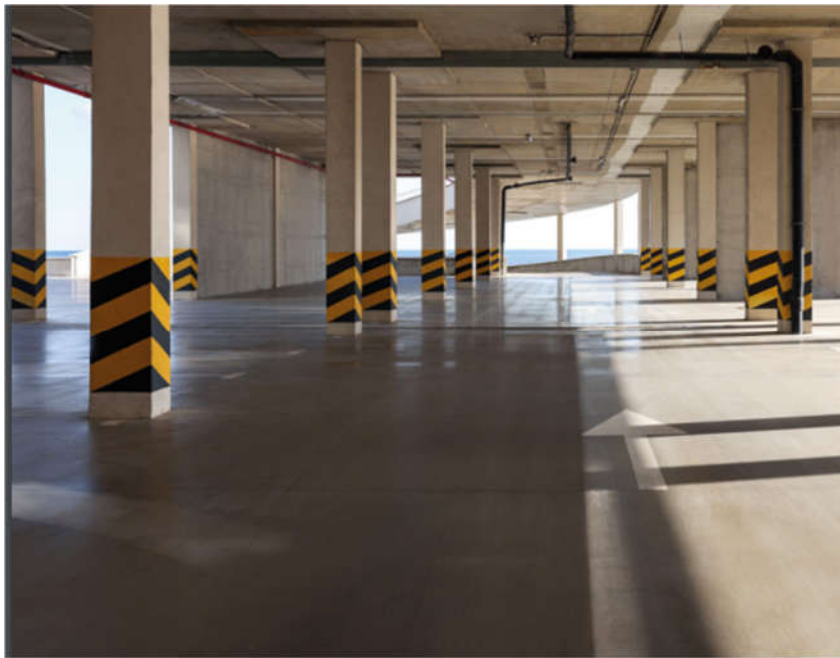


Pecora-Deck HB1100-SA

Two-Component, Integral Aggregate, UV-Resistant, Single Coat Application, Chemically Curing POLYURETHANE DECK COATING



APPLICATION GUIDE

PECORA DECK HB1100-SA APPLICATION GUIDE

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The information presented here are guidelines only. Deviation from published application procedures may be required per project specifications and/or site conditions and must be approved by Pecora Technical Services.

SECTION #1

**PECORA DECK HB1100-SA
COATING SYSTEM
&
APPLICATION GUIDELINES**

Pecora-Deck HB1100-SA Polyurethane Deck Coating System

Pecora-Deck HB1100-SA is a two component, self-leveling, integral aggregate, UV-resistant, single coat application, chemically curing, polyurethane liquid membrane applied as a protective coating for concrete, steel, and plywood traffic bearing surfaces. Pecora-Deck HB1100-SA is a one-step traffic coating system that includes integral aggregate and functions as both a waterproofing and traffic bearing deck coating system.

The application of a base coat waterproofing material, such as the Pecora Deck 802 or 802FC, is not required.

Pecora-Deck HB1100-SA is approved for both pedestrian and vehicular traffic applications when using the corresponding synthetic aggregate blend. Pedestrian systems are supplied with a 16/20 US Mesh blend and Vehicular systems include a 12/16 US Mesh blend. The appropriate aggregate must be specified when ordering the materials.

Pecora-Deck HB1100-SA complies with ASTM C957 Specification for Elastomeric Waterproof Membranes.

Pecora-Deck HB1100-SA is available in two factory tinted colors: **Colonial Grey, Stone Grey, Charcoal Grey, Sahara Tan, and Desert Tan**

Pecora-Deck HB1100-SA is packaged as two kits per saleable unit. Individual kits are not available for purchase. The following packaging options are available:

- **5.5-gallon kits** (11-gallon unit)
 - Ideal for larger projects i.e., parking decks
- **1.8-gallon kits** (3.6-gallon unit)
 - Ideal for smaller projects i.e., balconies, walkways, mechanical rooms

The kit components are configured as follows:

2x 5.5-gallon kit (11.0 gallon total volume) 2x 4.14 gal. (15.7L) - Part A Base 2x 0.47 gal. (1.8L) - Part B Activator Aggregate 2x 0.91 gal. (3.4L) - Part C Aggregate • Vehicular Aggregate 12/16 US Mesh • Pedestrian Aggregate 16/20 US Mesh	2x 1.8-gallon kit (3.6 gallon total volume) 2x 1.35 gal. (5.1L) - Part A Base 2x 0.15 gal. (0.6L) - Part B Activator Aggregate 2x 0.30 gal. (1.1L) - Part C Aggregate • Vehicular Aggregate 12/16 US Mesh • Pedestrian Aggregate 16/20 US Mesh
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Pecora-Deck HB1100-SA Primer Options

Pecora P-801VOC, P-808, and Healer Sealer are available and represent the approved deck coating primers. **The use of primer is optional for the Pedestrian system and required for the Vehicular system.** Ultimately, the necessity of primer will be determined via field adhesion testing under representative site conditions and when applying over concrete, percent (%) concrete moisture content at time of application. Refer to pages 26, 27 of this manual or Pecora Technical Bulletin #71 and/or contact Pecora Technical Services for details regarding require moisture content.

DECK COATING APPLICATION EQUIPMENT REQUIREMENTS

The following equipment will generally be required for applying polyurethane deck coatings and joint sealants. The list below is a guideline only and additional tools/materials may be required depending on the specific application and site conditions.

Joint Sealant Application

- Mixing paddle (for mixing of two-component sealants only)
- ½" heavy duty corded drill (for mixing of two component sealants only)
- Bulk caulking gun (for dispensing of two component sealants only)
- Standard caulking or sausage gun (for one component sealants only)
- Clean rags and/or paint brushes for sealant primer application, if required
- Xylene, mineral spirits or isopropyl alcohol for cleaning tools
- Large spatula for scraping/hand mixing of two component sealant pails
- Small spatula or caulking knife for tooling sealants
- Closed cell or bi-cellular backer rod (should be 25% larger than joint openings)
- Diamond grinder for chasing cracks in concrete
- Oil free compressed air or vacuum for cleaning joint substrates

Deck Coating Application and Detailing

- Appropriately sized Jiffy mixing paddle (2-gallon or 5-gallon model)
- ½" heavy duty variable speed corded drill
- Long spatula (for scraping of pail and hand mixing of deck coatings)
- Long handled V-notched squeegees - 30" width preferred
 - **Pedestrian system: ¼" V-notch required**
 - **Vehicular system: 3/8" V-notch required**
 - *V-notch squeegee recommendations are fixed and cannot be modified as this will affect coverage rates and integral aggregate dispersion.*
- Solvent resistant gloves
- Organic vapor masks
- Xylene or isopropyl alcohol for cleaning tools
- Shop rags
- Empty five (5) gallon metal pails for splitting contents of pails after mixing, if desired
- Long handled paint roller applicator (standard and 2" width)
- Paint rollers ¼" nap – (standard and 2" width for detailing)
- Steel spike shoes
- Mil gauges for measuring wet coating thickness

PECORA DECK HB1100-SA PEDESTRIAN & VEHICULAR Application Guidelines

1. **Surface preparation:** All surfaces must be level, clean, and dry. Remove all foreign materials such as coatings, loose dirt, and other contaminants by means of mechanical abrasion, high pressure air, sand blasting, solvent wipe, or vacuum to achieve a clean, dry, virgin surface. The use of a primer may be required for enhanced adhesion or for sealing of porous surfaces to avoid outgassing prior to application of Pecora HB1100-SA. All seams, joints, and cracks exceeding 1/16" in width must be pre-sealed utilizing Pecora DeckSeal, Dynatred, or Dynatrol II-SL polyurethane joint sealants.
2. **Primer:** Prime concrete with Pecora P-801-VOC (<100g/L) or P-808 (<450g/L)¹ primer at 250 to 350 square feet per gallon. Allow primer to dry 1 – 8 hours.
 - Primer is required for all VEHICULAR applications.
 - Primer is optional for PEDESTRIAN applications.

Note: The Healer Sealer epoxy primer is recommended on concrete slabs with possible vapor drive such as those that include unvented metal pans, between slab membranes, and other conditions that may result in vapor drive. Consult Pecora Technical Service for details.

3. **Mix Pecora Deck HB1100-SA components:**
 - **Pre-Mix Aggregate:** Add Part C (aggregate) to Part A (base). Mix for 2 minutes using a jiffy mixing paddle or equivalent, moving the paddle across the bottom and vertically to ensure complete incorporation.
 - **Add Activator:** Once the aggregate is dispersed, add Part B (activator) to the pre-blended Part A/Part C mixture.
 - **Mixing Times:**
 - i. **5.5-gallon kit:** Mix for 3 minutes, scrape sides near top of pail thoroughly, then mix for an additional 2 minutes (total mix time: 5 minutes).
 - ii. **1.8-gallon kit:** Mix for 2 minutes, scrape sides near top of pail thoroughly, then mix for an additional 1 minute (total mix time: 3 minutes).
 - **Induction Period:** Allow the mixture to stand for 3 minutes before application. Apply the entire contents immediately after the induction period as noted below.
4. **Apply Pecora Deck HB1100-SA** in a single coat using an appropriately sized V-notched squeegee (see below) and apply the coating at the following coverage rates:

• PEDESTRIAN	1/4" V-notched squeegee	49 sq ft/gal (33 wet mils)
• VEHICULAR:	3/8" V-notched squeegee	36 sq ft/gal (45 wet mils)
5. **Immediately back roll** using a 1/4" nap roller in two directions perpendicular to each other taking care not to displace the integral aggregates by applying too much pressure on the roller.
6. **Allow the Pecora Deck HB1100-SA to cure for 24 hours** prior to opening completed system to traffic.

Pecora Deck System	Traffic Coating System Component/s		Mil (Inch) Thickness		Integral Aggregate Mesh Size
			Wet	Dry	
HB1100-SA PEDESTRIAN	No primer required	HB1100-SA	33 (.033)	30 (.030)	16/20
HB1100-SA VEHICULAR	P-801VOC Primer, P-808 Primer, or Healer Sealer	HB1100-SA	45 (.045)	41 (.041)	12/16

¹ Check local VOC regulations for product compliance prior to installing deck coating primer.

PECORA DECK HB1100-SA TEN (10) YEAR PEDESTRIAN SYSTEM Application Guidelines

- Surface preparation:** All surfaces must be level, clean, and dry. Remove all foreign materials such as coatings, loose dirt, and other contaminants by means of mechanical abrasion, high pressure air, sand blasting, solvent wipe, or vacuum to achieve a clean, dry, virgin surface. The use of a primer may be required for enhanced adhesion or for sealing of porous surfaces to avoid outgassing prior to application of Pecora HB1100-SA. All seams, joints, and cracks exceeding 1/16" in width must be pre-sealed utilizing Pecora DeckSeal, Dynatred, or Dynatrol II-SL polyurethane joint sealant.
- Primer:** Prime concrete with Pecora P-801-VOC (<100g/L) or P-808 (<450g/L)¹ primer at 250 to 350 square feet per gallon. Allow primer to dry 1 – 8 hours. Primer is **optional** for PEDESTRIAN applications. *The Healer Sealer epoxy primer is recommended on concrete slabs with possible vapor drive such as those that include unvented metal pans, between slab membranes, and other conditions that may result in vapor drive. Consult Pecora Technical Service for details.* Field testing and site conditions will dictate priming requirements.

NOTE: Be aware that the 10-year single coat pedestrian system option includes the larger and more coarse Vehicular aggregate (12/16 US mesh). Contractors and/or owners should verify the coarser aggregate is acceptable prior to installation as this will result in a more aggressive surface profile.

SYSTEM APPLICATION OPTIONS

OPTION #1: SINGLE COAT SYSTEM

- Mix Pecora Deck HB1100-SA components:**
 - Pre-Mix Aggregate:** Add Part C (aggregate) to Part A (base). Mix for 2 minutes using a jiffy mixing paddle or equivalent, moving the paddle across the bottom and vertically to ensure complete incorporation.
 - Add Activator:** Once the aggregate is dispersed, add Part B (activator) to the pre-blended Part A/Part C mixture.
 - Mixing Times:**
 - 5.5-gallon kit:** Mix for 3 minutes, scrape sides near top of pail thoroughly, then mix for an additional 2 minutes (total mix time: 5 minutes).
 - 1.8-gallon kit:** Mix for 2 minutes, scrape sides near top of pail thoroughly, then mix for an additional 1 minute (total mix time: 3 minutes).
 - Induction Period:** Allow the mixture to stand for 3 minutes before application. Apply the entire contents immediately after the induction period as noted below.
- Apply Pecora Deck HB1100-SA in a single coat using a 3/8" notched squeegee at 32 sq ft/gal (49 wet mils).**
- Immediately back roll** using a 1/2" nap roller in two directions perpendicular to each other taking care not to displace the integral aggregates by applying too much pressure on the roller.
- Allow the Pecora Deck HB1100-SA to cure for 24 hours** prior to opening completed system to traffic.

OPTION #2: TWO COAT SYSTEM

- Mix Pecora Deck HB1100-SA base and activator without aggregate.**
 - Add Activator:** Add Part B (activator) to the Part A (base).
 - Mixing Times:**
 - 5.5-gallon kit:** Mix for 3 minutes, scrape sides near top of pail thoroughly, then mix for an additional 2 minutes (total mix time: 5 minutes).
 - 1.8-gallon kit:** Mix for 2 minutes, scrape sides near top of pail thoroughly, then mix for an additional 1 minute (total mix time: 3 minutes).
 - Induction Period:** Allow the mixture to stand for 3 minutes before application. Apply the entire contents immediately after the induction period as noted below.
- Apply Pecora Deck HB1100-SA (without aggregate) in a single coat using a 1/4" notched squeegee at 81 sq ft/gal (20 wet mils).**
- Allow the Pecora Deck HB1100-SA to cure for 1 to 3 hours** prior to applying 2nd coat with integral aggregate. Low ambient and/or substrate temperatures will extend the overcoat times.
- Mix Pecora Deck HB1100-SA components including aggregate:**
 - Pre-Mix Aggregate:** Add Part C (aggregate) to Part A (base). Mix for 2 minutes using a jiffy mixing paddle or equivalent, moving the paddle across the bottom and vertically to ensure complete incorporation.
 - Finish mixing by repeating the afore-mentioned mixing process with the preblended base/aggregate mixture.**
- Apply Pecora Deck HB1100-SA in a single coat using a 3/8" notched squeegee at 49 sq ft/gal (33 wet mils).**
- Immediately back roll** using a 1/2" nap roller in two directions perpendicular to each other taking care not to displace the integral aggregates by applying too much pressure on the roller.
- Allow the Pecora Deck HB1100-SA to cure for 24 hours** prior to opening completed system to traffic.

HB1100-SA 10 YEAR Pedestrian System	Traffic Coating System Component/s		Coating Thickness, mils (inches)				TOTAL System Thickness, DRY mils (inches)	Integral Aggregate Mesh Size
			WET mils		DRY mils			
Option #1 Single Coat	No primer required ¹	HB1100-SA	49 (.049)		45 (.045)		45 (.045)	12/16
Option #2 Two Coats	No primer required ¹	HB1100-SA	1 st Coat (No aggregate)	2 nd Coat (w/ aggregate)	1 st Coat (No aggregate)	2 nd Coat (w/ aggregate)	48 (.048)	16/20
			20 (.020)	33 (.033)	18 (.018)	30 (.030)		

¹ Field testing and site conditions will dictate primer requirements.

PECORA DECK HB1100-SA TEN (10) YEAR VEHICULAR SYSTEM Application Guidelines

SURFACE PREPARATION & PRIMING

1. **Surface preparation:** All surfaces must be level, clean, and dry. Remove all foreign materials such as coatings, loose dirt, and other contaminants by means of mechanical abrasion, high pressure air, sand blasting, solvent wipe, or vacuum to achieve a clean, dry, virgin surface. The use of a primer may be required for enhanced adhesion or for sealing of porous surfaces to avoid outgassing prior to application of Pecora HB1100-SA. All seams, joints, and cracks exceeding 1/16" in width must be pre-sealed utilizing Pecora Deck-Seal, DynaTred, or DynaTrol II-SL polyurethane joint sealant.
2. **Primer:** Prime concrete with Pecora P-801-VOC (<100g/L) or P-808 (<450g/L)¹ primer at 250 to 350 square feet per gallon. Allow primer to dry 1 – 8 hours. Field testing and site conditions will dictate priming requirements.

Note: The Healer Sealer epoxy primer is recommended on concrete slabs with possible vapor drive such as those that include unvented metal pans, between slab membranes, and other conditions that may result in vapor drive. Consult Pecora Technical Service for details.

TWO COAT SYSTEM APPLICATION

3. **Mix Pecora Deck HB1100-SA components without aggregate.** First coat will be applied neat (no aggregates).
 - **Add Activator:** Add Part B (activator) to the Part A (base).
 - **Mixing Times:**
 - i. **5.5-gallon kit:** Mix for 3 minutes using a jiffy mixing paddle or equivalent, scrape sides near top of pail thoroughly, then mix for an additional 2 minutes (total mix time: 5 minutes).
 - ii. **1.8-gallon kit:** Mix for 2 minutes using a jiffy mixing paddle or equivalent, scrape sides near top of pail thoroughly, then mix for an additional 1 minute (total mix time: 3 minutes).
 - **Induction Period:** Allow the mixture to stand for 3 minutes before application. Apply the entire contents immediately after the induction period as noted below.
4. **Apply first coat of Pecora Deck HB1100-SA in a single coat using a 3/8" notched squeegee at 36 sq ft/gal (45 wet mils).**
5. **Allow the Pecora Deck HB1100-SA to cure for 1 to 3 hours** prior to applying 2nd coat with integral aggregate. Low ambient and/or substrate temperatures will extend the overcoat times.
6. **Mix Pecora Deck HB1100-SA components including vehicular aggregate:**
 - **Pre-Mix Aggregate:** Add Part C (aggregate) to Part A (base). Mix for 2 minutes using a jiffy mixing paddle or equivalent, moving the paddle across the bottom and vertically to ensure complete incorporation.
 - **Add Activator:** Once the aggregate is dispersed, add Part B (activator) to the pre-blended Part A/Part C mixture.
 - **Mixing Times:**
 - i. **5.5-gallon kit:** Mix for 3 minutes, scrape sides near top of pail thoroughly, then mix for an additional 2 minutes (total mix time: 5 minutes).
 - ii. **1.8-gallon kit:** Mix for 2 minutes, scrape sides near top of pail thoroughly, then mix for an additional 1 minute (total mix time: 3 minutes).
 - **Induction Period:** Allow the mixture to stand for 3 minutes before application. Apply the entire contents immediately after the induction period as noted below.
7. **Apply second coat of Pecora Deck HB1100-SA in a single coat using a 3/8" notched squeegee at 36 sq ft/gal (45 wet mils).**
8. **Immediately back roll** using a 1/2" nap roller in two directions perpendicular to each other taking care not to displace the integral aggregates by applying too much pressure on the roller.
9. **Allow the Pecora Deck HB1100-SA to cure for 24 hours** prior to opening completed system to traffic.

HB1100-SA System	Traffic Coating System Component/s		Coating Thickness, mils (inches)				TOTAL System Thickness, dry mils (inches)	Integral Aggregate Mesh Size
			WET mils		DRY mils			
Ten (10) Year Vehicular	P-801VOC Primer, P-808 Primer, or Healer Sealer	HB1100-SA	1 st Coat (No aggregate)	2 nd Coat (w/ aggregate)	1 st Coat (No aggregate)	2 nd Coat (w/ aggregate)	82 (.082)	12/16 Vehicular
			45 (.045)	45 (.045)	41 (.041)	41 (.041)		

¹Check local VOC regulations for product compliance prior to installing deck coating primer

PECORA DECK HB1100-SA UNDER TILE / UNDER CARPET Application Guidelines

General Notes: The addition of sand to refusal will limit the elastomeric properties of the HB1100-SA coating. Therefore, an initial coat applied “neat” without aggregate will be required and will act as the elastomeric waterproofing component of the system. If waterproofing is not required, then the initial neat coat as described below can be omitted. **The synthetic aggregates (Part C) supplied with the HB1100-SA kits will not be used for the Under Tile / Under Carpet systems.** See below for more details.

1. **Surface preparation:** All surfaces must be level, clean, and dry. Remove all foreign materials such as coatings, loose dirt, and other contaminants by means of mechanical abrasion, high pressure air, sand blasting, solvent wipe, or vacuum to achieve a clean, dry, virgin surface. All seams, joints, and cracks exceeding 1/16” in width must be pre-sealed utilizing Pecora Deck-Seal, DynaTred, or DynaTrol II-SL polyurethane joint sealants.
2. **(Optional) Primer:** Prime concrete with Pecora P-801-VOC (<100g/L) or P-808 (<450g/L)¹ primer at 250 to 350 square feet per gallon. Allow primer to dry 1 – 8 hours. The use of a primer is optional and may be required for enhanced adhesion or for sealing of porous surfaces to avoid outgassing prior to application of Pecora HB1100-SA.

Note: The Healer Sealer epoxy primer is recommended on concrete slabs with possible vapor drive such as those that include unvented metal pans, between slab membranes, and other conditions that may result in vapor drive. Consult Pecora Technical Service for details.

3. **Mix Pecora Deck HB1100-SA components:**
 - **Add Activator:** Add Part B (activator) to the Part A (base).
 - **Mixing Times:**
 - i. **5.5-gallon kit:** Mix for 3 minutes using a jiffy mixing paddle or equivalent, scrape sides near top of pail thoroughly, then mix for an additional 2 minutes (total mix time: 5 minutes).
 - ii. **1.8-gallon kit:** Mix for 2 minutes using a jiffy mixing paddle or equivalent, scrape sides near top of pail thoroughly, then mix for an additional 1 minute (total mix time: 3 minutes).
 - **Induction Period:** Allow the mixture to stand for 3 minutes before application. Apply the entire contents immediately after the induction period as noted below.

Standard System (no waterproofing required)

4. **Apply Pecora Deck HB1100-SA in a single coat at 45 wet mils (35 sq ft/gal) using a ¼” V-notched squeegee.**
5. **Immediately broadcast silica sand aggregate (by others) to refusal as follows for the specified system below:**
 - a. **Under Tile:** Manually broadcast 16/35 mesh (0.047/0.019 inch) aggregate² to refusal (40-45 lbs /100 sq ft) while the Pecora –Deck HB1100-SA is still fluid.
 - b. **Under Carpet:** Aggregate broadcast is not required for under carpet systems.
Optional aggregate broadcast if needed for adhesive purposes: Broadcast 16/35 mesh (0.047/0.019 inch) aggregate² to refusal (40-45 lbs /100 sq ft) while the Pecora Deck HB1100-SA is still fluid.
6. **Allow coating to cure a minimum 4 to 6 hours then sweep or vacuum to remove excess aggregate.** Lower ambient and/or substrate temperatures (<70°F) may extend the cure time.
7. **Apply carpet adhesive or thin set mortar over completed system.**

Waterproofing System:

4. **Apply Pecora Deck HB1100-SA in a single coat at 25 wet mils (63 sq ft/gal) using a ¼” V-notched squeegee.**
5. **Allow coating to cure for 4 to 6 hours.**
6. **Apply Pecora HB1100-SA in a single coat at 20 wet mils (81 sq ft/gal) using a ¼” V-notched squeegee.**
7. **Immediately broadcast silica sand aggregate (by others) to refusal as follows for the specified system below:**
 - **Under Tile:** Manually broadcast 16/35 mesh (0.047/0.019 inch) aggregate² to refusal (40-45 lbs /100 sq ft) while the Pecora –Deck HB1100-SA is still fluid.
 - **Under Carpet:** Aggregate broadcast is not required for under carpet systems.
Optional aggregate broadcast if needed for adhesive purposes: Broadcast 16/35 mesh (0.047/0.019 inch) aggregate² to refusal (40-45 lbs /100 sq ft) while the Pecora Deck HB1100-SA is still fluid.
8. **Allow coating to cure a minimum 4 to 6 hours then sweep or vacuum to remove excess aggregate.** Lower ambient and/or substrate temperatures (<70°F) may extend the cure time.
9. **Apply carpet adhesive or thin set mortar over completed system.**

Pecora Deck System	Traffic Coating System Component/s		Mil (Inch) Thickness		Aggregate Mesh Size
			Wet	Dry	
UNDER TILE / UNDER CARPET	Optional Primer P-801VOC Primer P-808 Primer	HB1100-SA (One Coat System)	45 (.045)	41 (.041)	16/35 (.047/.019)
UNDER TILE / UNDER CARPET WATERPROOFING SYSTEM	Optional Primer P-801VOC Primer P-808 Primer	HB1100-SA (Two Coat System)	25 (.025)	23 (.023)	None
			20 (.020)	18 (.018)	16/35 (.047/.019)

¹ Check local VOC regulations for product compliance prior to installing deck coating primer.

² Employees using crystalline silica must wear an approved respirator if the exposure is above the permissible exposure level. Consult manufacturer's guidelines for safety practices

SECTION #2 DESIGN GUIDELINES

**Design Guide for Concrete Substrates
Concrete Finishing & Curing
Design Guide for Plywood Substrates**

PECORA DESIGN GUIDE FOR CONCRETE SUBSTRATES TO RECEIVE ELASTOMERIC MEMBRANE OR DECK COATING SYSTEMS

1. GENERAL

In general, properly designed structures where concrete is under compression and properly cured will have hairline cracks only. When the surface of the concrete is under tension, structural cracks can be expected, and steps must be taken to control their location to permit suitable reinforcement. This can be done by distributing stresses over the entire deck and by proper location of rebar and control joints. Stresses can be distributed by continuous reinforcement steel such as #4 installed in both directions on 12" centers near the top of surface of the slab.

Concrete structures to receive Pecora Deck Coating Systems should be sloped to freely drain. Adequate drainage reduces accumulation of sediments, which can cause discoloration, reduce thermal reflectivity, and provide a hazard to foot traffic. Installation of drains is preferable to drainage to an edge, which may soil the building fascia. In addition, the lack of slope with these systems can lead to possible leaks at low thresholds, puddles, and surface staining for which the applicator does not assume responsibility. The Pecora systems cannot be used to provide such a slope.

Most concrete surfaces contain surface porosity capable of transmitting gases. Under some temperature conditions, gas transmission can cause blister development in elastomeric coatings. The Pecora P-801VOC, P-808, and Healer Sealer primers function to close off and span surface pores and allows installation of optimum elastomeric films. The primer is recommended for all concrete surfaces and considered essential on lightweight structural concrete and vehicular applications.

2. STRUCTURAL CONCRETE

2.1 Acceptable Construction: Most thin shell shapes are under compression and acceptable. Since planar roof decks, flat or sloping, including the top and bottom slabs of bent plate roofs, usually include areas under tension, special attention to crack control should be given. Thin slabs poured on wire mesh or high rib are especially prone to cracking and should not be used without discussion with Pecora Corporation. Similarly, pre-cast slabs, with or without a fill, can impose special problems of differential vertical movement between slabs. Pecora Deck Systems should not be used in these situations without prior discussion with Pecora Corporation. Pre-stressed or post-tension cast-in-place slabs are suitable as a base.

2.2 Ventilation: Metal decking used as concrete form must be of the "ventilating type" to relieve pressure underneath the concrete fill. Concrete slabs used as interior ceilings should not be painted or sealed on the underside until the slab is dry and acceptable by the waterproofing contractor.

2.3 CONCRETE REQUIREMENTS

1.31 Mix: Design and controls, materials mixing and placing should follow ASTM C94 Water- cement ratios should be as low as practicable. An air-entraining admixture may be used to improve workability of the concrete and freeze-thaw resistance.

Finishing: Finishing should be delayed until the concrete has hardened sufficiently to prevent excess fine material from working to the surface. A slightly sand-textured surface is desired. The end results should be neither slick nor burnished, (which impairs adhesion) nor rough with fins, sharp projections, voids or rock pockets (which cause blisters). Vibrators or "stingers" shall not be used.

Suggested Finishing Specifications for Concrete, Section 3300, are as follows:

"Finish shall be steel troweled. The surface shall be uniform without being slick or burnished and shall have a slight sand texture or light broom finish. It shall be free from voids or sharp projections. Voids, rock pockets and excessively rough surfaces shall be finished with a grout or ground to match the unrepaired areas. The grout and bonding agent shall be non-staining and the composition approved by the architect prior to application. Dusting the surface with Portland cement or a mixture of sand and cement shall not be permitted.

3. LIGHTWEIGHT STRUCTURAL CONCRETE

Lightweight structural aggregate generally consists of expanded shale or naturally occurring minerals or air- entraining additives with a foamed structure. Normally, the compressive strengths of the cured concrete based on this aggregate are not less than 2500 psi.

3.1 Acceptable Construction: Same as par 2.1 above

3.2 Ventilation: Same as par. 2.2 above

3.3 Concrete Requirements:

3.31 Mix: Same as par. 2.31 above

3.32 Finishing: Same as par 2.32 above

3.33 Drying: Lightweight structural aggregate tends to absorb excess water, which requires additional drying time and leads to increased shrinkage cracks. After curing period, deck shall be allowed to dry a minimum of 4 to 6 weeks before coating. If rain occurs after the drying period and prior to application of P-808 primer, allow at least two days of good drying weather

4. LIGHTWEIGHT INSULATING CONCRETE FILLS

Lightweight insulating concrete generally utilizes vermiculite or perlite aggregate. INSULATING CONCRETE FILLS ARE NOT SUITABLE SUBSTRATES FOR PECORA-DECK COATING SYSTEMS.

To assist you and the General Contractor in providing the proper concrete finish for receiving the Pecora Polyurethane Coating systems we recommend that the following important points be adhered to:

1. Finishing:

The top surface of the slab must be steel troweled with a power trowel, twice. After the second steel troweling has been completed, finish the concrete by lightly pulling a light or soft hair broom over the surface to leave a light texture in the concrete.

2. Curing:

Water curing is preferred. However, if a curing compound is to be used, it must be of the pure sodium-silicate type. No resins, waxes or additional additives are allowed. Consult Pecora Technical Services for recommendations and/or approvals.

PECORA DESIGN GUIDE FOR PLYWOOD SUBSTRATES

1. CONSTRUCTION GUIDELINES FOR PLYWOOD DECK

- a. All plywood shall be identified as conforming to U.S. Product Standard PS 1 for Construction and Industrial Plywood by the grade-trademarks of the American Plywood Association. Use grade EXT APA B-C or EXT APA A-C.
- b. Plywood should be a minimum 3/4-inch thickness with joist spacing 16" on center and must be properly blocked. Tongue and Groove plywood is preferred. Plywood should be continuous across two or more spans, with face grain across supports.
- c. Install plywood in order to provide suitable panel edge support to prevent differential deflection between panels. In order to allow for expansion and contraction, space panels 1/16 in. at panel edges and at panel ends. Where wet or humid conditions are expected, these spacing may be increased.
- d. A plywood moisture content of 10-14% is acceptable when applying polyurethane based deck coatings.

2. NAILING

- a. Use minimum 6d non-rusting deformed shank (ring-shanked or spiral-thread) nails. Space nails 6 in. o.c. along panel edges and 12 in. o.c. along intermediate supports.
- b. Nails should NOT be countersunk, but simply nailed flush.

SECTION #3

SURFACE PREPARATION GUIDE

**Surface Preparation for Polyurethane Coatings
(Acid Etching, Shot Blasting, Sand Blasting)
Mechanical Methods for Preparing Contaminated Concrete
(Shot Blasting, Scabbling, Scarifying)
Joint Sealant Application
Deck Coating Detailing & Reinforcing Mesh**

SURFACE PREPARATION FOR POLYURETHANE COATING SYSTEMS

A. Concrete (New Construction)

1. General Construction Practices

- a. Concrete surfaces to receive Pecora Vehicular Deck Coating System must have a minimum compressive strength 4,000 psi.
- b. Concrete surfaces to receive Pecora Pedestrian Deck System should have a minimum compressive strength of 3,000 psi.
- c. Insulating concretes (Zonolite, Vermiculite, etc.) must NEVER be coated directly with a Pecora Polyurethane Coating System.
- d. Perlite or Polystyrene foam must never be coated directly. Concrete topping or wearing slabs are necessary to isolate the foam.
- e. Structural concrete must have a 21–28-day curing period prior to application of the Pecora Polyurethane Coating System.

2. Finish Requirements (See Special Section on Finishing and Curing)

- a. The concrete decks are to be steel troweled followed with a light broom ("sidewalk") finish to achieve an ICRI surface finish of CSP 3-5. No ridges, projections or voids should be present in the finished concrete
- b. Water curing is the preferred method for curing the concrete deck.
- c. If a curing compound is used, it must be of the "pure" sodium silicate variety, NO chlorinated rubber, wax, or resin-based curing compound can be used. Consult Pecora Technical Service for recommendations and/or approvals.
- d. The decks must be free from contaminates such as tars, asphalts, grease, dirt, etc., prior to coating.

3. Acid Etching, Shot-Blasting and Sandblasting

- a. The decks should be acid etched with 18° or 20° Baum muriatic acid to remove laitance on the concrete surfaces. [Dilute the acid by mixing 18° or 20° Baum acid (28% or 30% solution) with equal parts of clean water.]
- b. Once the acid solution has stopped all action (after 15 to 30 minutes) supply a neutralizer to the deck consisting of 10% ammonia in water.
- c. Be sure to thoroughly wash and flush the resulting residue completely off the deck prior to applying the deck coatings.
In most instances, Shot-Blasting or Sandblasting is recommended in lieu of acid etching of environmental reasons or when necessary to remove an unacceptable curing compound or contaminate. On exterior decks shot-blasting or sandblasting does not eliminate the need for priming with Pecora P-801 VOC or P-808 primers.
- d. Excessive Sandblasting can cause "pinholes" in the concrete surfaces which in turn could blister problems during application of the base coating and possibly even blisters in the finished system.

4. Crack Preparation

- a. All visible cracks should be coated with a "detail coat" of Pecora-Deck Base Coat or HB1100-SA at 20 wet mils.
- b. Large cracks should first be routed and filled flush with Pecora Dynatred or Deck-Seal polyurethane sealant prior to applying the detail coats (step "a".)
- c. The primer and coating materials used as the detail coat for cracks should minimum 6" width centered over the crack. Install the caulking only in the crack. Do not butter or featheredge the caulking beyond the edge of the crack. See Deck Coating Detailing section for more details.

B. Concrete (Remedial Construction)

1. General Construction Practices
Same psi compressive strength requirements as for new conditions.
2. Finish Requirements
Same troweling and texture requirements as for new construction.
3. Cleaning
 - a. Deck should be cleaned using tri-sodium phosphate and water, and a stiff bristle broom or power scrubber. Completely rinse away residue. Citric acid based concentrated degreaser and cleaner may also be used.
 - b. Heavily contaminated areas may require mechanical cleaning, grinding or scraping before power washing or scrubbing.
 - c. Once the concrete is thoroughly clean, acid etch the deck as new construction. (In cases of heavy penetration of surface contaminants, sandblasting or shot blasting may be necessary.
4. Repairing
Areas that have spalled off or have been ground out should be patched using a mortar consisting of epoxy and sand (100% solid epoxy with no solvent or oil modifications) or cementitious type repair mortar. Consult Pecora Technical Service for approvals.
5. Crack Preparation
Same as with new construction.

C. Plywood

1. Damaged Plywood
All damaged or surface contaminated plywood must be replaced prior to application of the base coat.
2. Nailing
 - a. Nails used should be non-rusting and should be spiral or "non-backing" nails (Barbed, spiral or ring shanked).
 - b. Nails should NOT be countersunk, but simply nailed flush.
3. Wall to Deck Flashing

All wall-to-deck flashing and under threshold flashing should be galvanized metal or copper and must be installed prior to coating application. The metal to plywood juncture must be detailed with the HB1100-SA and reinforcing fabric. Prime all metal flashings with P-100, P-120, or P-808 primer.
4. Joint Preparation.

Joints at changes in plane, or expansion details should be caulked and treated as expansion joints or detailed with galvanized sheet metal or flexible reinforced flashing type material. All other joints in plywood should be caulked flush and receive a detail coat of Pecora HB1100-SA. See Deck Coating Detailing and Joint Sealant Application sections for more details.

MECHANICAL METHODS FOR PREPARING CONTAMINATED CONCRETE

1. Shot Blasting

Shot blasting propels steel onto a surface to roughen it and remove coating and contaminants. Whether hand- held or walk-behind, the blasting equipment includes an enclosed blast chamber that recovers and separates dust and reusable steel shot. Because the abrasive and pulverized concrete are recovered, the system creates only very low levels of airborne dust and debris.

Shot blasting can remove embedded dirt, laitance, curing compounds, sealers, and conventional coatings up to 10 mils thick, tile mastics, and brittle coatings up to 1/16 in. thick. Shot blasting is the preferred method for preparing concrete decks.

2. Grinding

Grinding is performed with hand-held or walk-behind machines that rotate abrading stones or discs under pressure at right angles to the concrete surface. The purpose of grinding is typically to remove coatings less than 6 mils in thickness, mineral deposits, and slight protrusions on a concrete surface. Excessive grinding can smooth out a surface. If the needed surface profile is lost, other preparation methods must be used along with grinding

Portable, hand-held grinders can be used on horizontal as well as vertical surfaces. Larger, walk-behind grinders are best suited to horizontal surfaces.

3. Abrasive Blasting

Air abrasive blasting with conventional media such as silica sand or slag is used to create a light profile on concrete or, when used more aggressively, to perform deep cleaning and profiling. Rigid coatings that are 4 to 10 mils thick and some surface contaminants can also be removed by abrasive blasting.

Air abrasive blasting is conducted with hoses and nozzles attached to blast pots, air compressors, and oil and moisture separators. Abrasive blasting can produce profiles suitable for applying protective sealers, coatings and concrete or epoxy toppings ranging from 20 mils to 250 mils. Abrasive blasting on concrete typically produces a large amount of airborne dust from the fractured abrasive and fractured concrete.

4. Scarifying

Scarifying is performed with a rotary impact tool made of cutters (toothed washers) assembled on tempered steel rods. The rods are attached to a drum. The tool is held at a right angle to the concrete surface. When the drum rotates, the cutters strike the surface, fracturing or pulverizing the concrete. Units range from small, hand-held tools suitable for vertical and overhead application to larger, walk-behind units for horizontal surfaces.

The method can be used to remove brittle coatings up to 1/8 in. (3 mm) thick, deteriorated, or contaminated concrete from 1/8 to 3/4 in. (3 to 19 mm), high spots to smooth out surfaces, and adhesives. The method can also be used to profile concrete surfaces so that they can receive coatings above 40 mils in thickness, self- leveling systems, broadcast systems, or thin overlays.

Surfaces grinding or the installation of an epoxy or concrete overlay would be necessary prior to application of the Pecora Deck Coating.

5. Scabbling

Scabblers are used to remove coatings or contaminated concrete by chipping the concrete with piston-driven cutting heads placed at a right angle to the surface. Compressed air drives the heads.

Large walk-behind scabblers are used for decks and other horizontal surfaces. Brittle coatings up to 1/4 in. thick and concrete up to 3/4 in. thick be removed by scabbling. Scabbling can also be used to create deep profiles on concrete surfaces, such as would be required to apply concrete or epoxy overlays of 1/8 in. or greater thickness.

Scabbling is not appropriate for removing gummy or rubbery materials, such as elastomeric coatings, and this method is likely to produce microcracking in the concrete. The installation of a concrete or epoxy topping would be necessary prior to applying the Pecora Deck Coating System.

JOINT SEALANT APPLICATION

Static (non-moving) cracks greater than 1/16" in width, changes in plane and any projections through deck must be caulked prior to deck coating application. Dynamic (moving) cracks less than 1/16" in width should be saw cut to a minimum 1/4" wide by 1/2" deep. Thoroughly clean all saw cut cracks, expansion, and control joints. All substrates must be clean and dry at time of primer and sealant application. Pecora P-75 sealant primer is required on concrete and masonry substrates. Pecora P-120 sealant primer is required on steel and other non-porous substrates. Allow primer to dry 1 – 8 hours. Reapply primer if dry time exceeds 8 hours.

Recommended Pecora Polyurethane Joint Sealants:

- Dynatred Two-Part Traffic Grade Joint Sealant
- Deck-Seal One-Part Traffic Grade Joint Sealant
- Dynatrol II Two-Part General-Purpose Joint Sealant
- Dynatrol II-SL Two-Part Self-Leveling Traffic Grade Joint Sealant

Saw Cuts, Expansion & Control Joints

- Thoroughly clean and dry all substrates to be sealed.
- Install closed cell backer rod. Backer rod should be compressed 25% when installed.
- Apply appropriate sealant primer.
- Apply polyurethane joint sealant at the proper configuration. Generally, a 2:1 sealant width to depth ratio is recommended.
- Tool sealant flush with the traffic surface.
- Allow sealant to cure overnight.

Changes in Plane & Projections through Deck

- Thoroughly clean and dry all substrates to be sealed.
- Install closed cell backer rod or bond breaker tape, where applicable. Backer rod should be compressed 25% when installed.
- Apply appropriate sealant primer.
- Apply polyurethane joint sealant at the juncture of all changes in plane and any projections through the deck, curbs, walls, etc.
- Tool sealant to form a one-inch, 45 degree cant.
- Allow sealant to cure overnight.

DECK COATING DETAILING & REINFORCING MESH

Cracks and areas that have been caulked with a joint sealant must be detailed with the Pecora-Deck HB1100-SA. The Pecora Deck 802 and 802FC base coats are also acceptable for use as detail coats. Be aware that applying the HB1100-SA over the 802 base coat when used as a detail coat, in particular, will require the use of the P-801VOC or P-808 primer.

At changes in plane, the detail coat should be applied a minimum 6" up the vertical surface. All detail coats should be allowed to cure to a firm but tacky rubber before proceeding with full scale primer and base coat application. Site conditions will dictate cure rate.

Concrete

Apply a 20 wet mil detail coat over all cracks less than 1/16", expansion and control joints and any areas that have been sealed with a joint sealant. If necessary, prime all areas to receive a detail coat with P-801VOC or P-808 primer. The detail coat should be 6" wide and 20 wet mils thick. Apply 20 wet mils of the detail coat over sealant cants and joints less than 1/2" wide. Do not apply the coating over expansion joints wider than 1/2". Allow to cure to a firm but tacky rubber.

Plywood

Apply joint sealant to butt joints that are not tight and tool the sealant flush to the surface. Along the juncture of all horizontal and vertical surfaces, tool joint sealant to form a 1", 45 degree cant and allow the sealant to cure overnight. If necessary, prime all areas to receive the reinforcing cloth and detail coat with P-801VOC or P-808 primer. Apply 20 wet mil detail coat, 4" wide over all primed joints and metal. Immediately embed a strip of reinforcing cloth into the wet coat and back-roll. Apply a second detail coat over the strip of the same wet mils and feather edge the terminating edges. Allow to cure to a firm but tacky rubber. Apply 20 wet mils of the Pecora-Deck HB1100-SA over all sealant cants and allow to cure to a firm but tacky rubber.



Acceptable mesh reinforcement materials include, but not limited to, the following:

Product	Description	Manufacturer
Tietex T272	Stitch-bonded polyester mesh	KM Coatings
Perma-Glas Mesh	Polyester reinforcing fabric	Pacific Polymers
WebSeal	Woven polyester with non-curing rubber adhesive	EternaBond, Inc.
Bamilex XP403	Polyester fabric mat reinforced with polyester scrim	Saint-Gobain Adfors America

SECTION #4 INSTALLATION PRECAUTIONS

Temperature Limitations

Pot Life

General Two Component Coating Mixing Instructions

Safety Precautions

TEMPERATURE LIMITATIONS

Low Temperature Applications

When installing polyurethane deck coatings in cold weather, special precautions must be taken. These coatings should generally not be applied to surfaces which are 40°F or colder and extra care must be taken to ensure that there is no condensation on the deck. Priming is always required at low temperatures. When outside temperatures are 60°F or less, the deck coating materials should be warmed by storing overnight in a warm room or in a heated van.

High Temperature Applications

When installing polyurethane deck coatings in hot weather, special precautions must be taken. Factors to consider are ambient and substrate temperatures as well as sunlight exposure. Elevated ambient temperatures and direct sunlight exposure will result in increased substrate surface temperatures. Generally, the HB1100-SA should not be applied to substrates when the ambient and substrate temperatures exceed 110°F. When the HB1100-SA is applied at ambient and substrate temperatures greater than 110°F, bubbles may form at the substrate / coating interface which can affect coating adhesion, appearance, and ultimate field performance (See “Common Causes and Cures for Blisters” section for more details). Another factor to consider is the decrease in viscosity of the deck coating components which can affect coverage rates when material and substrate temperatures are elevated. To prevent this occurrence, adjust the work schedule to permit coating application in shaded areas first or perform work early or late in the day when the ambient / substrate temperatures are within the acceptable range.

Measurement of ambient and surface temperatures can be a useful exercise especially when solar radiant heat is a factor on dark construction surfaces. A convenient method of measuring surface temperature is the use of an infrared surface temperature probe.

POT LIFE (aka Work Life)

Pecora HB1100-SA deck coating system utilizes two component, fast cure, 100% solids polyurethane based coatings. The coatings cure via a chemical reaction that is initiated when the base (Part A) and catalyst (Part B) components are mixed.

Pot Life (work life) in practical terms is the amount of time from which the components, Part A and Part B, are mixed until they are unusable. It is the length of time that the mixture is workable in the “pot”. As the coating cures, the viscosity of the mixture will increase until it is no longer usable.

*****The HB1100-SA has a pot life of twenty (20) minutes @ 75°F.*****

What affects Pot Life?

Catalyst: The Pot Life and cure rate are highly dependent on the ratio of base to catalyst in the mixture. The ultimate cure and performance properties will be affected by an improper base to catalyst ratio. The base and catalyst are pre-proportioned by the manufacturer. The entire contents of the catalyst must be mixed into the base portion. Do not split kits.

Temperature: Higher temperatures will accelerate the reactions and subsequently reduce Pot Life. Conversely, colder temperatures will slow down the reactions and increase Pot Life.

The use of high-speed drill when mixing may generate more shear and subsequently more heat resulting in a shorter pot life. Always use a low-medium speed drill and proper mixing paddle i.e. Jiffy Mixer.

Store products at the recommended conditions. The components should be stored at temperatures below 80°F. Do not store pails in direct sunlight. It may be necessary to store the materials in the shade or an air-conditioned area when at the project location.

SAFETY PRECAUTIONS

A. Environmental Conditions

1. Do not proceed with application of the primers or polyurethane coating materials when the deck temperature is less than 40°F.
2. Do not apply materials unless the surfaces to receive the coating are clean and dry, or if precipitation is imminent.

B. Protection

1. Warn personnel against breathing vapors and contact of materials with skin or eyes. Provide adequate ventilation.
 - a. At all times, workmen should have available chemical-cartridge type masks or other approved protection devices.
 - b. Wear protective clothing.
 - c. Keep all personnel out of areas being coated until 48 hours after job is completed. Longer if there is not adequate ventilation.
2. When installing any organic type coatings, seal air inlets, doorways, and windows into nearby occupied spaces to prevent vapors from entering these areas.
3. Keep products away from heat, sparks and flame. Do not allow use of spark-producing equipment during application and until vapors are gone. Post "No Smoking" signs.
4. After completion of application, do not allow traffic on coated surfaces for a period of 24 - 48 hours.
5. Protect plants, vegetation and animals that might be adversely affected by the coating operation. Use drop cloth or masking as required.
6. Read warnings and instructions on container labels and on the safety data sheets.

SECTION #5

TROUBLESHOOTING

General Guidelines and Precautions

The Roll of Adhesion in Deck Coatings

Concrete Slabs with Vapor Drive Concerns

(Unvented Metal Pans, Between Slab Membranes, On-Grade Slabs)

Common Causes & Cures of Blisters

Chemical Resistance

GENERAL GUIDELINES AND PRECAUTIONS

1. Pecora Polyurethane Coatings are vapor barriers systems and should not be applied over exterior concrete decks that have been constructed over unvented metal pans or onto exterior concrete decks that have a between-slab membrane system under them.
2. Deck temperature should always be 40°F or above whenever epoxy primers or Pecora Polyurethane Coatings are being applied.
3. All material quantities given in the Pecora Application Manual and Pecora Specification sheets assume perfectly flat and smooth surfaces. As the profile of concrete tends to vary, material quantity estimates should be increased accordingly. In addition, material left in lines or containers and loss due to overspray should be taken into consideration when estimating.
4. Mix all materials thoroughly prior to use. Read labels directions carefully, especially on two-component products.
5. Acid Etching or Shot-Blasting is required on all concrete surfaces prior to application of the Pecora Polyurethane Waterproofing Systems. Consult Pecora Representative for job-to-job recommendations or for alternate methods of surface preparation.
6. Clean up tools with mineral spirits or Xylene. Use caution when cleaning with solvents.
7. Never coat wet or damp surfaces. Consult Pecora Technical Bulletin #71 for recommended methods for determining concrete moisture content.
8. Solvent based products, such as the Pecora Deck components, are incompatible with asphaltic compounds.
9. Do not mix combinations of different coating material (different part numbers) without consulting an authorized representative.
10. It is much easier to use caution or to use masking to keep off an adjacent surface during application than to remove it after cure.
11. When using spray equipment flush equipment lines thoroughly every night to prevent material from clogging the hoses.
12. Pecora 802, 802 FC Base Coats, and Dynapoxy Low-Mod coatings are not designed for extended ultra-violet exposure.
13. In systems requiring the use of primers, the polyurethane coatings materials must be applied the same day as the primer is applied, otherwise lightly re-prime.
14. Never apply the primer or polyurethane elastomeric coatings when precipitation is imminent.
15. Vehicle tires may leave marks on the topcoat when vehicles are parked for an extended amount of time. It is recommended to utilize protection pads under the tires if parking vehicles over the traffic coating for extended periods.

THE ROLL OF ADHESION IN DECK COATINGS

Most deck coating failures are the result of inadequate preparation of the concrete substrate. The following is a check list for avoiding adhesion problems caused by inadequate surface preparation.

1. Ensure that there is an adequate surface profile or anchor pattern.
 - a. Concrete is a porous, heterogeneous composite. Its pores or capillaries aid in the adhesion of the deck coating. Adhesion is improved via the use of high penetration primers, preferably of the lowest possible viscosity. The greater the depth of penetration, the better the adhesion will be. But concrete porosity alone does not produce an adequate surface profile.
 - b. Mechanical adhesion is also achieved in the concrete substrate by roughening or profiling the concrete. The minor peaks and valleys formed by roughing the concrete provide an anchor pattern to which the base coat topping can bond. This profile can be created by mechanical methods such as shot blasting or by proper finishing of the new concrete.

2. Be certain the concrete is sufficiently clean. The degree of cleanliness of the concrete substrate is critical for long-term adhesion. Surface preparation must produce a substrate that is free of all deleterious substances.

Substrate cleanliness means also that there are "non-visible" contaminants on the concrete. Job site tests may need to be performed to ensure soluble salts and other contaminants are not present.

Water soluble contaminants can be effectively removed by using high pressure water jetting or other mechanical means.

Curing agents or sealers can cause deck coating failures if they are chemically incompatible with the coating system. Solving this problem generally involves concrete removal via mechanical means.

3. Ensure that the concrete substrate is dry. Among the several tests for the presence of moisture in concrete, the most effective is the rubber mat or plastic sheet taped to the deck.

CONCRETE SLABS WITH POSSIBLE VAPOR DRIVE

The low moisture vapor permeability of Pecora Polyurethane Deck Coatings restricts the amount of moisture that can be released through the coating. On-grade slabs may have a significant vapor drive through the coating due to the combination of uncontrolled amounts of ground moisture and temperature differentials. This can result in blistering and adhesion loss. These slabs should not be coated with polyurethane deck coating systems. Other slab types may be exhibiting the same phenomenon due to water trapped in the slab system prior to deck coating installation or by entering the system by another path afterwards. These construction types include split slabs with a buried waterproofing membrane and slabs over unvented metal pans.

Pecora-Deck HB1100-SA installation procedures, as described in Pecora's Technical Data Sheets, should not be used on slabs of these types. The coatings may be installed on these types of slabs only when specific surface preparation measures are taken. The following points and procedures will apply to concrete slabs with possible vapor drive:

1. Concrete slab must be thoroughly dry prior to coating installation. Confirm that the slab is adequately dry with a rubber mat test or concrete moisture meter. Refer to the information on the subsequent page or consult Pecora Technical Bulletin #71 for concrete moisture testing guidelines.
 - a. Concrete over unvented slabs or split slabs with buried membrane must have a moisture content below 5% at time of primer application. Split slabs with buried membrane must have drainage at the membrane level.
 - b. On-grade slabs must have a moisture content below 12% at time of primer application.
2. The concrete surface must be prepared by shot blasting or equivalent procedure to an ICRI surface finish of CSP 3 to 5.
3. Combine the Pecora Healer Sealer penetrating epoxy sealer kit and mix with a variable speed drill for 3 minutes.
4. Immediately apply the Healer Sealer with a roller or flat squeegee at a coverage rate of 65 to 100 sq. ft/gallon.
 - a. Concrete porosity will determine coverage rates. A mockup is recommended to determine coverage under representative site conditions.
5. Install Pecora-Deck HB1100-SA Industrial Deck Coating System per instruction on the Technical Data Sheet.

¹ Check local VOC regulations for product compliance prior to installing deck coating primer.

Determining Concrete Moisture Content Through Field Testing

The allowable moisture content of concrete prior to the application of sealant or coating materials is 5% or less via the internal humidity test (ASTM F2170) or 5lbs/1000ft²/24hrs via the calcium chloride test (ASTM F1869) when applying to slabs with possible vapor drive such as on-grade slabs and unvented elevated slabs. Three common methods (one qualitative and two quantitative) for determining moisture content are described below. Pecora requires at least one quantitative test method to be performed and documented prior to coating installation.

Be aware that concrete moisture mitigation will be required if the below-mentioned requirements are not met. Consult Pecora Technical Service with any questions or concerns regarding the published requirements and possible resolutions.

ASTM D4263 Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method

(Qualitative / Rubber Mat Test)

The rubber mat test is intended to measure concrete surface boundary moisture only and is not intended to determine internal concrete moisture content. This is considered a qualitative test method and is typically conducted the day of coating installation.

- **Purpose:** Capillary moisture in concrete is detrimental to the adhesion and performance of polyurethane deck coatings which cannot tolerate moisture on or within the surface boundary.
- **Materials:** 4 mil (minimum) polyethylene sheet or rubber mat 2" duct tape.
- **Conditions:** Test when surface and ambient temperatures are within the recommended application temperature for the coating system.
- **Procedure:** Tape polyethylene sheet or rubber mat approximately 12"x 12" to the deck surface making certain all edges are sealed. Allow the polyethylene sheet or rubber mat to remain in place for 16 hours (minimum). After 16 hours, remove the polyethylene sheet or rubber mat and observe the underside of the mat and the concrete surface. Slight amounts of moisture are normal and are to be expected. ***Beads of water indicate the concrete is too wet for moisture sensitive coatings to be applied and quantitative testing for internal moisture content should be completed using one of the methods noted below.***

ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes

- **Quantitative** test method to determine relative humidity as measured inside a drilled hole.
- **Requirement:** ***Maximum 75-80% internal RH considered acceptable for floor coatings***
- Comparable to ~ 5% moisture level

If the concrete is at 5.0% moisture content, it will neither absorb nor desorb moisture if the air above it is 70° F (21° C) and 75% RH. Therefore, if the air inside the box measures less than 75%, it can be assumed that the moisture content of the concrete is less than 5%.

Sensor availability:

Wagner Electronic Products, Inc. · <https://www.wagnermeters.com/>



**Wagner RH Meter
(models may vary)**

ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Sub Using Anhydrous Calcium Chloride

- **Quantitative** test method where moisture vapor emission rate is measured and determined over 24hrs via calcium chloride
- Unit of measure: Pounds per 1000ft² over a 24hr period (lbs/1000ft²/24hr)
- **Requirement:** ***Maximum 5lbs/1000ft²/24hrs allowed prior to floor coating application***

Test Method Summary & Procedure:

On-site temperature and humidity must be controlled at least 48 hours prior to testing at a setting between 65-85°F and 40-60% relative humidity (RH). The slab must be clean and free of any contaminants. The test method noted below may slightly vary. Refer to the test kit instructions for specific guidelines.

1. Prepare three test sites for the first 1,000 sq. ft. Add one test site for each additional 1,000 sq. ft.
2. Set the tape sealed plastic dish on the scale and record its weight in grams, date and time of the test.
3. Carefully remove the tape along the edge of the dish, invert the lid under the dish and then stick the tape along the side of the dish to keep it safe. Be very careful not to spill any of the calcium chloride.
4. Place the dish on the slab away from cracks and joints. Be sure the calcium chloride inside is level. Remove the white paper on the dome and place the dome over the dish.
5. Firmly press the gasket under the flanges of the dome to seat the outer flanges of the dome to the slab and the gasket inside the edge of the dome. Place your hand over the dome and apply pressure, making sure there are no leaks in the gasket.
6. Place a safety cone over the dome and allow the test kit to remain undisturbed for 60-72 hr.
7. Cut open the dome and carefully remove the dish. Replace the lid and re-seal it with the blue tape.
8. Weigh the dish on the same scale, recording the ending weight in grams, the date and time on the dish lid.
9. Calculate the Moisture Vapor Emission Rate in pounds per 1000ft² over a 24hr period per the instructions included with the test kit.

COMMON CAUSES AND 'CURES' FOR BLISTER

Because the Pecora Polyurethane Coating Systems are positive seal or vapor barrier systems, blistering may occur during application if certain conditions are present.

1. Moisture Blister

Normally, blister caused by moisture are fairly large (quarter to silver dollar in size). They will have a trace of moisture under them when they are cut open. They can be caused by coating a damp or wet deck. The most important aspect to all systems is the bond to the substrate. All precautions should be taken to assure that the deck to receive the Pecora Polyurethane Deck Coating System is thoroughly dry. Moisture blisters will also occur between layers of coating if the deck is damp between coats (due to rain, dew, fog, etc.) There may or may not be a trace of moisture under these blisters. The moisture between coats leaves a definite watermark on the back of the blister itself.

To minimize the moisture blister problem after it occurs, you must cut out these blisters and leave the void open in order to allow the moisture to escape. After the moisture has escaped and the surface has dried, make necessary repairs.

2. Pinhole Blister

Pinholing occurs normally when a concrete deck has been sandblasted, shot-blasted, ground, or if the new concrete has not been properly finished with a steel trowel. The surface of the concrete has been broken, opening up air pockets in the concrete which are actually tiny holes in the concrete about 1/8" to 1/4" deep. As you coat the deck, the coating will bridge these holes, and as the film dries, small blister will form as the air inside the pinhole expands. If you cut these blisters open, there will be a tiny hole in the deck. While the coating is still in the liquid stage, these blisters must be broken with a squeegee or stiff broom before another coat is applied.

Several measures have proven effective to the occurrence of these small pinhole blisters:

- a. Increase slightly the amount of primer being used or apply two light applications of primer.
- b. Apply the specified system in thinner coats. Obviously, this procedure means more coats are involved in applying the full system.
- c. Begin application of first base coat late in the day, after the heat of the day has passed and after the deck has begun to cool. This will allow the base coat flow into the pinholes and plug the pinholes upon curing.

3. Application Blisters

- a. Gassing can occur when the coating system is applied at an application rate or thickness which is greater than that in the recommended application instructions. It may occur anywhere in the coating film. When it occurs at the top surface of the cured film, gassing resembles a small pinhole. To reduce the occurrence of this problem, apply the material in thinner coats.

******Pecora-Deck HB1100-SA is a 100% solids, chemically curing coating system which will eliminate blisters as a result of over application******

- b. Solvent blisters occur when a coat of material is applied before the preceding coat has cured. Solvents in the uncured coat will not have had sufficient time to leave the film and are trapped by the next coat. Solvent blisters are most common during marginal weather conditions such as low temperatures, low humidity, or both. These blisters are usually fairly large (quarter-sized up to several inches) and will be tacky on the back side of the film. To repair, cut out the blisters and allow the entire film to dry before touching up and recoating.

SECTION #6 MAINTENANCE OF DECK COATING SYSTEMS

PECORA DECK COATINGS MAINTENANCE MANUAL

1. General

- A. Maintenance of Pecora Deck Coating Systems must be performed at regular intervals to assure that the coating system will continue to provide service for which it was intended.
- B. Maintenance procedures should include:
 - Periodic physical inspections
 - Cleaning
 - Snow and ice removal, where applicable
 - Repairs to structure
 - Repairs to coating system
 - Periodic replacement of topcoat and paint striping

2. Inspections

- A. The deck coating system is subject to extreme abrasive wear conditions as well as to physical damage from general use and damage resulting from structural problems. Periodic inspections will provide a basis for the proper maintenance work to assure a long-life expectancy of the coating system.
- B. Monthly - make a physical inspection to determine if there are any areas of excessive wear or physical damage to the coating.
- C. Semi-Annually - make a thorough physical inspection. Such inspections should include, but are not limited to:
 - a. Inspect the sealant in the joints for proper adhesion. Also determine if there is any cohesive failure or physical damage to the sealant
 - b. Where possible, inspect the underside of the joints for evidence of leaks.
 - c. Inspect the areas where beams are resting on columns for evidence of stress cracking or excessive movement.
 - d. Where possible, inspect the entire structure from the underside of the deck for cracks which show evidence of a difference in the plane of the materials on each side of the crack.
 - e. Inspect drains or scuppers to ensure there is nothing clogging or blocking them, to avoid ponding water on the deck.
 - f. Inspect areas at junctures of horizontal decks and vertical sections (ie: parapet walls, planter walls, building walls, curbs, etc.) to determine if there has been excessive movement at these points which may have caused the coating to crack.
 - g. Inspect coating at the base of parking bumpers (in the case of parking deck coating systems) to determine if there has been any damage to coating as a result of movement of the bumper.
 - h. Inspect coating surface to determine if there are any substantial structural cracks in the substrate which have caused the coating to crack.
 - i. Inspect areas which are subject to high abrasion and wear such as:
 - (1) Vehicular Traffic Decks: Turn radii, entrance and exit ramps and other start/stop areas for excessive wear loss of aggregate in the coating.
 - (2) Pedestrian Decks: Top of stair landings, stair treads, doorways, narrow walk-through areas, etc.
 - (3) Other Decks: Inspect entire surface for high wear area

3. Cleaning
 - A. The use and location of the deck will cause the cleaning frequency to vary. Our recommendation for cleaning under average use conditions is as follows:
 - a. Weekly - Sweep or vacuum deck to remove loose debris and dirt.
 - b. Monthly - thoroughly clean the deck to remove dirt, debris, oil or grease dripping, black tire marks, etc. Cleaning may be by:
 - (1) Power scrubbing with low suds, biodegradable detergent. This requires thorough rinsing to avoid detergent residues which may cause the deck to be slippery when wet and may cause stains.
 - (2) High pressure water blast. Water pressure should not be greater than 1,000 psi at nozzle.
 - c. Avoid the use of strong solvents, especially hydrocarbon type solvents.
4. Snow Removal and Ice Control
 - A. It should be recognized that piled snow can significantly load the deck surface beyond its design load capacity resulting in significant structural cracks and/or more serious structural damage. Therefore, immediate removal of piled snow is recommended.
 - B. The use of metal blades should be always avoided to prevent physical damage to the coating system.
 - C. Snow Blowers *with rubber blades* and Snow Brooms are recommended, as opposed to heavy snow removal equipment.
5. Repair to Structure: All structural repairs should be at the direction of a Structural Engineer.
6. Repair to Deck Coating Materials
 - A. Minor repairs may be made by owner's maintenance staff; however, it is suggested that to protect the manufacturer's warranty, major repairs should be accomplished by the original approved applicator.
 - B. Physical damage to the coating system (cuts, tears, burns, etc.):
 - a. Remove damage coating materials back to well adhered material.
 - b. Thoroughly clean the exposed substrate and existing coating surrounding the area with a clean cloth that has been wet with xylene solvent.
 - c. Allow solvent to evaporate (1 hour at 75°F, 50% R. H.).
 - d. Install the coating system to the original film thickness, extending each coat onto the existing coating, featheredging the terminating edge of the coating. If multiple coats are required (ie: coating removed to the original substrate), allow proper cure time between coats.
 - e. Allow the repaired area to cure for 24 hours (minimum) for pedestrian decks, 48 hours (minimum) for vehicular decks before allowing traffic on the repaired area.
 - C. Excessive Wear Areas and Traffic Replacement
 - a. Thoroughly clean area with steam cleaner, power scrubber or high-pressure water blast.
 - b. Allow area to become completely dry.
 - c. Scrub area with xylene solvent.
 - d. Allow solvent to evaporate (1 hour at 75°F, 50% R.H.).
 - e. If necessary, apply P-801-VOC Primer at a rate 300-400 square feet per gallon in a thin, even film. Avoid puddles or ponding.
 - f. Allow P-801-VOC primer to cure for 1 hour minimum, 8 hours maximum.
 - g. Apply continuous membrane coat:
 - (1) Apply a coat of Pecora HB1100-SA Coating to the cleaned area at the appropriate coverage rate based on the application type. Featheredge terminating edges. Allow to cure 2 – 4 hours at a temperature above 70°F.
 - h. Suggested schedule for aggregate. Amounts may require adjustment to match existing coating texture.
 - i. Allow Pecora HB1100-SA Coating to cure for 24 hours before opening to traffic.

SECTION #7

WARRANTY

Material Warranties

**Please refer to Pecora Technical Service Dept
for Warranty Information and Guidelines**