**Technical Specification for Epoxy Floor Coating Application**

**Introduction:**

The scope of this project includes the office spaces of (Quadrant 3) Legal Offices, the Document Centre (Quadrant 4), and the Large Conference Room (Quadrant 4) Secretariat Headquarters. Both floors are divided into four sections resulting in eight quadrants numbered quadrants one to eight. Please reference the floor plans provided as appendices of this scope of work. The floors of all office spaces are covered in wall-to-wall carpeting and the intent of this project is to remove all carpets in these areas and replace with epoxy-coated floors.

**Work Details:**

A floor coating is suggested to be used based on the following preliminary test results carried out on one area of the ground floor.

**MOSITURE EMISSION TEST RESULTS**

|  |  |
| --- | --- |
| **KIT REFENCE:** | **MOSITURE EMISSION RATE USING**  **ASTM F1869** |
| KIT A | 7.26 Lbs |
| KIT B | 7.74. Lbs |
| KIT C | 7.44 Lbs |
| KIT D | 6.82 Lbs |

**SUMMARY OF RESULTS:**

|  |  |
| --- | --- |
| **TOPIC** | **RESULTS & RECOMMEDATIONS** |
| **Moisture Emissions via Concrete** | The values in the table above showed values greater than 3lbs. Therefore, the concrete requires a moisture vapor barrier coating before it is applied. |
| **Tensile Strength of the concrete** | The values were centered around 4000 PSI (using Proceq Rebound Hammer). This is acceptable for floor coatings application |
| **The PH of Concrete** | Values were between 9 -10. This is acceptable for coating Application |
| **Temperature** | Values were acceptable & this can be controlled during application since the area is air conditioned; it can be turned off /on during the  work |

The Suggested Coating system can be summarized as follows (Attached are the relevant Technical Specs):

1. 1 Coat of the Moisture Vapor Barrier- Rustoluem TVB
2. 2 Coats for the 100% Solids Self-Leveling Epoxy Primer -Benjamin Moore V430
3. 1 Coat of the Vinyl Flakes- Surecrete DK Flakes
4. 2 coats of the Aliphatic Clearcoat- Benjamin Moore V500

For the first floor it may not be necessary to use the moisture barrier. If a vendor is proposing to use different brands of materials it must be demonstrably equivalent in both quality and finish.

The following stages is expected to be done in carrying out this project:

1) Disassembling of offices and storage of all pieces along with furniture.

2) The removal of the carpet

3) Cleaning and degreasing of the concrete floor

4) Grinding/profiling of concrete floors

5) Application of all coatings needed

6) Reassembling of offices

**Specific Responsibilities of the Contractor in Execution of the Project**

1. The work must be done in stages where offices would have to be disabled before the carpet removal and then reassembled after the flooring is completed.
2. The work must be done in such a way that the dirt and dust must be contained and the area properly sanitized to make the space operable and to limit disruptions in other parts of the building.
3. A work plan and schedule must be presented for each stage of the work in order to implement. Work will be permitted afterhours and weekends if needed.
4. All measurements and estimation of floor spaces to be done must be conducted by the contractor
5. Noise pollution must be kept to minimum as the building will still be in use as the work is implemented.
6. All waste and debris must be removed by the contractor and disposed of appropriately.
7. The contractor must ensure that all HSSE procedures for this project is adhered to and must provide with the work plan, a HSSE plan for approval.
8. The contractor must supply all materials, equipment and labor needed to execute this project.
9. The areas to be covered under this project are:
10. The large conference room (Q4)
11. The Legal Office area (Q3)
12. The Document Centre (Q4)
13. The contractor must take responsibility of measuring the areas and ensuring that the areas specified in the contract. Drawings of the building is provided in this scope.

This specification details the process, materials, surface preparation, and application methods required for the installation of an epoxy floor coating.

**1. Scope**

This document specifies the technical requirements for applying epoxy coating on floors for industrial, commercial, or residential settings. The purpose of the coating is to provide a durable, smooth, chemical-resistant, and easy-to-clean surface.

**2. Materials**

**2.1 Epoxy Components**

* **Epoxy Resin (Part A):** High-quality, solvent-free epoxy resin with low viscosity for even distribution.
* **Hardener (Part B):** Amine-based hardener compatible with Part A to achieve proper curing and bonding.
* **Additives (optional):** Anti-slip aggregates, UV stabilizers, and pigment additives if required.

**2.2 Product Specifications**

* **Solids Content:** ≥ 95%
* **Viscosity:** As per manufacturer's recommendation
* **Pot Life:** Minimum of 30 minutes at application temperature
* **Mix Ratio:** As specified by the manufacturer, typically 2:1 or 1:1 (resin)

**2.3 Testing and Compliance Standards**

* **Compressive Strength:** ASTM D695 (minimum 7,000 psi)
* **Flexural Strength:** ASTM D790 (minimum 3,500 psi)
* **Bond Strength:** ASTM D4541 (minimum 400 psi)
* **Abrasion Resistance:** ASTM D4060 (maximum 100 mg loss)

**3. Surface Preparation**

Proper surface preparation is critical to ensure adhesion and durability of the epoxy coating.

**3.1 Surface Cleaning**

* **Dirt and Debris Removal:** All dirt, dust, grease, oil, and other contaminants must be removed using an industrial vacuum, broom, or mop.
* **Degreasing:** Use a suitable degreasing agent to remove oils. Rinse thoroughly and allow the surface to dry completely.

**3.2 Surface Profiling**

* **Grinding/Shot Blasting:** Profile the surface to create a rough texture (CSP 2-3) using grinding or shot blasting.
* **Etching (if necessary):** Acid etching may be required for certain surfaces, followed by neutralization with water.

**3.3 Moisture Testing**

* Conduct moisture testing to ensure the substrate has less than 4% moisture content using a calcium chloride test or a relative humidity probe.

**3.4 Crack and Joint Repair**

* **Fill Cracks:** Use an epoxy-based filler for cracks, joints, or surface imperfections.
* **Leveling:** Grind or sand areas as needed to achieve a smooth, level surface.

**4. Application Process**

**4.1 Environmental Conditions**

* **Temperature:** 15°C to 30°C (59°F to 86°F) during application and curing.
* **Humidity:** Less than 85% RH to avoid condensation on the surface.
* **Ventilation:** Ensure adequate ventilation to aid in curing.

**4.2 Mixing**

* **Mixing Ratio:** Follow the manufacturer’s specified ratio.
* **Procedure:** Use a mechanical mixer at low speed to blend Parts A and B thoroughly. Mix for 2-3 minutes until homogenous.
* **Pot Life Consideration:** Apply immediately after mixing within the pot life to avoid premature curing.

**4.3 Primer Application**

* **Purpose:** Apply a primer coat to improve adhesion.
* **Coverage:** Apply primer at a rate of 150-200 sq. ft. per gallon, based on substrate porosity.
* **Curing Time:** Allow primer to cure as per manufacturer’s instructions (typically 4-6 hours).

**4.4 Base Coat Application**

* **Mixing and Application:** Apply mixed epoxy using a notched squeegee and back roll with a lint-free roller.
* **Thickness:** Apply at a thickness of 10-20 mils as required.
* **Coverage Rate:** Approximately 100-150 sq. ft. per gallon depending on thickness.
* **Curing Time:** Allow curing as specified by the manufacturer (typically 12-24 hours before re-coat).

**4.5 Optional Intermediate Coat (if specified)**

* Repeat the base coat application process if multiple layers are specified, allowing sufficient curing time between coats.

**4.6 Topcoat Application**

* **Anti-Slip Aggregate (if required):** Add aggregate to the top coat to provide slip resistance.
* **Application:** Roll out the topcoat evenly with a lint-free roller or squeegee.
* **Thickness:** Apply at 5-10 mils, ensuring an even spread for a smooth finish.
* **Coverage Rate:** Approximately 150-200 sq. ft. per gallon.
* **Final Curing:** Allow curing for at least 48 hours before light foot traffic and up to 7 days for heavy load.

**5. Inspection and Testing**

**5.1 Visual Inspection**

* Check for uniformity in color, finish, and thickness.

**5.2 Adhesion Testing**

* Perform adhesion pull-off tests according to ASTM D4541 to verify bond strength.

**5.3 Thickness Verification**

* Measure coating thickness with a dry film thickness gauge to ensure it meets specified requirements.

**6. Health and Safety**

* **Personal Protective Equipment (PPE):** Applicators must wear respirators, gloves, and safety goggles.
* **Ventilation:** Ensure proper ventilation during application and curing.
* **Spill Control:** Have appropriate materials for spill control and disposal.

**7. Maintenance and Care**

* **Initial Cleaning:** Wait for full curing before the first cleaning.
* **Routine Maintenance:** Use a mild detergent with warm water; avoid using harsh chemicals or abrasive pads.

**8. Warranty**

The application should include a warranty against defects in materials and workmanship, typically covering one to three years depending on the project conditions and agreed terms.

This technical specification should be adhered to by all personnel involved in the project to ensure a successful epoxy floor application.

**Appendices**

Appendix I: MOISTURE VAPOR EMISSION CONTROL

Appendix II: HIGH PERFORMANCE FLOOR COATINGS

Appendix III: METALLIC FLOOR SYSTEM PRO GRADE EPOXY

**Note: Tenderers may offer alternative or equivalent epoxy products by providing the Material Data Sheet (MDS).**