

## SECTION 071800 VEHICULAR TRAFFIC COATING

This guide specification has been prepared according to the principles established in the Project Resource Manual published by the Construction Specification Institute. It is intended to assist the design professional in the preparation of a specification for the installation of Vehicular Traffic Coating. This guide specification may be modified by the design professional with the consent of Hydro-Gard to be tailored to a specific project. This guide specification was issued on December 2012 and may be superseded without notice at anytime.

HYDRO-GARD systems are engineered to waterproof various types of conditions including:

- Parking Structures
- Drive Ramps
- Bridge Decks
- Plaza Decks
- Walkways
- Balcony Decks
- Stadium Seating
- Machine Rooms

### System Description

The Gard-Deck Vehicular Traffic Coating is a Polyurethane Modified Methyl Methacrylate Traffic Bearing System.

All HYDRO-GARD waterproofing systems integrate various systems components into specific engineered waterproofing assemblies that address the individual needs of building design, budget, substrate conditions, climate and environment.

# INSTALLATION SPECIFICATION FOR VEHICULAR TRAFFIC COATING

## Part 1 - General Conditions

### 1.01 Section Includes:

- A. The following specification outlines the proper application and requirements for Gard Deck Polyurethane modified methyl methacrylate Vehicular Traffic Coating system.
- B. Proper substrate preparation and procedures.

### 1.02 Related Sections

- A. Section 03 31 00 Cast in Place Concrete
- B. Section 033900 Concrete Curing
- C. Section 053000 Metal Decking
- D. Section 061000 Rough Carpentry
- E. Section 076000 Flashing and Sheet Metal
- F. Section 079000 Joint Protection
- G. Section 079200 Expansion Control

### 1.03 Reference Standards

- A. American Society for Testing and Materials (ASTM) C 836 Standard Specification for High Solids, Cold Liquid Applied Elastomeric Waterproofing Membranes.
- B. ACI 308 Recommended practice for Curing Concrete
- C. ASTM D638 Test methods for Tensile Properties of Plastics
- D. ASTM D458 Standard practice for Surface Cleaning Concrete for Coating
- E. ASTM D4259 Standard practice for Abrading Concrete
- F. ASTM DE96 Test Method of Moisture Transmission of Material
- G. ASTM C1127 Standard guide for use of High Solids Content, Cold Liquid Applied Elastomeric Waterproofing Membrane with Integral Wearing Surface

#### **1.04 Submittals**

- A. Contractor shall submit to the owner's representative the following:
  - 1. Letter from the specified manufacturer, stating that the applicator is trained and approved to install the specified product.
  - 2. Letter from the primary system manufacturer stating that the proposed application will comply with the manufacturers requirements in order to qualify for the specified guarantee.
  - 3. Product data and literature from the manufacturer with all components and accessories used in the waterproofing system.
  - 4. Approved curing compounds acceptable to the specified manufacturer.
  - 5. Samples min 6" x 6" supplied by the manufacturer that represents the specified system.
  - 6. Color charts standard, and custom from the complete range supplied by the manufacturer.
  - 7. Sample copies of manufacturers warranty certificate.
  - 8. Shop drawings of cold fluid applied traffic coating showing all locations of the work, flashing conditions, drain detailing, penetration detailing, interface conditions with other components of the building.

#### **1.05 Quality Assurance**

- A. Applicator shall be approved to install the specified waterproofing system. Applicator shall have a minimum of three (3) years experience in the application of this product, or similar methacrylate waterproofing systems.
- B. Obtain all material and products from the specified manufacturer to assure material compatibility or as approved by manufacturer.
- C. Prior to application of specified materials applicator shall have manufacturer or his representative inspect substrates, and confirm in writing that the substrate surface condition and finish is acceptable for the application of specified materials.
- D. Applicator shall perform moisture testing of substrates prior to installation of waterproofing system. Follow manufacturer requirements on moisture testing method. Results shall be submitted to manufacturer for approval.

- E. Local regulations: Conform to regulations of public agencies, including any specific requirements of the city and/or state of jurisdiction.
- F. Pre-Installation Conference: Conduct conference at the project site to comply with the requirements of Division 1 of the Specifications, review requirements of substrate preparation, penetrations, termination conditions, and flashing details. The attendees shall include a representative of the Owner, Architect, Inspection Firm, General Contractor, Waterproofing Contractor, and any other trade contractors whose work will be associated with this work.
- G. Applicator shall submit to manufacturer: Manufacturer's notice of award to register the project in the manufacturers data base. Manufacturer shall not review or participate in shop drawings, submittals, or project meetings until this notice of award is registered with the manufacturer.

#### **1.06 Product Delivery, Storage, and Handling**

- A. Delivery: Materials shall be delivered in their original packaging, clearly marked with manufacturers name, brand, and type of material. Store materials to avoid damages from trade construction, weather damage, or UV exposure.
- B. Storage: Store in a closed and sealed container. Avoid storage in direct sunlight, or in temperatures that exceed manufacturers recommendation. Avoid storage that would be close to flames or any type of ignition. Methacrylate based products are sensitive to higher temperature ranges, and freezing. Follow manufacturers recommendation on proper storage.
- C. Damaged Material: Any materials found to be damaged or stored in any manner other than stated above will be rejected, removed, and replaced at the Contractors expense.
- D. Handling: Handle all materials in such a manner as to preclude damage and contamination with moisture, or a foreign matter. Keep away from open fire, flame, or any ignition source. Vapors may form explosive mixtures with air. Avoid skin and eye contact with this material. Avoid breathing fumes. Do not eat, drink, or smoke in the application area. Workers shall wear long sleeve shirts, long pants, and work boots. Workers shall wear butyl rubber, or nitrile gloves when mixing, and applying this product. Safety Glasses with side shields shall be used for eye protection. Use local exhaust ventilation to maintain worker exposure below TLV as listed on SDS Sheet for respective Products. If the airborne concentration poses a health hazard, becomes irritating, or exceeds recommended limits use a NIOSH approved respirator in accordance with OSHA respirator protection requirements under 29 CFR 1910.134 or local governing authority. The specific type of respirator will depend on the airborne concentration. A filtering face piece, or dust mask is not acceptable for use with this product if TLV filtering levels have been exceeded.

## 1.07 Project Conditions

- A. Proceed with waterproofing installation only after the following is complete:
  - 1. Notification: Notify manufacturer a minimum of 30 days prior to starting any application of waterproofing system.
  - 2. Permits: When applicable, obtain all permits required by local agencies and pay all fees which may be required for the performance of the work.
  - 3. Safety: Familiarize every member of the application crew with safety regulations recommended by OSHA and other industry or local governmental groups.
  - 4. Proceed only after all substrates have been approved by the manufacturer, moisture testing levels have been approved by the manufacturer, and submittals and shop drawings have been approved by the Architect and Manufacturer.
  
- B. Environmental Requirements
  - 1. Precipitation: All substrates must be smooth, clean, and dry. Do not mix or catalyze any membrane if precipitation is forecasted. Take precautions to protect the membrane from moisture.
  - 2. Temperature: Ensure that weather conditions are suitable for the application of the waterproofing system. Contact manufacturer for temperature restrictions.
  
- C. Protection Requirements
  - 1. Protection: Avoid staining or contaminating non scheduled surfaces from the application of membrane. Take proper measures to protect adjacent surfaces.
  - 2. Limited Access: Prevent access to the work area from other trades or public. Install barricades or other such measures to ensure the waterproofing area are closed to others.
  - 3. Debris Removal: Remove all debris daily from the project site and take to a legal dumping area authorized to receive such materials.

## **1.08 Warranties**

### **A. Special Installer Warranty:**

The installer shall provide a Two (2) Year Installer Warranty. This Warranty shall ensure against all leaks in the waterproofing system, caused by defects in installation of the waterproofing system. The installer warranty shall include defects in materials or workmanship. Upon notification of such defects, or leaks within the warranty period the installer shall make all repairs necessary to remedy the leaks in the waterproofing system.

### **B. Manufacturers Warranty:**

The Manufacturer shall supply a Ten (10) Year Materials and Labor warranty upon the successful completion of the waterproofing system. This warranty shall be submitted to the owner through the waterproofing applicator.

## **Part 2 - Products**

### **2.01 General**

Vehicular Traffic liquid applied Waterproofing System: A fully reinforced (or) unreinforced polyurethane modified poly methyl methacrylate system designed for high vehicle traffic areas, vehicle ramps, and other high wearing traffic areas. The PUMMA liquid applied membrane is a plural component, high solids, seamless with an integral aggregate incorporated into the wearing layer. The final top coat is clear or tinted per the manufacturers standard color chart.

Basis of Design: Gard-Deck (Vehicular System)

### **2.02 Manufacturer**

A. HYDRO-GARD LLC  
18340 Yorba Linda Blvd., Suite 107  
Yorba Linda, CA 92886 Ph: 562-944-7030 Fax: 562-944-6402

### **2.03 Materials**

#### **A. Membrane/Flashing Waterproofing Materials:**

1. Primer for Concrete, Masonry and Metal: A rapid curing MMA Primer used to prime all concrete, masonry, and metal surfaces
  - Gard-Deck Primer 112 (MMA)

2. Base Coat / Aggregate Coat: A rapid curing PUMMA flexible methyl methacrylate liquid applied coating
  - Gard-Deck 800 R (PUMMA)
3. Top Coat colored or clear: A rapid curing PUMMA flexible UV resistant top coat
  - Gard-Deck 528 SC (PUMMA)

## **2.04 Waterproofing Accessories**

### **A. Accessories:**

1. Cleaning Solution/Solvent: A clear solvent used to clean and prepare transition areas of in-place catalyzed resin to receive subsequent coats of resin and to clean substrate materials to receive resin.
  - Gard-Deck Acetone Solution
2. Hardener: A (BPO) Power containing peroxide used to catalyst resin
  - Gard-Deck Hardener (BPO)
3. Accelerator: a low temperature accelerator used when temperatures are below (+32 °F)
  - Gard-Deck Accelerator 101
4. Fleece: A white needle punched reinforcement fabric containing 100% Polyester fibers
  - Gard-Deck Fleece 3.0
5. Aggregate/Wearing Course: Kiln Dried Quartz Aggregate 16-20 Mesh
  - Gard-Deck Aggregate
6. Crack Repair: A Highly Flexible Methyl Methacrylic Resin used to fill routed out cracks and joints
  - Gard-Deck 430 N Joint Filling Compound
7. Mortar Repair: A pre packaged Mortar repair for spalled concrete
  - Gard-Deck Mortar 50/51

8. Porous Surface Repair: A Low Viscosity Methacrylic Resin used to fill extreme porosity in concrete and close off pinholes
  - . Gard-Deck 114 Slurry Repair
9. Resin Filler: Filler is used for base coat resins and seal coat resins to enhance self leveling (Used in lieu of “Pet” filler)
  - . Gard-Deck SL Filler
10. Elastic Resin Filler: Filler is used for base coat resins to enhance flexibility of base resins
  - . Gard-Deck “PET” Filler

### **Part 3 - Execution**

#### **3.01 Examination**

- A. General: Prior to installation of traffic coating inspect substrate conditions to ensure substrate complies with manufacturers finish requirements. Substrate shall be smooth, dry, free of voids, spalls, ridges, and any contaminants that may possibly delaminate the bond line of the traffic coating.
- B. Concrete Requirements: Concrete shall be cured for a minimum of 28 days in accordance with ACI Standards. See ACI-308 for Standards. Concrete shall be structural type, and have a minimum compressive strength of 3,500 psi.
- C. Moisture Content: Applicator shall perform moisture testing on all concrete substrates prior to the application of traffic coating. Perform calcium chloride testing or other electronic moisture testing according to the recommendations of the traffic coating manufacturer.
- D. Adhesion Testing: Prior to installation of traffic coating perform adhesion testing utilizing the manufacturers primer and the base coat resin. Perform substrate preparation noted in the specification for adhesion testing. Document results and provide them to the manufacturer. If adhesion testing fails contact the Owner, Architect, General Contractor and Manufacturer.
- E. On newly placed concrete if curing compounds are to be used obtain product literature on proposed curing agent, and provide them to the manufacturer for review.



### 3.02 Surface Preparation

- A. Cleaning: Remove any and all contaminants from the surfaces scheduled to receive traffic coating. This shall include all oil, grease, paints, coatings, and any other contaminants that would preclude acceptable adhesion of the traffic coating.
- B. Existing Substrates: Abrade, grind, or shot blast all surfaces to ensure a sound and solid substrate free of contaminants that will reduce adhesion of the traffic coating. Cracks, spalls, or voids shall be opened up by chipping by hand or mechanical equipment. Clean out opened cracks, and/or voids and apply primer suggested by manufacturer. Fill cracks or voids with resin membrane paste. Base membrane can be thickened into a grout or resin mortars from manufacturer. Fill opened cracks or voids with base resin grout and smooth out so that it is flush with the finished concrete. Reinforce cracks and/or voids with manufacturers fleece reinforcement set in a bedding of resin membrane. This reinforcement shall extend beyond each side of the opened crack or a void minimum of 2" on each side of the repaired area. *(Note: existing concrete substrates can be very porous after abrading and shot blasting leaving the substrate open with pinholes and loose concrete. Contact manufacturer for repairing these types of surfaces)*
- C. Preparation of newly placed concrete substrates to receive resin materials: Newly placed concrete shall be cured a minimum of 28 days in accordance with ACI-308, and have a minimum compressive strength of 3,500 psi. Following evaluation for moisture content and confirmation that the moisture content is at an acceptable level, shot blast, or scarify the surface to provide a sound substrate free from laitance, and contaminants. Generating a concrete surface profile of CSP-2 to CSP-4 as defined by the ICRI. Grinding may be used as a preparation method for localized areas that cannot be reached by shot blasting equipment, provided that a surface profile of CSP-2 to CSP-4 can be generated. Repair spalls and voids on vertical or horizontal surfaces using the specified primer and resin grout.
- D. Concrete Substrate Repair: Prime areas of the concrete substrate intended for repair using the specified primer. Fill the areas using the specified resin grout or repair mortar and allow to cure. Follow the resin grout or repair mortar manufacturer's published minimum and maximum product thickness limitations per lift.
- E. Preparation of Steel/Aluminum Substrates: Grind to generate a "white metal" surface and remove loose particles. Extend preparation area a minimum of ½" beyond the termination of the waterproofing/flashing system. Always prime the abraded metal first with the manufacturer's primer prior to resin application.
- F. Rigid Plastic Flashing Substrates: Evaluate the plastic for compatibility with the resin materials. Clean plastic substrates using the specified cleaner/solvent and allow to dry. Lightly abrade the surface to receive the flashing system. Extend preparation area a minimum of ½" beyond the termination of the

waterproofing/flashing system. Always prime the abraded plastic first with the manufacturer's primer prior to resin application.

- G. Crack Preparation: Remove foreign materials from cracks and chase using appropriate equipment to bring the exposed concrete surfaces into a condition suitable to receive the primer. Clean cracks/joints and treat with the specified primer. Fill the cracks and joints using the specified preparation and fill with manufacturer's resin grout.
- H. Crack Reinforcement: Remove all contaminants from cracks and chase using appropriate equipment to bring the exposed concrete surfaces into a condition suitable to receive the primer. Apply the specified primer over the cracks using a brush, or other method to avoid over application. Allow the primer to cure. Fill cracks using the specified resin grout, and allow to cure. Wipe the previously applied primer, and resin grout using the specified cleaning solution in areas having a 6" width centered over the crack. Apply a base coat of catalyzed base resin to the prepared substrate with a roller at the minimum rate specified by the resin manufacturer. Extend the catalyzed base resin 1/4" beyond where the fleece reinforcement will terminate. Embed 6" wide strips of the specified fleece into the wet, catalyzed flashing resin base coat using a roller or brush to fully embed the fleece and remove any trapped air. Apply an additional coat of catalyzed base resin between layers of overlapping fleece. Fleece overlaps shall be a minimum of 2". Apply a finish coat of the catalyzed base resin immediately following embedment of the fleece with a roller or brush at the minimum rate specified by the resin manufacturer, ensuring full saturation of the fleece reinforcement.

### **3.03 Vehicular Traffic Liquid Applied Waterproofing Installation**

- A. Mixing and Catalyzing of Resins: Thoroughly mix the entire container of un-catalyzed resins for 2 minutes if pouring the resin into a second container when batch mixing. Catalyze only the amount of material that can be used within its pot life. Add pre-measured catalyst powder to the resin component and stir for 2 minutes using a slow speed mechanical agitator or mixing stir stick. The amount of catalyst added is based on the weight of the resin used. Refer to manufacturer product data sheet for additional information on mixing.
- B. Mixing and Catalyzing of Waterproofing Resin/Aggregate filler blends: Thoroughly mix the entire container of un-catalyzed resins and slowly add the amount of filler specified by the waterproofing system manufacturer. Once the filler has been mixed into the resin component, add pre-measured catalyst powder to the resin/filler mixture and stir for 2 minutes using a slow speed mechanical agitator. The amount of catalyst added is based on the weight of the resin used. Refer to manufacturer product data sheet for additional information on mixing.
- C. Priming: Using the specified primer, apply to masonry, concrete and plywood surfaces that will receive the waterproofing membrane or flashing. Apply the primer using a roller at the minimum rate specified by the primer manufacturer

and allow to cure for a minimum of 45 minutes. Application rates vary depend on porosity of substrates. Do not let resin pool or pond. Do not over apply primer. When calculating application rates make allowances for saturation of roller covers and application equipment.

- D. Flashing Application: Prior to installation of the traffic coating layers install all flashing and detailing. Measure all flashing conditions such as pipe penetrations, inside/outside corners, and pre-cut the fleece for each condition to ensure the fleece is the proper dimension to cover the entire flashing assembly. Wherever the traffic coating and flashing system terminates install non staining masking tape to create a clean line of termination. Set dry fleece at flashing conditions to ensure the fleece flashing sheets are of correct size and dimension. Prior to installation of flashing sheet prime all surfaces with manufacturers primer. Allow the primer to dry prior to proceeding. Over dry and cured primer install an application of base resin over flashing substrate at coverage rates as stipulated by manufacturer. Extend resin application a minimum of 1/8" to 1/4" beyond the termination of the fleece. Brushes and rollers are appropriate application tools. Immediately embed the fleece into wet resin using a wet roller or brush and remove any air bubbles. Fleece overlaps shall be a minimum of 2" and install resin within each overlap. While embedment coat of resin is still wet, install an additional top coat layer of resin over embedded fleece. Ensure that all fleece is completely covered with resin. Check all flashing and ensure there are no dry spots in fleece, and that the top coat of resin has covered all fleece. Remove all masking tape before all resin has dried. Allow flashing to cure 45 to 60 minutes.
- E. Vehicular Traffic Coating application (Reinforced Heavy Duty):
1. Inspect all previously installed flashing to ensure no damage has taken place to flashing conditions. Repair any damages to flashing using methods noted above. Wipe all flashing clean with a clean dry rag to remove any and all dust/debris. Then wipe all cured flashing with a clean cloth dampened with cleaning solution. Let dry after cleaning for 20-30 minutes.
  2. Primer application: Over clean and prepared concrete substrate apply manufacturers primer to all substrate surfaces to receive base resin. Apply primer using a roller and work primer into substrate evenly. Substrates vary in porosity. The minimum coverage rate based on substrate profile noted above is 90 sf/gal or 1.11 gallons per 100 sf. Application rate must be evenly and well distributed. Do not let primer puddle or pond. A primer application less than 90 sf/gal or 1.11 gallons per 100 sf may result in improper curing of primer. Broadcast silica/quartz sand into wet primer at a rate of 15-20 pounds per 100 sf.
  3. Base Coat Application: Install base coat application of resin over the dry and cured primer. Install utilizing rollers and/or notched squeegees when acceptable to manufacturer. The minimum coverage rate for this base coat

application is 50 sf/gal or 2 gallons per 100 sf. Slightly broadcast quartz sand into wet membrane at a rate of 20-25 lbs per 100 sf.

4. Second Base Coat Application: Install second base coat application of resin over initial base coat application at a rate of 55-60 sf/gal or 1.75 gallons per 100 sf. Slightly broadcast quartz sand into wet membrane at a rate of 20-25 lbs per 100 sf.
5. Fleece Embedment Application: Install mixed resin over second base coat application at a rate of 60-70 sf/gal or 1.5 gallons per 100 sf and embed fleece reinforcement into the wet membrane utilizing a wet roller. Overlaps shall be a minimum of 2". Use rollers to remove any air bubbles from fleece. Fleece shall be fully saturated into the wet membrane with no dry spots. Dry areas or areas where full embedment is not achieved apply additional resin until full saturation is achieved. Let cure for a minimum of 45-60 minutes before proceeding to aggregate coat.
6. Aggregate Application: Install mixed resin over fleece embedment application at a rate of 75-80 sf/ga. or 1.30 gallons per 100 sf and fully broadcast quartz sand aggregate into the wet membrane to full refusal. Allow membrane to fully cure prior to sweeping off excess aggregate. This may take 2-3 hours depending on ambient temperature.
7. Top Coat/Sealer Coat: Upon removing all excess aggregate install mixed colored top coat resin at an application rate of 100 sf/gal or 1 gallon per 100 sf over aggregate application. Install evenly and consistently ensuring all areas of aggregate application are completely covered and sealed.

F. Vehicular Traffic Coating application (Unreinforced Medium Duty):

1. Inspect all previously installed flashings to ensure no damage has taken place to flashing conditions. Repair any damages to flashing using methods noted above. Wipe all flashings clean with a clean dry rag to remove any and all dust/debris. Then wipe all cured flashings with a clean cloth dampened with cleaning solution. Let dry after cleaning for 20-30 minutes.
2. Primer application: Over clean and prepared concrete substrate apply manufacturer's primer to all substrate surfaces to receive base resin. Apply primer using a roller and work primer into substrate evenly. Substrates vary in porosity. The minimum coverage rate based on substrate profile noted above is 90 sf/gal or 1.11 gallons per 100 sf. Application rate must be evenly and well distributed. Do not let primer puddle or pond. A primer application less than 90 sf/gal or 1.11 gallons per 100 sf may result in improper curing of primer. Broadcast silica/quartz sand into wet primer at a rate of 15-20 pounds per 100 sf.

3. Base Coat Application: Install base coat application of resin over the dry and cured primer. Install utilizing rollers and/or notched squeegees when acceptable to manufacturer. The minimum coverage rate for this base coat application is 50 sf/gal or 2 gallons per 100 sf. Slightly broadcast quartz sand into wet membrane at a rate of 20-25 lbs per 100 sf.
4. Aggregate Application: Install mixed resin over base coat application at a rate of 75-80 sf/ga. Or 1.30 gallons per 100 sf and fully broadcast quartz sand aggregate into the wet membrane to full refusal. Allow membrane to fully cure prior to sweeping off excess aggregate. This may take 2-3 hours depending on ambient temperature.
5. Top Coat/Sealer Coat: Upon removing all excess aggregate install mixed colored top coat resin at an application rate of 100 sf/gal or 1 gallon per 100 sf over aggregate application. Install evenly and consistently ensuring all areas of aggregate application are completely covered and sealed.

#### **3.04 Field Quality Control and Inspections**

- A. Project Conditions: Ensure that all excess materials are removed from the project and properly disposed of.
- B. Clean Up: Clean up all spills, stains resulting from the application of the traffic coating.
- C. Final Inspection: Notify manufacturer upon completion for the final inspection. Final inspection is required for issuance of the guarantee.