTRAFLOOR(**or equal**) Architectural Polished Concrete system is an engineered and integrated complete installation system requiring strict adherence to all specified installation

processes, equipment, diamond abrasives concrete preparation joint treatment and chemicals to achieve the intended result. Any variation will void the warranty.

### **Materials:**

\*The District is requesting DIAMATIC Equipment (**or equal**) if contractor uses equipment other than that listed above, they are to notify District personnel for approval prior and as part of the bid turn in.

\*DIAMATIC BMG-780 (**or equal**) Planetary Grinder and Polisher, large platform: 32” planetary floor polisher. Minimum head pressure of 725 lbs.

\*DIAMATIC Pro Polisher MPS-1872 LP Propane burnisher, MPS-1027 E Electric Burnisher (**or equal**)

\*Vacuums: Dust collection must be designed for filtering of concrete dust. Minimum air speed of 340 CFM for large and medium platform equipment

\*DIAMATIC Dust Extractors BDC 3140-P, BDC 44, BDC66 (**or equal**)

\*The District is requesting Diamatic Diamond Abrasives and Blades (**or equal**) if contractor uses Blades and Abrasives other than that listed above, they are to notify District personnel for approval prior and as part of the bid turn in.

Metal Bonded Diamonds-18/20,30/40,60/80,120-140 grits

\*Concrete has hardness levels of soft, medium and hard. The hardness of the concrete will determine the required hardness of the metal bonded diamonds:

-Extra hard concrete:	Extra soft metal bonded diamonds
-Hard concrete:	Soft metal bonded diamonds
-Medium concrete	Medium metal bonded diamonds
-Soft concrete	Hard metal bonded diamonds
-Extra soft concrete	Extra hard metal bonded diamonds

\*Transitional diamonds-#0, #1, #2 grit

\*Hybrid flex-res resin bonded diamonds-50, 100, 200, 400, 800, 1500, 3000 grit

\*FLOR-GRIT diamond impregnated pads-200, 400, 800, 1500, 3000 grit

\*Easy edge ceramic wheels for hand grinders-30-50-100-270-400 grit in 5” & 7”

### **Protection Materials:**

To prevent minor damage from light traffic during installation, an approved construction grade flooring protection material for the ULTRAFLOR System (**or equal**) shall be installed. At no time will any tape be used or applied to the finished surface as the adhesive may leave a permanent residue or remove the surface finish

### **Inspection:**

\*Inspect all concrete substrates and conditions under which the ULTRAFLOR System (**or equal**) is to be installed.

\*Verify that all surfaces and site conditions are ready to receive work, document and conditions detrimental to timely and proper installation of work. Beginning work constitutes acceptance of substrate condition.

### **Demolition:**

\*All surface are to be cleared of any debris

\*Remove existing floor coverings and coatings, including but not limited to carpet VCT, ceramic tile and grout, wood, epoxy/urethane, quartz, mastic, adhesives, paint or other non-concrete floor materials. Adhesives must be removed to their penetrated depth.

\*The mechanical removal of resilient flooring, backing, lining felt, cutback and other adhesives can be hazardous, as certain materials may contain asbestos or crystalline silica. Do not sand, dry seep, dry scrape, drill, saw, bead blast, grind, mechanical chip or pulverize these materials, as harmful dust may result. Inhalation of dust may cause asbestosis or other bodily harm. Contractor to consult the adhesive manufacturer, the Resilient Floor Covering Institute ([www.rfci.com](http://www.rfci.com)) and all applicable government agencies for rules and regulation concerning the handling and removal of asbestos containing materials.

\*To prevent any damage to the concrete slab surface during demolition from chipping hammers, existing flooring should be removed mechanically with walk-behind or ride-on scraping equipment.

\*Chemical preparation of the substrate is NOT acceptable, including but not limited to acid etching, sweeping compounds, solvents and adhesive removers.

\*Suppress dust during demolition with the use of dust collection equipment to reduce or eliminate airborne concrete and substrate dust.

\*Where existing concrete is cracked, damaged, spalled, not within specified tolerance or contains unacceptable levels of contaminants or moisture vapor, the installer of the materials will evaluate conditions and proceed with appropriate system components.

\*For Specific repairs apply the acceptable polishable repair mortar in accordance with the manufacturer's instructions.

### **Joint Fill (Indoor):**

\*All joint fill materials shall be installed in accordance with the written recommendations provided with the manufacturer's technical data sheet.

\*Joints are to be filled before or after the first pass of metal bonded diamond, but before any further grinding continues.

\*If the joint filling will occur after the polishing process, apply soap to the edge of the concrete to keep the joint filler from staining the concrete.

### **Gloss Attainment:**

\*Gloss readings are not to be obtained through the use of any microfilming products, sealers, coatings, enhancers or as the result of resin transfer from resin bond abrasives.

\*Readings shall be taken not less than 10' on center in field areas and within 1' of floor area perimeters. In no case shall a reading be below 2% of specified minimum sheen

Leven C Sheen-High Gloss reading of 56 or higher. 1500 grit or higher

### **Cut Levels:**

LEVEL 1 CUT/A light cut the removes the surface paste exposing the fine aggregates near the surface. Also referred to as cream finish. Note that a Level 1 cut will require higher F-numbers to achieve, Min Ff 50.

### **Polished Concrete Project Specific Details:**

**Specified Floor finish shall have a cut level of "LEVEL 1/Cream Finish**  
**Specified FLOR-COLOR shall be "n/a"**

### **Polishing Steps:**

1. GRIND/POLISH #1: DIAMATIC (**OR EQUAL**) 30/40 Grit Metal Bonded Diamonds. Crosshatch until level of aggregate exposure has been achieved.
2. Squeegee, vacuum or auto-scrub to remove all residual dust.
3. GRIND/POLISH #2: DIAMATIC(**OR EQUAL**) 60/80 Grit Metal Bonded Diamonds
4. Squeegee, vacuum or auto-scrub to remove all residual dust.
5. GRIND/POLISH #3: DIAMATIC (**OR EQUAL**) #1 Transitional Diamonds, Ceramic Bonded.
6. Squeegee, vacuum or auto-scrub to remove all residual dust.
7. GRIND/POLISH #4: DIAMATIC(**OR EQUAL**) 200 Grit Resin Bonded Diamonds
8. Squeegee, vacuum or auto-scrub to remove all residual dust.
9. Apply DIAMATIC FLOR-SIL (**OR EQUAL**) per application instructions at a rate of 400 sq.feet per gallon.
10. Allow to dry 1 hour before continuing on to the next step.
11. GRIND/POLISH #5: DIAMATIC(**OR EQUAL**) 400 Grit Resin Bonded Diamonds
12. Squeegee, vacuum or auto-scrub to remove all residual dust
13. GRIND/POLISH #6 DIAMATIC(**OR EQUAL**) 800 Grit Resin Bonded Diamonds
14. Squeegee, vacuum or auto-scrub to remove all residual dust
15. MICROPOLISH/BURNISH #1: FLOR-GRIT 800 Diamond Impregnated Pad
16. Dry mop the floor clean to remove all debris
17. Apply DIAMATIC FLOR-FINISH (**OR EQUAL**) High Gloss, per instructions at a rate of 2500-3000 sqr.feet per gallon.
18. Allow to dry for a minimum of 15 minute(or per manufacturer's instructions)
19. MICROPOLISH/BURNISH#2: FLOR –GRIT800 Diamond Impregnated Pad
20. Apply a second coat of FLOR-FINISH (**OR EQUAL**) High Gloss. Allow to dry for 150 minutes
21. MICROPOLISH/BURNISH #3: FLOR-GRIT 800 Diamond Impregnated Pad

### **Acceptance:**

- \*Remove all materials resulting from the installation from the site.
- \*Clean all adjacent surfaces and materials
- \*Perform post job walk to ensure that the System used has been completed per the specifications.
- \*Take pictures of the final product for documentation and submittal.

**Protection:**

\*Prevent any spills or stains from coming into contact with the floor. Clean any spills as quickly as possible

**SPECIAL CONDITIONS:**

1. **Close Out Documentation:** must provide the District with Warranties, Maintenance Instructions and any pertinent guidelines
2. **Time of Completion:** The District has determined time of completion to be no later than August 7, 2018
3. **Estimated Schedule of Work:**
  - a. Notice to Proceed Date: June 11, 2018  
(Prior start date is a possibility, must be coordinated with Curtis Manganaan, Director of Maintenance & Operation)
  - b. Hours of Work: 6:00 A.M to 5:00 P.M.
4. **Low bid determination:** Low bid will be determined by total of Base bid. and all completed forms/samples and Job – Walk attendance.