

GUIDE SPECIFICATION FOR BECOSAN® POLISHED CONCRETE FLOOR FINISH

Specifier Notes: **BECOSAN®** is a grinding and polishing treatment for industrial concrete floors. It consists of a micro-grinding procedure along with the application of two penetrating chemicals, **BECOSAN DENSIFIER®** and **BECOSAN PROTECTIVE SEALER®**. **BECOSAN®** has been specially designed to produce hardened, dust-proofed and improved impact resistance wherever it is applied. Through various grinding and polishing techniques, various floor finishes can be obtained. **BECOSAN DENSIFIER®** it is a water based solution that penetrates and reacts with the free lime within the concrete surface. The chemical reaction produces a denser concrete surface which reduces abrasion wear and dust formation. To increase stain resistance, the application of **BECOSAN PROTECTIVE SEALER®** is then recommended. **BECOSAN PROTECTIVE SEALER®** is a water-based solution, composed of unique polymers, specifically formulated to provide the dual actions of penetrating and resistant protection for concrete that has been previously densified.

1. GENERAL

1.1. SECTIONS INCLUDES

- 1.1.1. Surface preparation.
- 1.1.2. Application of clear, colourless, liquid densifier.
- 1.1.3. Grind and polish of floor to desired finish.
- 1.1.4. Application of water-based protective sealer.

1.2. REFERENCES

- 1.2.1. ASTM F 150-06. Electrical resistance of Conductive and Static Dissipative Resilient Flooring.
- 1.2.2. DIN EN 13892-4:2002. BCA wear resistance test.
- 1.2.3. BS 7976.2:2002+A1:2013. Pendulum test for slip resistance.

1.3. SUBMITTALS

- 1.3.1. Submit manufacturer's product data and application instructions.
- 1.3.2. Provide documentation showing finisher is certified by the polishing and densifier manufacturer.
- 1.3.3. Contact manufacturer or supplier for a list of certified applicators.

1.4. QUALITY ASSURANCE

- 1.4.1. Installer Qualifications
 - Use an experienced installer and adequate number of skilled personnel who are thoroughly trained and experienced in the floor treatment.
 - The applicator shall either:
 - A **BECOSAN®** approved applicator as certified by **BECOSAN APS**, having a minimum of 5 projects performed within three years of similar type, size and complexity as this contract.
 - Be a Level 2 **BECOSAN** approved applicator by **BECOSAN APS**.

- Mock-Ups.
 - Apply mock-up of required finish to demonstrate surface finish, color variations and to determine a level of workmanship.
 - Build mock-up in the location and dimensions as directed by the architect or owner's representative.
 - Prior to proceeding, ensure that mock-up meets all requirements of the architect or owner's representative.
 - Maintain mock-up during construction in an undisturbed condition as a standard for judging the work.

- Provide name of technically qualified concrete polishing field representative.

- Provide name of technically qualified densifier manufacturer's field representative.

- Ensure that correct amount of densifier is onsite.

1.5. DELIVERY, STORAGE, AND HANDLING

- 1.5.1. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- 1.5.2. Store materials in a clean dry area in accordance with manufacturer's instructions.
- 1.5.3. Keep products from freezing.
- 1.5.4. Avoid direct contact with this product as it may cause mild to moderate irritation of the eyes and/or skin.
- 1.5.5. Protect materials during handling and application to prevent damage or contamination.

1.6. ENVIRONMENTAL REQUIREMENTS

- 1.6.1. Do not apply product when air, surface, or material temperatures are expected to fall below 4⁰C (40⁰F) within four hours of expected application.
- 1.6.2. Do not apply to frozen concrete.
- 1.6.3. Do not use on highly dense or non-porous surfaces.
- 1.6.4. Limit and control damage from excessive dust caused by grinding/polishing procedure.
- 1.6.5. Properly dispose of collected wet slurry from polishing.

2. PRODUCTS

2.1. MANUFACTURER

- 2.1.1. **BECOSAN APS** 15 Nebelvej 8700 Horsens Denmark.
Contact Number: +4581814040.
Web Site: www.becosan.com

2.2. MATERIALS

2.2.1. Equipment to be used for grinding/polishing shall be:

- .1 Ride on double power trowel 90 cm with two floating pans.
- .2 Ride on scrubber dryer for cleaning during grinding steps.
- .3 Walk behind power trowel 60 cm for edges

2.2.2. Equipment to be used for grinding/polishing shall all be in good working order.

2.2.3. Equipment to be used for edge grinding/polishing shall be a hand grinder with dust extraction equipment or walk behind power trowel 60 cm

2.2.4. Diamond grinding segments shall be:

- Metal bonds: 120 grit depending on concrete surface in question.

2.2.5. Diamond polishing pads shall be:

- Resin bonds: 50, 100, 200, 400, 1000, and 3000 grit.

2.2.6. Grinding pads for edges shall be:

- Resin bonds: 50, 100, 200, 400, 1000 and 3000 grit.

2.2.7. Equipment to be used for densifying and cleaning the floor after grinding/polishing procedure has been performed:

- Tennant ride-on auto-scrubber or equivalent with a head pressure of 150 lb.
- Follow auto-scrubber's manual for cleaning instructions after densifying and conditioning the floor.
- Do not allow densifier to remain inside the auto-scrubber after densifying.

2.2.8. Concrete densifier:

- Liquid hardener/densifier shall be **BECOSAN DENSIFIER®** as manufactured by **BECOSAN APS**.

2.2.9. Concrete Protective Sealer:

- Water-based, modified polymer concrete floor Sealer shall be **BECOSAN PROTECTIVE SEALER®** as manufactured by **BECOSAN APS**.

2.3. RELATED MATERIALS

2.3.1. Water: Potable water.

3. EXECUTION

3.1. EXAMINATION

3.1.1. Examine surfaces to receive treatment. Notify architect if surfaces are not acceptable. Do not begin application until unacceptable conditions have been corrected.

3.1.2. Final sheen shall be equivalent to that as accepted on the mock-up.

3.2. GENERAL POLISHING REQUIREMENTS

3.2.1. Coordinate polishing operations with other associated work and trades.

3.2.2. Do not use stain or scuff removing agents.

3.2.3. Begin and complete polishing within two weeks prior to possession date.

3.2.4. Utilize machines to the maximum extent practical to achieve optimum efficiency.

3.3. SURFACE PREPARATION

3.3.1. Protect adjacent surfaces not designated to receive treatment.

- 3.3.2. Clean and prepare surfaces to receive treatment in accordance with manufacturer's instructions, ensuring that all stains, oil, grease, form release agents, dust and dirt are removed prior to application.
- 3.3.3. Ensure concrete is a minimum of 28 days old.

3.4. APPLICATION

Specifier Notes: Select 1, 2, or 3 based on floor finish for project requirements.

- A. BECOSAN MATT PLUS:** MATT FINISH THAT WILL REFLECT IMAGES FROM SIDE LIGHTING.
- B. BECOSAN SEMI GLOSS:** SEMI-GLOSS FINISH THAT WILL REFLECT OVERHEAD.
- C. BECOSAN HIGH GLOSS:** HIGH-GLOSS FINISH THAT WILL LOOK WET AND SHOW MIRROR- LIKE REFLECTIONS OF SIDE AND OVERHEAD IMAGES.

3.4.1. To obtain satin matt finish that will reflect images from side lighting (**BECOSAN MATT PLUS**), ensure applicator follows the applicable procedures incorporating grinding plates in the following order.

- Verify that the floor is clean and dry prior to polishing procedure.
- Inspect and verify that the floor does not have curled joints, large cracks, spalling or lippage.
- Using the 50-grit resin bond grinding segment, grind the floor surface at a rate of 1000 m²/hr. Clean the surface to remove slurry.
- Using the 100-grit resin bond grinding segment, grind the floor surface at a rate of 1000 m²/hr. Clean the surface to remove slurry.
- Apply 100 ml per m² with **BECOSAN DENSIFIER**® and mop into floor for 45 minutes, ensuring that no puddling of densifier occurs.
- Squeegee off excess material.
- Wait 1-2 hours depending on environmental circumstances.
- Verify that the floor is dry and clear of debris prior to continuation of polishing procedure.
- Using the 200-grit resin bond polishing segment, grind the floor surface at a rate of 1000 m²/hr. Clean the surface to remove Slurry loose particulates.
- Apply 100 ml per m² with **BECOSAN PROTECTIVE SEALER**® and mop into floor for 45 min ensuring no puddling and the material is spread evenly.
- Polish the surface in dry with a buffing pad to remove residues.

3.4.2. To obtain semi-gloss finish that will reflect overhead and side images from 35-45' with increased light reflectivity (**BECOSAN SEMI GLOSS**), ensure applicator follows the applicable procedures incorporating grinding plates in the following order.

- Verify that the floor is clean and dry prior to polishing procedure.
- Inspect and verify that the floor does not have curled joints, large cracks, spalling or lippage.
- Using the 50-grit resin bond grinding segment, grind the floor surface at a rate of 1000 m²/hr. Clean the surface to remove slurry.

- Using the 100-grit resin bond grinding segment, grind the floor surface at a rate of 1000 2/hr. Vacuum the surface to remove slurry.
- Using the 200 grit resin bond grinding segment, grind the floor surface at a rate of 1000m2 /hr. Clean the surface to remove slurry
- Apply 100 ml per m2 with **BECOSAN DENSIFIER®** and mop into floor for 45 mins ensuring no puddles and making sure the material was spread evenly.
- Squeegee off excess material.
- Wait 1-2 hours.
- Verify that the floor is dry and clear of debris prior to continuation of polishing procedure.
- Using the 400-grit resin bond polishing segment, grind the floor surface at a rate of 1000 m2/hr. Vacuum the surface to remove slurry.
- Apply 100ml per m2 of **BECOSAN PROTECTIVE SEALER®** and mop into the floor ensuring the material is spread evenly and no puddles remain.
- Buff the floor with a 3000 grit diamond impregnated pad in dry to remove any further residues.

3.4.3. To obtain high-gloss finish that will look wet and show mirror-like reflections of side and overhead images (**BECOSAN HIGH GLOSS**), ensure applicator follows the applicable procedures incorporating grinding plates in the following order.

- Verify that the floor is clean and dry prior to polishing procedure.
- Inspect and verify that the floor does not have curled joints, large cracks, spalling or lippage.
- Using the 50-grit resin bond grinding segment, grind the floor surface at a rate of 1000 m2/hr. Clean the surface to remove slurry.
- Using the 100-grit resin bond grinding segment, grind the floor surface at a rate of 1000 m2/hr. Vacuum the surface to remove slurry.
- Using the 200 grit resin bond grinding segment, grind the floor surface at a rate of 1000m2/hr. Clean the surface to remove slurry.
- Apply 100 ml per m2 with **BECOSAN DENSIFIER®** and mop into floor for 45mins ensuring no puddles and making sure the material was spread evenly.
- Squeegee off excess material.
- Wait 1-2 hours.
- Verify that the floor is dry and clear of debris prior to continuation of polishing procedure.
- Using the 400-grit resin bond polishing segment, grind the floor surface at a rate of 1000 m2/hr. Vacuum the surface to remove slurry.
- Using the 1000-grit resin bond polishing segment, grind the floor surface at a rate of 1000 m2/hr. Vacuum the surface to remove slurry.
- Using the 3000-grit resin bond polishing segment, grind the floor surface at a rate of 1000 m2/hr. Vacuum the surface to remove slurry.
- Apply 100ml per m2 of **BECOSAN PROTECTIVE SEALER®** and mop into the floor ensuring the material is spread evenly and no puddles remain.
- Buff the floor with a 3000 grit diamond impregnated pad in dry to remove any further residues.

3.5. BECOSAN PROTECTIVE SEALER®

- 3.5.1. Apply **BECOSAN PROTECTIVE SEALER®**, undiluted, according to manufacturer's instructions.
- 3.5.2. Spray **BECOSAN PROTECTIVE SEALER®** using industrial sprayer.
- 3.5.3. Pre-wet micro-fiber applicator with **BECOSAN PROTECTIVE SEALER®** prior to use.
- 3.5.4. Uniformly spread **BECOSAN PROTECTIVE SEALER®** with a micro-fiber applicator, ensuring that the product is not allowed to dry before spreading is complete.
- 3.5.5. Allow **BECOSAN PROTECTIVE SEALER®** to dry completely, then burnish with a 3000-grit diamond pad at 2000 RPM.

3.6. PROTECTION

- 3.6.1. Keep surface dry for a minimum of 48 hours after application.
- 3.6.2. Allow 72 hours before heavy traffic.

END OF SECTION