



# Application Specification

## VLW LIGHTWEIGHT UNDERLayment, Type III

### Purpose and Scope

To outline instructions for application of VLW Lightweight Underlayment, Type III. A 100% solid, 0 VOC, general-use, epoxy resin base interior deck covering underlayment designed for application under all types of deck covering materials. Qualified to QPL-PRF-3135 Type III, Class 2, Grade B.

### Thickness

Minimum: From Featheredge of 0", maximum of 3" per application. Most smoothing applications are a nominal  $\frac{1}{4}$ " (6.35 mm) thickness.

Use multiple applications when thicknesses greater than 3" are required.

### Approximate Quantity of Materials Required

#### To Cover ONE HUNDRED SQ. FT (9.3 sq. Meters)

<u>Thickness</u>
1/4 inch (6.35 mm)

VLW Lightweight Underlayment Resins  
Component A (7.2 lbs in a one gal can) ..... 3.7 units  
Component B (1.8lbs in a one quart can) ..... 3.7 units

VLW Lightweight Underlayment  
Aggregate (17 lb bag) ..... 3.7 units

**NOTE:** Coverage for one unit of VLW Lightweight Underlayment Type III is 27 square feet at a strict  $\frac{1}{4}$ " thickness. This does not allow for varied application thicknesses, irregularities in the steel deck plate substrate, or waste. When estimating material requirements, we recommend that an additional 15% - 20% material be available to allow for these contingencies. When weight consideration is of major importance, use screed bars to determine the existing deck profile and conformity, then apply VLW Lightweight Underlayment to a minimum thickness.

### Equipment Required

Dex-O-Tex Mixing Blade mounted in slow speed (275 RPM), 3/4" (19 mm) drill  
Mixing Container(s) (metal recommended over PVC)  
Jiffy Blade, (small size)  
Rubber-Edged Plasterer's Squeegees, one 12" (30 cm) and one 6" (15 cm)  
Steel Trowel, (3" x 12"), (8 cm x 30 cm)  
Plasterer's Steel Trowel, (4" x 16"), (10 cm x 40 cm)  
High Intensity Lighting, preferably deck level  
Approved solvent for cleaning tools  
All required Personnel Protective Equipment, gloves, safety glasses, hand cream, etc.

### Surface Preparation

**METAL:** Deck surfaces shall be prepared in accordance with SSPC SP 11, to remove all mill scale, rust, paint, etc., to gray steel or as specified. Surface should be dry and free of rust, dirt, oil or grease before VLW Lightweight Underlayment is installed

Decks that have been cleaned and primed with Navy Formula 150 Primer, MIL-DTL-24441, EURONAVY ES301K Primer, or Pre-Construction Primer (PCP, Zinc Silicate), should be high-pressure water jet cleaned, and prepared in accordance with SSPC SP 1 and allowed to dry completely before application of VLW Lightweight Underlayment. If any rusting is evident, prepare in accordance with SSPC SP 3 and SP 1; do not proceed with application until approved by supervising authority.

### Material Temperature

The temperature of the materials should be between 65°F to 80°F (18°C to 29°C) for best mixing and application properties.

### Ambient Temperature

For best working properties the ambient room temperature should be between 65°F to 80°F (18°C to 24°C). However, VLW can be installed in ambient temperatures as low as 55°F to as high as 100°F. However, workability will be adversely affected. A minimum temperature of 55°F and maximum



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temperature of 100°F must be maintained during and for at least 24 hours after application for proper curing.

### Substrate Temperature

Deck surface and room temperature of 65°F to 80°F (18°C to 24°C) should be maintained for at least 24 hours prior to and after installation for proper curing.

### APPLICATION

**OPTION:** There are two application methods accepted by MIL-PRF-3135(H) Section 3.2. for Type III materials:

- A. Using a portion of the mixed underlayment resin, before adding aggregate, as a primer. Then mixing the remaining resin with the aggregate to form the underlayment matrix to be trowel applied to the primed steel deck.
- B. Mixing all the component A and Component B resin, then mix all the resin with the aggregate and applying this wetter mix directly to the steel deck without using any resin for priming.

Each method has its' own particular advantage and disadvantage regarding the workability of the product. The method used should be selected on site condition, ambient conditions and personal preference. Whatever method is selected, it should be noted in project logbooks and methods should not be interchanged on any one individual installation.

### APPLICATION METHOD A

#### Step One - VLW Lightweight Underlayment

##### **VLW**

Mix Ratio: 4A:1B: 17 lbs agg      Pot Life: 20 - 25 min  
Cure Time: 6 hrs – 24 hrs      Recoat Time: 12 hrs  
Coverage: 27 s.f. @  $\frac{1}{4}$ "      DFT: 1 - 3000 mils

The VLW resin components are supplied as a unit in two separate containers.

- 1.) After the surface to be covered has been properly prepared, pour the contents of the can containing VLW Lightweight Underlayment component B hardener (in a quart can) into the A Component resin (in a gal can) being sure to scrape out all the B Component. Blend thoroughly with the Jiffy Blade for approximately one minute, or until thoroughly mixed.
- 2.) Remove 7 fluid ounces of the mixed resin and pour out onto the deck surface to be used as a primer. While one worker continues to mix the underlayment, one worker should proceed with application of the primer resin. Spread resin at approximately 27 square feet, to a WFT of approximately 4 mils wet.
- 3.) Pour the remaining blended resins into a suitable size container (5 – 10 gal. pail) and then slowly add the aggregate. The Dex-O-Tex mixing blade mounted in a slow-speed 3/4" drill (Duo Mixers are recommended for fast thorough mixing). Do not over mix. Mix until aggregates are thoroughly wetted out. "Box" the mixed material into clean pails and re-blend to be sure binder liquid is uniformly coating the aggregate particles.
- 4.) VLW Lightweight Underlayment mix will give a workable composition with a pot life of 20-25 minutes (from when the resins are first mixed) at an ambient temperature of 70°F to 75°F (21°C to 24°C), capable of being troweled from a featheredge to 3" in thickness in one application.
- 5.) Place the required amount of VLW Lightweight Underlayment matrix onto the area previously coated with the priming resin, and screed out with a screed bar or trowel. Rake the material to the approximate finished thickness. Use a tamping, screeding motion to work material generally into place.



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- 6.) Compact the material into a tight surface with a 4" x 16" (10 cm x 40 cm) rectangular trowel. Work the material into a smooth even surface with desired leveling or sloping as required.

The working time of VLW Lightweight Underlayment is approximately 20-25 minutes (from when the resins are first mixed) at an ambient temperature of 70°F to 75°F (21°C to 24°C). A one-unit mix should cover approximately 27 sq. ft. at 1/4" (6.35 mm) thickness.

Overnight cure is desirable before application of Dex-O-Tex Elastaguard (corrosion containment membrane) or any other deck finish.

### **APPLICATION METHOD B**

#### **Step One - VLW Lightweight Underlayment**

##### **VLW**

Mix Ratio: 4A:1B: 17 lbs agg      Pot Life: 20 - 25 min  
Cure Time: 6 hrs – 24 hrs      Recoat Time: 12 hrs.  
Coverage: 27 s.f. @ 1/4"      DFT: 1 - 3000 mils

The VLW resin components are supplied as a unit in two separate containers.

- 1.) After the surface to be covered has been properly prepared, pour the contents of the can containing VLW Lightweight Underlayment resin hardener, B component (in a quart can), into A component resin (in 1 gal. pail) being sure to scrape out all of the B component. Blend thoroughly with the jiffy blade for approximately one minute or until thoroughly mixed.
- 2.) Pour the blended resins into a suitable size container (5 – 10 gal. pail) and then slowly add the aggregate. The Dex-O-Tex mixing blade mounted in a slow-speed 3/4" drill (Duo Mixer is recommended for fast though mixing). Do not over mix. Mix until aggregates are thoroughly wetted. "Box" the mixed material into clean

pails and re-blend to be sure binder liquid is uniformly coating the aggregate particles.

- 3.) VLW Lightweight Underlayment mix will give a workable composition with a pot life of 20-25 minutes (from when the resins are first mixed) at an ambient temperature of 70°F to 75°F (21°C to 24°C), capable of being troweled from a featheredge to 3" in thickness in one application.
- 4.) Place the required amount of VLW Lightweight Underlayment matrix onto deck, and screed out with a screed bar or trowel. Rake the material to the approximate finished thickness. Use a tamping, screeding motion to work material generally into place.
- 5.) Compact the material into a tight surface with a 4" x 16" (10 cm x 40 cm) rectangular trowel. Work the material into a smooth even surface with desired leveling or sloping as required.

VLW Lightweight Underlayment can be installed in greater thicknesses and is recommended to develop drainage slopes and heavy fairing.

The working time of VLW Lightweight Underlayment is approximately 20-25 minutes (from when the resins are first mixed) at an ambient temperature of 70°F to 75°F (21°C to 24°C). A one-unit mix should cover approximately 27 sq. ft. at 1/4" (6.35 mm) thickness.

Overnight cure is desirable before application of Dex-O-Tex Elastaguard (corrosion containment membrane) or any other deck finish.

#### **Cautions**

1. For proper workability it is important the Dex-O-Tex materials be stored and mixed at a temperature of 65°F-80°F.
2. The substrate temperature should be between 65°F-80°F. A warm substrate will decrease the pot life and make the material sticky. A cooler substrate will retard the cure and may cause a



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blush of the polymeric resins. Deck surface and room temperature of 65°F or slightly higher must be maintained for proper curing.

3. When mixing the polymeric resin components, be sure to use all of the provided resins. The resins are pre-measured to the correct ratios. Scrape all of the hardener from the container into the resin.
4. Do not turn mixing vessels upside down to drain on the flooring surface. Unmixed resin from the side may produce soft or uncured spots on the flooring surface.
5. Keep the unfinished flooring surface clean. Do not track dirt, grease, or any other contaminate onto the unfinished flooring.
6. Good ventilation must be provided during application, particularly in confined spaces.
7. Always obtain, read and observe Manufacturers Safety Data Sheets (MSDS) before handling polymeric materials. Become familiar with the products on paper before you open the cans.

### General Conditions for Safe Handling of Polymeric Resinous Flooring Systems

1. Read and observe precautionary statements on product labels.
2. Keep containers tightly closed.
3. Keep out of reach of children.
4. For industrial use only. Do not allow application by untrained workers.
5. Remove contaminated clothing and shoes. Wash clothing before re-use.
6. Use of safety goggles and chemical resistant gloves is recommended. Wear only full-length trousers and long-sleeve shirts. Apply protective creams to exposed skin areas.
7. In general, prolonged contact of polymeric resins with skin may cause irritation. Contact with curing agents may cause skin burns. Products may cause skin sensitization or other allergic responses. Avoid all contact with eyes.
8. In case of contact with skin, immediately remove the material with soap and water. Upon

completion of work at lunchtime or end of day, carefully check all skin surfaces for any traces of polymeric resins. Wash with soap and water. If wash facilities are not located nearby, establish water-washing station at work site. DO NOT use solvents to remove polymeric resins from skin, as solvents will drive polymeric resins deeper into skin. If redness or skin rash develop, consult a physician.

9. In the event of eye contact, flush immediately with plenty of water for at least 15 minutes. Consult a physician immediately.
10. Mix and apply polymeric resin materials only in conditions of good ventilation. Avoid breathing vapors. A fan to circulate fresh air may be needed. Certain polymeric resin products and/or certain working conditions require use of NIOSH/MSA organic vapor respirator. Consult MSDS.
11. First Aid for inhalation: if effects occur, remove patient to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get immediate medical attention.



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