

Epoxy Terrazzo Flooring System [Call it *Thin-Set Epoxy Terrazzo*]

Applied on Shopping Complex, Commercials, Hospitals, Industrials & Housings

Thickness: 7mm for Medium-Duty, 10mm for Heavy-Duty & 12mm for Extremely Heavy-Duty

Crystal/Glass Chipping System



YQ017C



YQ016C



YQ009D

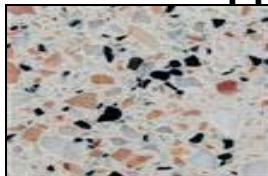


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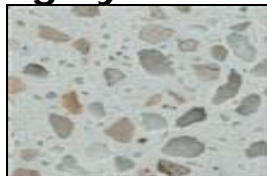


YQ008X

Marble Chipping System



BM0889



BM0887



BM0941

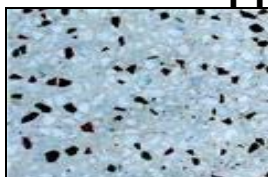


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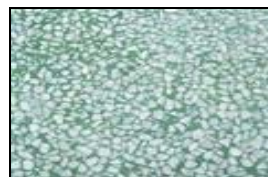
Classic Chipping System



T0915



T0914



T0910



T0909



T0908

Part 1 - General

1.01 Work Included

- A. Furnish necessary material, labor, and equipment required to prepare designated areas and install a **Thin-set Epoxy Terrazzo Flooring** System.

1.02 Related Work

- A. Drawings and general provisions of contract including General and Special Conditions and Division I, excepting special Submittal and Quality Assurance provisions in this section.

1.03 Quality Assurance

- A. Manufacturer's Qualifications

Obtain **Thin-set Epoxy Terrazzo Flooring** System materials from a single manufacturer with a minimum of **[2 years]** verifiable experience providing materials of the type specified in this section.

B. Contractor's Qualifications

Installation must be performed by a manufacturer certified contractor with skilled mechanics having not less than three years satisfactory experience in the installation of the type of system as specified in this section, and must be certified in writing by the manufacturer of the **Thin-set Epoxy Terrazzo Flooring** System. Contractor must be in good standing with the National Terrazzo Mosaic Association (NTMA) and have at least three projects of comparable scope.

C. Floor System Thickness Verification

At the owner's discretion and under his supervision the contractor shall take 1" random cores per 1,000 sq. ft. through the system into the substrate to verify proper system thickness. Cored areas less than specified thickness shall be removed and replaced or increased in thickness by the installing contractor, in a manner that does not affect the performance or integrity of the system. Cored areas which comply with the recommended system thickness shall be built-up to match the surrounding surface elevation prior to applying the seal coat(s). Cores taken and patched will be noticeable; therefore, cores should be taken from areas where aesthetics are less critical. Cost associate with repair of cored areas that comply with specification thickness are the responsibility of the owner.

1.04 Warranty

- A. The contractor and the manufacturer shall furnish a standard guarantee of the **Thin-set Epoxy Terrazzo Flooring** System for a period of **[Two] year** after installation. The labor and material guarantee shall include loss of bond and wear-through to the concrete substrate from normal use.
- B. Not included in the warranty are damage due to structural design deficiencies including but not limited to slab cracking from lateral, vertical or rotational movement, and gouging or other damage due to fork lifts, other equipment, delamination caused by vapor transmission, Acts of God, or other elements beyond the scope of protection of this system nor causes not related to the system materials.
- C. In case of a warranty claim, the owner will notify the manufacturer and contractor in writing within **30 days** of the first appearance of problems covered under this warranty. The owner will provide free and unencumbered access to the area during normal working hours for warranty rework. Property protection is also the owner's responsibility. Remedy is limited to direct repair of the **Thin-set Epoxy Terrazzo Flooring** System.

1.05 Submittal**A. System Data**

Submit manufacturer's specifications on cured system and individual components of the **Thin-set Epoxy Terrazzo Flooring** System, including physical properties and performance properties and tests described in part 2.01 B and submit Material Safety Data Sheets. Each individual component of the system will be evaluated on the basis of these standards. For any tests not listed in the manufacturer's standard nationally published data, the manufacturer must supply the missing data accompanied by the independent testing laboratory's test results which prove compliance in accordance with the referenced standard(s). Furnish One or Two sets

of this information. Manufacturer's standard color chart shall also be submitted and must afford the owner color selection from at least standard colors and computerized custom color matching shall be available upon request. Furnish One or Two sets of this information.

B. The contractor shall submit a 3" x 3" or 4" x 4" cured system sample which the contractor has made for verification purposes and finish texture approval.

C. Contractor Experience

The contractor shall furnish a list of projects using either specified material or equivalent that they have installed during the last Two years. Information shall include: project name, square footage, owner contact name with owner's address and phone number. Also, the contractor shall furnish resumes detailing the experience of key project personnel including supervisors and mechanics.

D. It is the intention of this Section to provide the products as named. Substitutions will be considered only when received by the Architect, Engineer or Design Professional through a bidding Prime Contractor at least ten days prior to the date set for receipt of bids. Upon receipt of any such submission, the Architect, Engineer or Design Professional will determine whether or not the proposed product is an equal. In the event the Architect, Engineer or Design Professional determines that a proposed system is an approved equal, he will issue an addendum and notify all bidders at least 48 hours prior to receipt of bids. No substitutions will be considered after contract bid date.

E. The contractor shall submit a copy of the manufacturer's packing slip, tagged for this specific job, along with calculations, signed by an officer of the primary material supplier demonstrating that the quantity of material furnished for the project will achieve the specified coverage and mil thickness.

F. LEED Submittal

Product Data for Credit MR 4.1: For products having recycled content, documentation indicating percentages by weight of post-consumer and pre-consumer recycled content.

Product Data for Credit EQ-4.1: Indicating VOC content measured in grams/liter and compliance with Green of Environmental chemical content.

Include letter of certification from manufacturer that adhesives proposed for use in the Project will comply with requirements of LEED Credit EQ-4.1.

1.06 Material Delivery, Handling and Storage

A. Primary system materials shall be delivered in the manufacturer's undamaged, unopened containers. Each container shall be clearly marked with the following:

- Product name(s) and/or Number(s)
- Manufacturer's name
- Component designation (A, B & C)
- Product Mix Ratio
- Health and Safety Information
- LaMaCo Malaysia [Fax: +60-4-7724444] Emergency Response Information

- B. Provide equipment and personnel to handle the materials by methods which prevent damage.
- C. The contractor shall promptly inspect direct jobsite material deliveries to assure that quantities are correct, comply with requirements and are not damaged.
- D. The contractor shall be responsible for materials furnished by him, and he shall replace, at his own expense, such materials that are found to be defective in manufacture or that have become damaged in transit, handling or storage.
- E. Store material(s) in accordance with manufacturer's instructions, with seals and labels intact and legible. Maintain temperatures within the required range. Do not use materials which exceed the manufacturer's maximum recommended shelf life.

1.07 Job Conditions

- A. The contractor shall visit the jobsite prior to the installation of the **Thin-set Epoxy Terrazzo Flooring** System to evaluate substrate condition, including substrate moisture transmission, quantity and severity of cracking, and the extent of repairs needed. Substrate imperfections should be repaired only after mechanical preparation of the substrate. Surface preparation reveals most imperfections requiring repair. Concrete substrates shall be tested to verify that the moisture vapor transmission of the substrate does not exceed the **Thin-set Epoxy Terrazzo Flooring** System manufacturers' recommendations. Cost associated with repair, leveling and remediation of the substrate are the responsibility of the provider of the substrate.
- B. The contractor should exercise care during surface preparation and system installation to protect surrounding substrates and surfaces, as well as in-place equipment. The contractor shall prepare the substrate to remove laitance and open the surface. This shall be achieved by light brush grit blasting. Surface profile achieved shall be similar to medium grit sandpaper and free from bond-inhibiting contaminants.
- C. Sub floor tolerances are specified in Section _____ (in accordance with ACI 302). Each drain in the installation area must be working and raised or lowered to the actual finished elevation of the **Thin-set Epoxy Terrazzo Flooring** System.
- D. System must be protected by the General Contractor or, as a separate bid item, by the installing contractor until it is inspected and turned over to the owner.
- E. The minimum slab temperature must be conditioned to 60 degrees F before commencing installation, during installation, and for at least 72 hours after installation is complete. The substrate temperature must be at least 5 degrees F above the dew point during installation.
- F. Maintain lighting at a minimum uniform level of 50 or more foot candles in areas where the **Thin-set Epoxy Terrazzo Flooring** System is being installed. It is the recommendation of the manufacturer that the permanent lighting be in place and working during the installation.
- G. Leaks from pipes and other sources must be corrected prior to the installation of the **Thin-set Epoxy Terrazzo Flooring** System.

Part 2 - Products

2.01 Materials

A. System Overview

The **Terrazzo Floor Epo**, call it **Thin-set Epoxy Terrazzo Flooring** System as formulated by: **LaMaCo System Sdn Bhd, Malaysia HQ**, shall be

- LaMaCo-Epo Flex Membrane** is Waterproofing Terrazzo Membrane
- LaMaCo-Fiberglass Scrim** is Glass Fiber Woven Mat
- LaMaCo-Epo Bond Primer** is Epoxy Penetrating Primer
- LaMaCo-Terrazzo Floor Epo** is call it Thin-Set Epoxy Terrazzo Mortar
- LaMaCo-Epo Grout Color** is Epoxy Color Grout
- LaMaCo-Epo Bond Sealer** is Epoxy Sealer Coat

B. Typical Physical Properties @ 73 degrees F (unless otherwise noted)

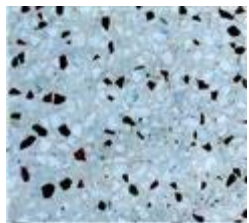
Cured System Physical Properties

Properties	Test Methods	Test Require	Result
Compressive strength	ASTM C 579	5-6 mm/minute	94.7 MPa (13,732 psi)
Tensile strength	ASTM C 307	5-6 mm/minute	12.9 MPa (1,875 psi)
Flexural strength	ASTM C 580	22.8 cm (9") at 3.4 mm/minute	26.1 MPa (3,785 psi)
Modulus of elasticity in flexion	ASTM C 580	22.8 cm (9") at 3.4 mm/minute	6,652 MPa (964,540 psi)
Bond Strength	ASTM D 4541	On concrete	> 1.6 MPa (> 230 psi)
Impact resistance	ASTM D 3029	Top coat On concrete Matrix coat On concrete	5.3 J (47.3 in•lbs) 12.6 J (111.5in•lbs)
Hardness (Durometer) Shore D	ASTM S 2240		74
Indentation and Residual resistance	CSA A 126.1	After 1 minute at 23°C After 10 minutes at 23°C	0.045mm 0.050mm
Toxicity			Approved
Water vapour transmission and permeance	ASTM E 96	Water procedure B at 23°C	0.10 g/h•m2 15.4 metric perms (0.27 perm)
Freeze – thaw resistance	ASTM C 67	Section 8, 50 cycles	Passes
Indentation and Residual resistance	CSA A 126.1	After 1 minute at 23°C After 10 minutes at 23°C	0.045mm 0.050mm
Abrasion resistance	ASTM D 4060	CS-17 Wheels @1000 g/wheel – 1000 revolutions H-22 Wheels @1000 g/wheel - 1000 revolutions	109 mg loss 0.08 mm (3mils) groove 163 mg loss *
Water permeability and absorption	ASTM D 570	24 hrs immersion at 23°C 7 days immersion at 23°C 2 hrs immersion in boiling water	0.10 % 0.19 % 0.33 %

C. Products Code No., Color Chart & Samples System

LaMaCo-Terrazzo Floor Epo

Classic Grade of Chipping Stone



T0915



T0914



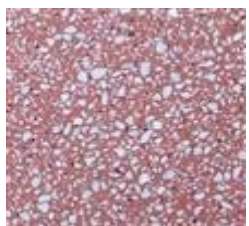
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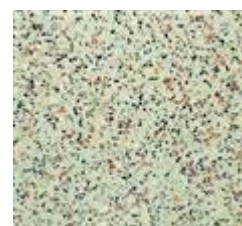
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T0902



T0913



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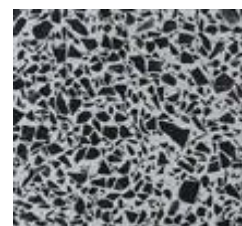
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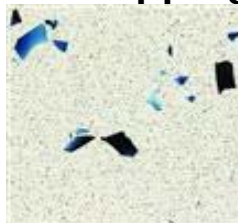


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Crystal Grade of Chipping



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YQ016C



YQ009D



YQ011C



YQ008X



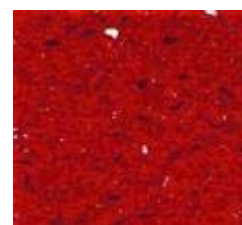
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YQ004K



YQ002K



YQ006



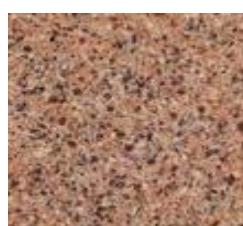
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YQ0950



YQ0943



YQ0947

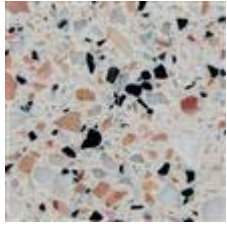


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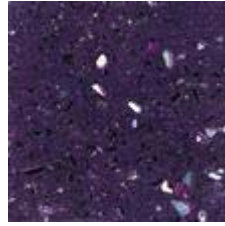
Marble Grade of Chipping



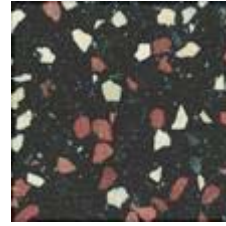
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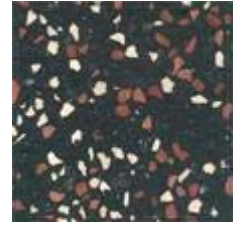
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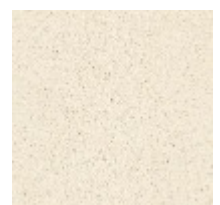
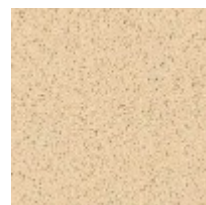
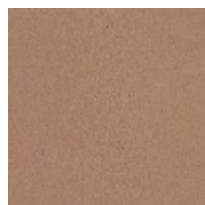
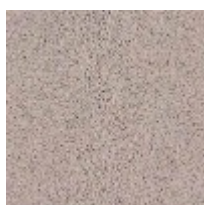
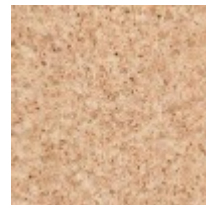
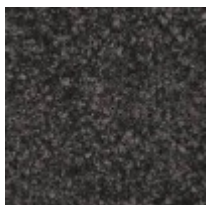
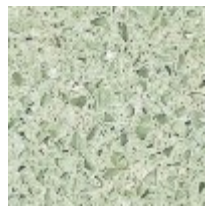
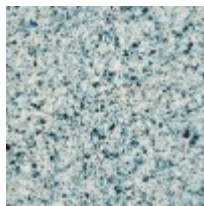
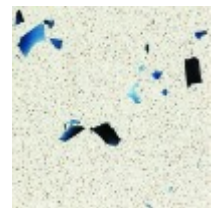
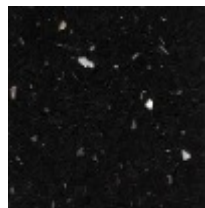
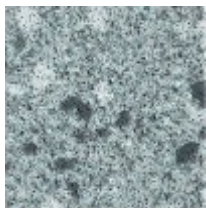
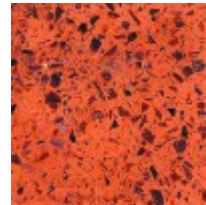
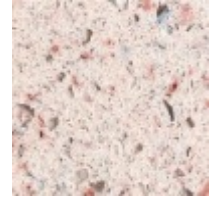
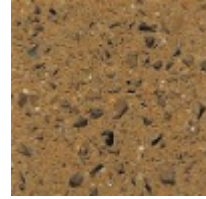
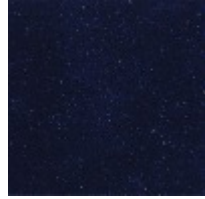
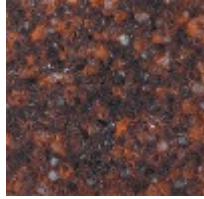
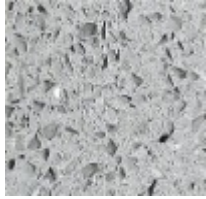


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Other Grade of Chipping



Part 3 - Execution

3.01 Surface Preparation

- A. For thorough instructions regarding preparation of concrete substrates consult "Instruction for Concrete Surface Preparation".

Clean substrates of substances, including oil, grease and curing compounds, that might impair **Thin-set Epoxy Terrazzo Flooring** bond. Provide clean, dry and neutral substrate for **Thin-set Epoxy Terrazzo Flooring** application.

Concrete surfaces shall be Mechanically Short Blasting or by Grinding with Scarifying Diamond. Surfaces preparation result should achieve a CSP 3 or CSP 5 profile accordance to International Concrete Repair Institute Guideline No. 03732.

Repair or concrete floor level damaged and deteriorated concrete accordance to **LaMaCo-Terrazzo Floor Epo** as per our requirement.

Verify those concrete substrates are visibly dry and free of moisture.

After preparation of **Cracks on Concrete**, evaluation of quantity and severity of cracks in concrete will determine the needed repairs. Original bid assumes repair and treatment of ____ linear feet of cracks and control joints. Additional treatment is considered excessive and must be bid on a per linear foot basis. For information pertaining to the treatment of cracks in concrete substrates, consult Manufacturer's publication, Concrete 102.

Once surfaces preparation has been completed, the Epoxy Primer may required, but is depend of substrate surfaces conditions. For excellent of bonding we require of Epoxy Primer to bonded of on reinforced concrete.

3.02 Installation

- A. General

Apply each component of the **Thin-set Epoxy Terrazzo Flooring** System in compliance with manufacturer's written installation instructions and strictly adhere to mixing and installation methods, recoat windows, cure times and environmental restrictions. The **Thin-set Epoxy Terrazzo Flooring** System is to be installed directly over non-moving control joints and cracks which have been treated with **Epo Flex Membrane** epoxy, and the **Thin-set Epoxy Terrazzo Flooring** System will terminate at the edge of isolation and expansion joints as designated by the Architect, Engineer or Design Professional. Integral cove base shall be installed where specified in the drawings.

- B. Control Joints

Original bid assumes repair and treatment of ____ linear feet of cracks and control joints. Additional treatment is considered excessive and must be bid on a per linear foot basis. For information pertaining to the treatment of control joints in concrete substrates, consult Manufacturer's publication, Concrete 103.

C. Isolation/Expansion and Other Joints Subject to Movement

All expansion joints must be honored through the flooring system. For information pertaining to the above, consult Manufacturer's publication, Concrete 105.

Guide of commonly used **L-types Divider Strip** for **Thin-set Epoxy Terrazzo Flooring** System

Control Joint or Expansion Joint L-types Divider Strip	Strip High	Strip Width/Thickness
Copper, Brass or Aluminium L-type Divider Strip	9mm	4mm or 6mm or 9mm
Copper, Brass or Aluminium L-type Divider Strip	11mm	4mm or 6mm or 9mm
Copper, Brass or Aluminium L-type Divider Strip	13mm	4mm or 6mm or 9mm

D. Membrane

LaMaCo-Epo Flex Membrane is Waterproofing Terrazzo Membrane

LaMaCo-Fiberglass Scrim is Glass Fiber Woven Mat

F. System Epoxy Primer (required when not using Crack Bridging Membrane)

LaMaCo-Epo Bond Primer is Epoxy Penetrating Primer

G. Grout Color Coat

LaMaCo-Epo Grout Color is Epoxy Color Grout

H. Thin-set Terrazzo Floor of Mortar/Screed Installation

LaMaCo-Terrazzo Floor Epo is call it Thin-Set Epoxy Terrazzo Mortar

Select the 4 Grades of Chippings with 6 types of Powder Modified Color Cement

Trade Name as below:

Terrazzo Floor Epo Classic Hardness Lime Stone Chipping with Modified Color Cement + Epoxy Resin + Specialty Additives
Note: 6 types of Modified Color Cement

Terrazzo Floor Epo Crystal Hardness Crystal Aggregate Chipping with Modified Color Cement + Epoxy Resin + Specialty Additives
Note: 6 types of Modified Color Cement

Terrazzo Floor Epo Granite Hardness Granite Chipping with Modified Color Cement + Epoxy Resin + Specialty Additives
Note: 6 types of Modified Color Cement

Terrazzo Floor Epo Marble Hardness Marble Chipping with Modified Color Cement + Epoxy Resin + Specialty Additives
Note: 6 types of Modified Color Cement

I. Seal Coat

LaMaCo-Build Bond Sealer is Polyurethane Sealer Coat
LaMaCo-Epo Bond Sealer is Epoxy Sealer Coat

3.03 Curing, Cleaning and Protection

- A. Cure the **Thin-set Epoxy Terrazzo Flooring** System materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of the installation and prior to completion of the curing process.
- B. Protect the **Thin-set Epoxy Terrazzo Flooring** System from damage and wear during other phases of the construction operation, using temporary coverings as recommended by the manufacturer, if required. Remove temporary covering just prior to final inspection.
- C. Clean the **Thin-set Epoxy Terrazzo Flooring** System just prior to final inspection, using materials and procedures suitable to the system manufacturer.
- D. Some cleaners will affect the color, gloss or texture of your polymer floor surfaces. To determine how your cleaner will perform, first test each cleaner, in a small area, utilizing your cleaning technique. This precaution will demonstrate the effect of your cleaner and technique. If no deleterious effects are observed, continue with the procedure. If deleterious effects do occur, modify the cleaning material and/or procedure. For recommendations regarding types of cleaners, contact the **Thin-set Epoxy Terrazzo Flooring** System manufacturer.

**LaMaCo System Sdn Bhd**

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