



# Diamapro-Polish

## POLISHING SPECIFICATIONS

### PART I – GENERAL

#### 1.01 SUMMARY

Diamapro Systems® Diamapro-Polish Concrete System is a mechanical process of refining the concrete surface using diamond abrasives in sequential steps, along with chemical treatments to produce a fully refined, dust proof, light reflective and easy to maintain surface.

#### 1.02 SECTION INCLUDES

Products and procedures for the installation of the Diamapro-Polish Concrete System:

- Diamapro Systems® Mechanical Diamond Polishing Equipment and Tooling
- Diamapro Systems® Concrete grout and joint fill
- Diamapro Systems® Chemicals: Diamapro-Hard Densifier and Diamapro-Guard HG

#### 1.03 SUBMITTALS

- Product Data: Provide Manufacturer's technical literature for each product shown. Include manufacturer's technical data, application instructions, recommendations and Safety Data Sheet.
- Tooling and Materials list that will be bought through Niagara Machine.
- Installer Qualifications: Provide documentation of the installer's capabilities such as earlier project references.
- Maintenance Data: Provide manufacturer instructions for maintenance of installed work. These instructions should have precautions against methods and cleaning products which may jeopardize the short and long-term service life of the finish and performance.

#### 1.04 QUALITY ASSURANCE / WARRANTY

- Substitutions will not be allowed unless outlined within this specification.
- Installer Qualifications:
  - Installer shall be an experienced contractor certified by a qualified Diamapro® Systems employee.
  - A qualified supervisor must be on site during all times during which the specified work is performed.
- Mock-Up: Before performing the work, an on-site mock-up of the Polished Concrete System of the specified process must be installed for review and approval. These mock-ups should

# Diamapro-Polish

## POLISHING SPECIFICATIONS

be installed using the same size machine and personnel who will perform the work. The minimum size shall be 10' x 10' to show the complete process using all the specified tooling and chemicals. All mock-ups may only be removed with the approval of the floor owner.

- Static Coefficient of Friction (SCOF): A reading of not less than 0.5 for non-ramp surfaces shall be obtained using the ASTM D-2047 test method.
- Dynamic Coefficient of Friction (DCOF): A reading not less than 0.42 for non-ramp surfaces shall be obtained as determined by certified testing using the ANSI B101.3 test method.
- Pre-Installation Conference: Prior to the installation of the Polished Concrete System an on-site conference shall be conducted to review specification requirements.
  - Meeting shall include the certified Subcontractor, and Diamapro® Systems Representative.
  - The agenda shall include:
    - (1). Visual walk-through of work area, discussion of preparation of substrate and other pre-Installation conditions and issues.
    - (2). Review of System requirements, including drawings, specifications, and contract documents.
    - (3). Review of mock-up location and size.
    - (4). Review and finalization of installation schedule to avoid delays.
    - (5). Access to work area by other trades to reduce possible damage to the floor before, during and after completion. No pipe cutting on the floor. All lifts must be dollyed and have non-marking wheels.
    - (6). Review of required inspection, testing, and certification.
    - (7). Review of power requirements and responsibility
    - (8). Review of floor protection requirements during and after installation.
    - (9). Review of cleaning procedures during and after installation.

### 1.05 DELIVERY, STORAGE, AND HANDLING

- Delivery of all materials must be in original container, displaying the manufacturer's original label.
- Keep copies of all chemical SDS, and technical data sheets for all products on site.
- Store all materials in a dry environment at a minimum of 50°F and a maximum of 90°F.

### 1.06 SITE CONDITIONS

- Follow manufacturer's written instructions for substrate and ambient temperature affecting the finished floor.
- Close areas to all traffic during and after Polished Concrete System application for a time recommended by the chemical manufacturers.
- Installer shall inspect the existing substrate and document unsatisfactory conditions in writing. The General Contractor shall approve the method of correcting unacceptable conditions prior to installation of the system.
- Start of work by the Installer constitutes acceptance of substrate conditions.



# Diamapro-Polish

## POLISHING SPECIFICATIONS

- Freshly placed concrete must be cured sufficiently when moisture levels and strength are suitable as recommended prior to the application can begin.
- Protect existing concrete and the newly installed Polished Concrete System from contamination. All stain producing liquids and acids must be kept away from contacting the floor.
- Prohibit the storage of construction materials on the newly installed Polished Concrete System.

### PART II - PRODUCTS

#### 2.01 MATERIALS

- EQUIPMENT –
  - Planetary or Rotary Grinder, Large Platform: 30" planetary floor polisher. Minimum head pressure of 550 lbs.
  - Diamapro Systems® Propane Burnisher, Propane 27" Burnisher.
  - Vacuums: Proper size Diamapro® Systems dust collector must be used and designed for the filtering concrete dust equipped with a registered HEPA filter.
  - Air Scrubber: Diamapro AS-2000
  - Auto-Scrubber: Diamapro® DP 20SCRUB
- Diamond Abrasives (Technical Information 704.408.2880)
  - Diamapro® Systems Metal Bonded Diamonds – 30/40, 60/80, Grits.
  - Diamapro® Systems Copper Bond Diamonds - 50 Grit.
  - Diamapro® Systems Resin Bonded Diamonds -100, 200, 400 Grit.
  - Diamapro® Systems EZ Finish Diamond Impregnated Pads
  - Diamapro® Systems Ceramic wheels for hand grinders – 30-50-100-200-400 Grit. Available in 5"-7".
- Concrete Treatment Chemicals
  - There will be no other approved equals.
  - Diamapro Systems® Diamapro-Hard Clear Hardener & Densifier for concrete
  - Diamapro Systems® Diamapro-Grout Reactive Surface Grout and Pin Hole Filler
    - Technical Information (800) 622-2048
  - Diamapro Systems® Diamapro-Joint Fill Control Joint Sealer
    - Technical Information (800) 622-2048
  - Diamapro Systems® Diamapro-Guard HI Gloss Sealer
- Floor Protection Systems
  - To help prevent damage during final building construction, an approved construction grade flooring protection system shall be installed after completion. No tape shall be

# Diamapro-Polish

## POLISHING SPECIFICATIONS

applied to a finished Polished Concrete surface as the adhesive may cause discoloration or damage to the finished aesthetic.

### PART III – EXECUTION

#### 3.01 EXAMINATION PRIOR TO EXECUTION

- Inspect all concrete substrates and conditions within the area and surrounding area where the system is to be installed.
- Document and correct conditions detrimental to proper and prompt installation of the system.
- Review the mock-up panel to ensure it is satisfactory and meets all specified requirements.

#### 3.02 PREPARATION

- Preparation of the surface / area
  - Clear surfaces of all construction materials and equipment that might impede the installation process.
  - Power source for the equipment shall be prepared by floor owner with direction from the installation contractor.
  - Using the proper mechanical means, remove existing floor coverings, paints and coatings.
  - Adhesives and resinous coatings must be removed to their penetrated depth.
    - Prevent any damage to concrete slab surface during demolition from chipping hammers. Existing floor covering shall be removed mechanically with scraping equipment.
  - Chemical preparation of the substrate is NOT acceptable.
  - Suppress dust during demolition with the use of HEPA vacuum systems and air-scrubbers to reduce airborne concrete and substrate dust.
  - Where existing concrete is damaged not within specified tolerance, the installer of the polished Concrete System will evaluate conditions and continue with approved repair method. These areas must be discussed, priced, and included within the written scope of work.
- Joint Fill (Indoor Non-Moving)
  - All joint filling materials shall be installed according to the most current written recommendations provided in the manufacturer's most current technical data.
  - For the best results, all joints should be filled after the first or second pass of metal bond diamonds but before the 50-grit copper tooling.

#### 3.03 POLISHING

- A. EXPOSURE LEVEL – Size of aggregate being exposed.
  - 1. The first cut exposes the coarse aggregates within the surface.
  - 2. The level of aggregate exposure will depend on the substrate.
  - 3. The exposure level will be shown in the on-site mockup.

# Diamapro-Polish

## POLISHING SPECIFICATIONS

- B. GLOSS LEVELS
  - 1. If gloss readings are needed, they will be taken before using any film forming products.
    - a. Gloss readings shall be taken not less than 2' from the perimeter of the installed area or from a construction joint. In no case shall a reading be below 3% of specified minimum gloss:
    - b. Level A Gloss – Low Gloss reading of 30 to 40. 400-grit diamond finish.
- C. POLISHING STEPS
  - 1. GRIND #1: Diamapro® Systems 30/40 Grit Gold Double Button Metal Bond Diamonds. Run in a crosshatch pattern until the floor is uniformly ground.
  - 2. Squeegee, vacuum or auto-scrub to remove all residual dust.
  - 3. GRIND #2: Diamapro® Systems 60/80 Grit Gold Double Button Metal Bond Diamonds.
  - 4. Squeegee, vacuum or auto-scrub to remove all residual dust from the surface, cracks, and joints.
  - 5. Install Diamapro® Systems Diamapro-Joint in specified color.
  - 6. Once sufficiently cured, approximately 1 hour, shave level with the top surface.
  - 7. Apply the Diamapro® Systems Diamapro-Grout pin-hole filler in “warm stone” color at the rate of 600 FT<sup>2</sup> per gallon or until the pore structure in the floor has been filled.
  - 8. Allow the grout coat to dry completely, 1-2 hours depending on ambient and slab temperature.
  - 9. GRIND #3: Diamapro® Systems 50 Grit Copper Bonded Diamonds ensuring all the grout is removed from the surface.
  - 10. Squeegee, vacuum or auto-scrub to remove all residual dust.
  - 11. HONE #4: Diamapro® Systems 100 Grit P-Pucks
  - 12. Squeegee, vacuum or auto-scrub to remove all residual dust.
  - 13. Apply Diamapro® Systems Diamapro-Hard Clear Hardener & Densifier per application instructions at a rate of 400-500 FT<sup>2</sup>/Gal.
  - 14. Allow the Clear Hardener & Densifier to dry for a minimum of 2 hours.
  - 15. HONE #5: Diamapro® Systems 100 Grit Resin Bonded Diamonds.
  - 16. Squeegee, vacuum or auto-scrub to remove all residual dust.
  - 17. HONE #6: Diamapro® Systems 200 Grit P-Pucks
  - 18. Squeegee, vacuum or auto-scrub to remove all residual dust.
  - 19. POLISH #7: Diamapro® Systems 400 Grit P-Pucks
  - 20. Squeegee, vacuum or auto-scrub to remove all residual dust.
  - 21. BURNISH #1: Diamapro® Systems Sparkle Pad - 800 Diamond Impregnated Pad.
  - 22. Dry mop the floor clean to remove all the debris.
  - 23. Apply Diamapro® Systems Diamapro-Guard Hi Gloss per application instructions at a rate of 2500-3,000 square feet per gallon.
  - 24. Allow to cure for a minimum of 2 hours.
  - 25. BURNISH #1: Diamapro® Systems EZ Finish Diamond Impregnated Pad.
  - 26. Apply a second coat of Diamapro® HI Gloss per application instructions at a rate of 2500-3,000 square feet per gallon.
  - 27. Allow to cure for a minimum of 2 hours.
  - 28. BURNISH #2: Diamapro® Systems EZ Diamond Impregnated Pad.

# Diamapro-Polish

## POLISHING SPECIFICATIONS

### 3.04 EDGES

- Edge polishing work shall be done with a 5" or 7" Diamapro® Systems Speedi Edge and Hand-Held Grinder or Walk Behind edge polishing machine.
- The edge polishing process will match the steps above for the desired cut and gloss level.
- Each step shall be done after each polishing step.
- All grinding and polishing must be performed while connected to a HEPA registered dust extractor.

### 3.05 ACCEPTANCE

- Remove all equipment and containers from the site after the work has been performed.
- Clean surfaces immediately outside of the work area from debris produced by the polishing process.
- Take pictures of the final system for documentation and submittal, if requested or needed.

### 3.06 PROTECTION

- Clean spills that may occur as quickly as possible with an approved cleaner.
- Protect the finished Polished Concrete System from other trades by installing the protective floor covering system.
  - The protective floor covering must be approved by the Installer of the Polished Concrete System.
  - If the protective floor covering material is damaged during use, that section must be replaced.
  - At no time tape shall be used to secure the protective covering to the finished floor.
  - Once the installation contractor has completed their scope of work, the integrity of the protective floor covering shall be the responsibility of the General Contractor.

### 3.07 ONGOING MAINTENANCE

- A. First Cleaning
  - 1. DO NOT USE water for cleaning the surface for a minimum of 72 hours after installation. Avoid using mats or non-breathable coverings for a minimum of 14 days to allow the system to fully cure.
  - 2. NEVER USE cleaners that are acidic.
  - 3. Regular maintenance and cleaning will help prolong the surface shine and protective qualities.
- B. Daily Maintenance
  - 1. Regular sweeping with a dry mop or micro-fiber dust mop.
  - 2. Diamapro® Systems Diamapro-Clean, a neutral pH cleaner, may be used when soils or stains are difficult to remove.
  - 3. Water puddles should be removed at once.

# Diamapro-Polish

## POLISHING SPECIFICATIONS

- 4. As a daily process, this will help keep the gloss and remove any light stains that have an impact on the final appearance. This process should be performed daily.
  - a. Auto-scrubber
    - (1.) Must be performed wet with Diamapro® Systems Diamapro-Clean
    - (2.) Diamapro® Systems Sparkle Pad – 3500-grit
  - 2. High-speed Burnisher
    - (1.) Diamapro® Systems Sparkle Pad – 3500-grit
- C. Restore
  - 1. Periodically, the polished floor will show traffic patterns due to heavy foot or vehicle traffic.
  - 2. Refurbish Level should be used when the floor is not responding to Daily Maintenance.
  - 3. The floor appears to have lost its gloss, and the floor has been stained.
  - 4. Perform this level until the gloss level needed has been restored and then move back to Daily Maintenance.
    - a. Auto-scrubber or High-speed floor machine
    - b. Must be performed wet.
      - (1.) Diamapro® Systems Sparkle Pad – 800-grit
      - (2.) Diamapro® Systems Sparkle Pad – 1800-grit
      - (3.) Diamapro® Systems Sparkle Pad – 3500-grit
      - (4.) Apply Diamapro® Systems DiamaproHard HI Gloss Finish
      - (5.) High-speed burnish using a Diamapro® Systems Sparkle Pad – 3500-grit dry.
- D. Refurbish
  - 1. The one of most detrimental liquids contacting a polished concrete floor is organic acid. Vinegar, red wine, pickle juice, and fruit juice all have food grade acid. These liquids are all in a common grocery store. Organic acid is so strong it will etch the surface of a polished floor creating a rough surface, reducing the gloss level.
  - 2. The Refurbish Level is a process to refine the etched surface to bring it back the original appearance.
  - 3. The process will take several steps to complete.
  - 4. This can be performed over a large area or to address small etched areas.
  - 5. The process needs to gradually feather into the polished area, creating a seamless repair.
    - a. Must be performed wet.
    - b. Must only be used on an auto-scrubber.
    - c. Diamapro® Systems Sparkle Pad – 200-grit
    - d. Diamapro® Systems Sparkle Pad – 400-grit
    - e. Diamapro® Systems Sparkle Pad – 800-grit
    - f. Diamapro® Systems Sparkle Pad – 1800-grit
    - g. Diamapro® Systems Sparkle Pad – 3500-grit
    - h. Apply Diamapro® Systems DiamaproGuard HI Gloss Finish
    - High-speed burnish using a Diamapro® Sparkle Pad – 3500-grit dry.