R&D TECHNICAL SOLUTIONS LTD.
SPECIFICATION MANUAL

TEL: 905.795.9900 TOLL FREE: 800.387.5703 FAX: 905.795.9912
EMAIL: INFO@KELMAR.COM WEB: WWW.KELMAR.COM

Division 07100

Specification Manual

Kelmar® PC System

Note to Specifiers

The specification information below is intended for use by Architects, Engineers or other Specifiers in defining the criteria needed to install Kelmar® PC System.

The Kelmar® PC System is a multi-layered, totally engineered product consisting of a flexible membrane that is protected by a flexible and durable wear course to offer the ultimate protection for Pre-cast parking decks and other suspended decks subjected to excessive movements, against leakage and chloride penetration.

The Kelmar® PC joint system is not designed to bridge structural issues. The system can accommodate movement, (deflection), up to 1/8". Any movement beyond that could result in cracking of the wear course; however the integrity of the system is not compromised.

1. This document has been prepared to assist Specifiers in the preparation of specifications for the installation of the Kelmar® PC System.

2. This document was prepared to be included as part of a complete specification for new construction or can be used as a stand-alone document for existing structures.

3. There are several areas in this document that, at the discretion of the Specifier, will require values to be inserted, as appropriate for the type of placement being specified. Physical properties for Kelmar® PC System are listed in Appendix A.

4. Also refer to related documents, Technical Data Sheets & Installation Procedures.

Questions regarding the selection, installation or intended use of R&D Technical Solutions Ltd. Kelmar® PC System should be directed to R&D.

1.0 General

1.1 Scope

The contractor shall furnish all materials, tools, equipment, appliances, transportation, labor and supervision required during the preparation and installation process.

1.2 Pre-Qualification

1. Contractor and his installer(s) shall have satisfactorily completed a program of instruction in proper methods of preparation of the substrate, patching of spalled and delaminated areas, crack and joint repair and traffic deck coating installation. The applicator shall have in writing, a certificate of approval from the manufacturer.

2. Contractor(s) seeking approval of substitute materials shall have a minimum of five (5) years experience installing this type of surfacing in similar size projects. They must also submit their request in writing to the Architect/Engineer at least seven (7) days before closing of bids.

Include samples, testing laboratory reports regarding conformity with specifications, and list of completed successful installations, including phone number of responsible person to contact to enable accurate appraisal of the system. Bidders shall be notified of acceptable substitute materials by written addendum or amendment.

1.3 Applicable Standards & Test Methods

Please refer to Appendix A for standards and test methods used in their results.

1.4 Project / Site Conditions

1. Minimum concrete surface and ambient temperature of 50°F (10°C) for 48 hours before, during, and after installation, or until cured.

2. Adequate ventilation and clean water supply required during installation.

3. Substrate requirements (see Appendix B).

1.5 Warranty

1. Contractor shall submit a five-year, limited warranty against improper workmanship and defective materials (from date of installation or project completion, whichever comes first).

2. The owner will follow the maintenance guidelines as set forth by the National Parking Association (NPA) in the Parking Garage Maintenance Manual and will notify R&D Technical Solutions Ltd. within thirty (30) days of any defect.

2.0 Products

2.1 Acceptable Manufacturer

1. R&D Technical Solutions Ltd.
   7000 Davand Drive, Mississauga, ON
   Canada, L5T 1J5
   Toll Free: (800) 387-5703
   Local: (905) 795-9900
   Fax: (905) 795-9912
   www.kelmar.com
   info@kelmar.com

2.2 Materials

1. Traffic coating and membrane shall be R&D Technical Solutions Ltd. Kelmar® PC System, meeting or surpassing physical property requirements as listed in Appendix A.

3.0 Execution

3.1 Inspection

1. Before starting work, ensure environmental and site conditions are suitable for application and curing.

2. Inspect surface for acceptability of levelness, texture, moisture content (ASTM D 4263) or moisture content below 3 -4lbs/1000 sq ft/24hrs or RH below 75%, slope to drains, etc.

3. Any and all deficiencies shall be reported, in writing, to specifying engineer, and copy sent to material manufacturer. Surface must be approved by the manufacturer or certified contractor prior to application of membrane.

3.2 Preparation

1. Surface must be clean and sound, which in all cases, requires some form of preparation. Substrate must be prepared in accordance with manufacturer's printed instructions.

2. Effectively remove concrete laitance by steel-shot blasting (acid etching is not an acceptable method of surface preparation).

3. Pre-fill surface irregularities, holes and cracks per manufacturer's recommendation.

3.3 Protection

1. Advise owner/operator and trades that unfinished surface is to remain free from traffic, and those fixtures, fittings and finishing are not to be installed, until waterproof traffic coating is completed.

2. Protect adjacent surfaces from damage resulting from work of this trade. If necessary, mask and / or cover adjacent surfaces, fixtures, equipment, etc., by suitable means.

3. Traffic control — no individuals are permitted in areas during application and until surface has cured and has been approved for traffic by the applicator and the manufacturer.

3.4 Installation /Application

- For pre-cast decks, saw cut a groove ¼" x ¼" (6mm x 6mm) along the joints at 6" from the joints for Kelmar® PC 1 and 18" from the joints for Kelmar® PC 2 and Kelmar® PC 3, on each side of the joint
- This will form the key for terminating the Kelmar® PC System
- Saw cut not required if entire deck receives deck coating

1. Prime the surface with recommended primer.

2. Install elastomeric membrane a foot wide for Kelmar® PC 1 and Kelmar® PC 2 and three feet wide for Kelmar® PC 3, at a total minimum dry film thickness of twenty (20) mils.

3. Into the wet membrane, install Kelflex tape 4" wide.

4. Back roll Kelflex tape with elastomeric membrane at a total dry film thickness of twenty (20) mils.

5. Apply a 12" wide Kelmar® FWC wear course and load to rejection with silica sand aggregates at the recommended coverage.

6. For Kelmar® PC 2 and 3, apply Kelmar® FWC wear course and load it to rejection with silica sand aggregates, a foot wide on each side of the Kelmar® PC joint.

7. Terminate wear course into the saw cuts on either side of the joint.

8. For exposed decks, apply one coat of Kelmar® 1910 topcoat for UV protection.

Appendix A - Physical Properties for Kelmar® PC System

Property	Test Method	Test Results	*
Tensile Strength	ASTM D 412	1,160 psi	M
Tensile Elongation	ASTM D 412 @ 70^0 F (21^0 C)	600 %	M
Adhesion to Concrete (prepared)	ASTM D 903 (Peel)	17 pli with 0.3 kg/mm width	M
Adhesion to Plywood	ASTM D 903 (Peel)	20-30 pli with 0.36-0.54 kg/mm width	M
Adhesion of Epoxy to Membrane	Elcometer	315 psi	
Water Vapor Transmission	ASTM D 1653, E 96 Method 2	0.35 perms 0.88 Metric perms	M
Chloride Ion	W.J.E. 840055	No significant increase @ 1" penetrating depth	FS
Low Temperature	ASTM C 957 (4.4)	No Failure after 10 cycles	FS
Adhesion in Peel	ASTM C 957 (4.5)	Min. 15 to 17 pli after water immersion on concrete	FS
Weathering Resistance & Recovery from Elongation	ASTM C 957 (4.7)	After Exposure min. tensile retention 90%, min. elongation retention 95%, recovery 100%	FS
Adhesion to Concrete	Elcometer	300-350 psi	FS
Tensile Strength	ASTM D 412	2000 psi	FS
Water Absorption	ASTM D 570	0.7%	FS
Impact Resistance	Gardner Test ASTM D 2794	160 in/lb 35 ft/lb	FS
Abrasion Resistance	ASTM D 4060 CS-17 wheels, 5000 cycles	0.5g weight loss @ room temp 0.3g weight loss @ 150^oF	FS
Tear Strength	ASTM D 1004	350 pli	M
Hardness, Shore D	ASTM D 2240	71	FS

M – Membrane
FS – Full System

Appendix B - General Substrate Requirements

CONCRETE

1. Concrete to receive membrane traffic coating should be designed and installed to prevent random cracking and deflection. Provide sufficient control and expansion joints.

2. Concrete should be air-entrained as established by ASTM C 260, and properly cured in accordance with ACI recommendations, to meet structural requirements.

3. Concrete shall have a steel trowel finish.

4. Concrete shall be free from metallic fibers.

5. Concrete design and placement shall ensure proper slope to drains, etc.

6. Allow concrete to cure twenty-eight (28) days minimum before applying membrane traffic coating. For concrete patches, the minimum cure time will vary depending on the depth of the patch, temperature, water-cement ratio, etc.

7. Concrete to be clean, sound (minimum compressive strength of 3,000 psi/20 MPa) and dry (ASTM D 4263).

8. Concrete to be free from curing compounds, membrane curing agents, metallic hardeners, or foreign matter.