

100% Solid Polyurea Grade of Ultra Hard Coating Types with for All Types Application, High Performance Chemical Resistance, Fast Curing & Tack-Free, Excellent of Elongation & High Tensile Strength Exposed Carpark Deck or R.C. Roofs for Internal or External System

PART 1: GENERAL

1.01 DESCRIPTION

- A. A high performance, chemical resistance coating system, for all types application. A **100% solid Polyurea** laid in Special Spray Equipment and a two-component polyurea surface that is field applied in a seamless monolithic application.

1.02 WORK INCLUDED

- A. Furnish necessary material, labor, and equipment required to prepare designated areas and install on Exposed Carpark Deck or R.C. Roofs for Internal or External System

1.03 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.

1.04 QUALITY ASSURANCE

- A. All system component parts must be supplied by **LaMaCo System Sdn Bhd**, on Coating Division, Malaysia.
- B. The coating contractor must be approved by **LaMaCo System Sdn Bhd**, on head office from Malaysia.
- C. Contractor's Qualifications

Installation must be performed by a manufacturer certified contractor with skilled mechanics having not less than two 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 **ISO Polyurea UHC High Performance Chemical Resistance Coating for Exposed Carpark Deck Or Roof on External/Internal System**. Contractor must be in good standing with the Waterproofing Association and have at least three projects of comparable scope.

1.05 WORKING CONDITIONS

- A. The general contractor / owner shall provide an area where the stored materials can be maintained at a minimum of 65 degrees and under 80% relative humidity. Ideal installation and storage conditions are the same as those that will prevail when the building is occupied.

- B. Coating installation shall not begin until all sub-contract work that would cause damage, dirt, dust, or interruption of normal installation. The installation area shall be closed to all traffic and activity for a period to be set by the coating contractor.
- C. ENVIRONMENTAL LIMITATIONS
 - 1. Comply with requirements of athletic coating material suppliers.
 - 2. Adhere to all MSDS requirements for materials. Protect all persons from exposure to hazardous materials.
- D. Protect the work during and after the installation process, until acceptance by the owner or agents.

1.06 WARRANTY

- A. **LaMaCo System Sdn Bhd**, on head office of Malaysia, warrants the material it ships to be free from defects in materials and workmanship for a period of minimum of Twenty-four (24) months, and the coating contractor warrants the installation of the coating to be free from defects in materials and workmanship for a period of Twenty-four (24) months. The exclusive remedy under this warranty shall be replacement of defective material by **LaMaCo System Sdn Bhd**, Malaysia or correction of defective installation by the coating contractor. All implied warranties of merchantability or fitness for intended use are limited to the period of warranty. This warranty excludes consequential damages.
- B. This warranty does not cover damage caused by fire, winds, floods, chemicals, or other abuse, or by failure of other contractors to adhere to specifications, or neglect of reasonable precautions to provide adequate ventilation during hot, humid weather. This warranty also excludes damage to floors due to ordinary wear and tear, faulty construction of the building (other than the flooring contractor), separation of the concrete slab underlying the floor, settlement of the walls, or use of unapproved cleaners or sealers on the floor.
- 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 **Polyurea Chemical Resistance Coating** System.

1.07 SUBMITTAL

- A. System Data

Submit manufacturer's specifications on cured system and individual components of the **Polyurea Chemical Resistance Coating** 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 coating contractor shall submit a 75mm x 125mm x 1.00mm thick cured system sample which the contractor has made for verification purposes and finish texture approval.

- C. Waterproofing Contractor Experience

The waterproofing 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.

1.08 MATERIAL DELIVERY, HANDING & 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: +60-4-772 4444] 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.

PART 2: PRODUCTS

2.01 MATERIALS

- A. All polyurea components shall be supplied by **LaMaCo System Sdn Bhd**, on head office of Malaysia.

- B. LaMaCo-Epo Bond Primer**

Two-component epoxy primer, shall bond to concrete, asphalt, or wood. It shall be applied at a rate of approximately [0.25 kg/m²].

- C. LaMaCo-ISO Polyurea UHC, 100% Solid Polyurea High Performance Chemical Resistance Coating**

Two-component **LaMaCo-Polyurea UHC** 100% Solid, shall bond to concrete, asphalt, or wood. It shall be applied at a rate of approximately **[1.08 kg/m²/1.00mm thick] or [1.62 kg/m²/1.50mm thick]**

Polyurea Properties of Specification

Wet Properties @ 77°F [25°C]

ISO Polyurea UHC

Solid by Volume	100%		
Solid by Weight	100%		
Density	1.08 g/cm ³ [±0.05]		
Volatile Organic Compounds	[0 g/litre]		
Theoretical Coverage	"Dry Finish Thickness"		
	1.00mm [39.37mils]	@0.92/m ² [9.96/ft ² /kg]	
	1.50mm [59.06mils]	@1.38/m ² [14.85/ft ² /kg]	
Weight per US Gallon	"approx"	8.990 lbs ±0.05	[4.087 kg] ±0.05
Weight per UK Litre	"approx"	2.376 lbs ±0.05	[1.080 kg] ±0.05
Number of Coats "by Spray"	1 ~ 2		
1 Layers/Coat Spray at	0.139mm	0.330 lbs	0.15 kg/m ²
2 Layers/Coat Spray at	0.861mm	2.046 lbs	0.93 kg/m ²
Total at	1.000mm		
1 Layers/Coat Spray at	0.139mm	0.330 lbs	0.15 kg/m ²
2 Layers/Coat Spray at	1.361mm	3.300 lbs	1.47 kg/m ²
Total at	1.500mm		
Mix Ratio	Component A: 1 part + Component B: 1 part		
Viscosity [cps or mPas]	450[±25] Component A 400[±25] Component B		
Shelf Life @60-90°F [15-32°C]	9-12 months		

**Polyurea Properties of Specification
Dry Properties @ 59mils [1.50mm]****ISO Polyurea UHC**

Tensile Strength	ASTM D412	4300 psi ±250	[29 Mpa]
Elongation	@77°F [25°C]	80% ±5%	
Hardness [Shore D]		75/65 ±5%	
Adhesion Strength		Concrete test cohesive failure of concrete Steel test 1750 psi	
100% Modulus	ASTM D412	1300 psi ±20	[8.96 Mpa]
300% Modulus	ASTM D412	2210 psi ±20	[15.24 Mpa]
Tear Resistance	ASTM D624	400 pli±10	[70 kN/m]
Abrasion Resistance	ASTM D4060 H-18 wheel H-22 wheel	1000g-1000 cycles [105mg loss±5] [50mg loss±5]	
Service Temperature		-60°F to 300°F -50°C to 150°C	
Flame Spread @ 20mils	ASTM E84	10	
Smoke Density @ 20mils	ASTM E84	10	
Gel Time		6/sec ±2	
Tack-Free Time		20/sec ±3	
Full Cure Time		24 hours	
Recoat by Spray		12 hours [at least]	

PART 3: EXECUTION

3.01 INSPECTION

- A. Inspect concrete slab of proper tolerance and dryness, reporting in writing any discrepancies to the general contractor.
- B. All work required to put the concrete slab in acceptable condition shall be the responsibility of the general contractor.
- C. The slab shall be broom cleaned by the general contractor.

3.02 INSTALLATION

Surfaces Preparation

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 **Polyurea Coating** bond. Provide clean, dry and neutral substrate for 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.

- A. Concrete shall be clean and free of sealers, dirt, oil, paint, and any material that, in the opinion of the flooring installer, will adversely affect the **LaMaCo** material bonding to the concrete or the overall installation (refer to 1.03 Working Conditions).
- B. Thoroughly mix two-component Primer Coat. **LaMaCo-Epo Bond Primer** Two-component epoxy primer, shall bond to concrete, asphalt, or wood. It shall be applied at a rate of approximately [0.25 kg/m²].
- C. Spraying of **LaMaCo-ISO Polyurea UHC, 100% Solid Polyurea High Performance Chemical Reistance Caoting**. Special Spray Equipment.

Two-component **LaMaCo-Polyurea UHC** 100% Solid, shall bond to concrete, asphalt, or wood. It shall be applied at a rate of approximately **[1.08 kg/m²/1.00mm thick] or [2.16 kg/m²/2.00mm thick]**

Using the highest quality masking tape, tape the floor. Thoroughly mix the two-component game line paint, Game line paint shall be **LaMaCo-PUR Guard Line Paint**, two-component polyurethane, and paint between the tape. Remove all tape prior to the paint curing.

3.03 CLEAN UP

- A. Clean up all unused materials and debris and remove.

3.04 MAINTENANCE

- A. New floor initial maintenance.

IMPORTANT Allow new floor or newly recoated floor to cure at least 96 hours.

Sweep floor thoroughly. Do not use sweeping compounds.

Mix **LaMaCo System Sdn Bhd** approved cleaner with clean water to achieve desired water-to-cleaner ratio.

Using a new mop, damp mop the entire floor with cleaner/water mix.

Allow solution to dry on floor prior to use.

- B. Upon completion of floor installation, the owners, attendants or individuals in charge and responsible for the upkeep of the building are to see that all care maintenance are followed in accordance with **LaMaCo System Sdn Bhd** guidelines. Failure to follow care and maintenance guidelines may void warranty.



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