

# **StreetBond Pro 220 & 250 Pavement Coating Systems**

A technical drawing or plan view of a road layout, showing various road markings, lane configurations, and possibly utility locations. The drawing is in black lines on a white background.

## **Installer's Guide**

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# I. System Overview

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## General

StreetBond Pavement Coating Systems are designed to enhance the appearance of asphalt surfaces and to protect the asphalt from degradation resulting from exposure to UV rays and water intrusion. StreetBond Systems can also be applied to enhance the appearance of concrete substrates. StreetBond Systems offer the following benefits:

- **Durability:** StreetBond Systems resist traffic wear, are resistant to water damage, and have excellent adhesion properties.
- **Composition:** StreetBond Systems have a low volatile organic compound content with UV-stable pigments that are fade resistant when exposed to harsh sunlight.
- **Resistance to Contaminants:** StreetBond Systems are resistant to damage and deterioration when exposed to fuel, engine oil, and deicing agents.
- **Friction Properties:** StreetBond Systems have excellent friction properties, resulting in slip and skid-resistant surfaces that exceed many government-regulated vehicle skid-resistance requirements
- **Resistant to Tracking:** StreetBond Systems won't track onto adjacent surfaces like traditional sealcoating products.

The StreetBond Pro 220 and Pro 250 Pavement Coating Systems consist of a thick resin/aggregate based PMMA coating layer. The StreetBond Pro 220 System contains a smaller aggregate and is designed specifically for use as a coating system for surfaces exposed to pedestrian and light vehicular traffic. The StreetBond Pro 250 System contains a larger aggregate and is designed specifically for use as a coating system for surfaces exposed to vehicular traffic.

## StreetBond Pro Pavement Coating Systems

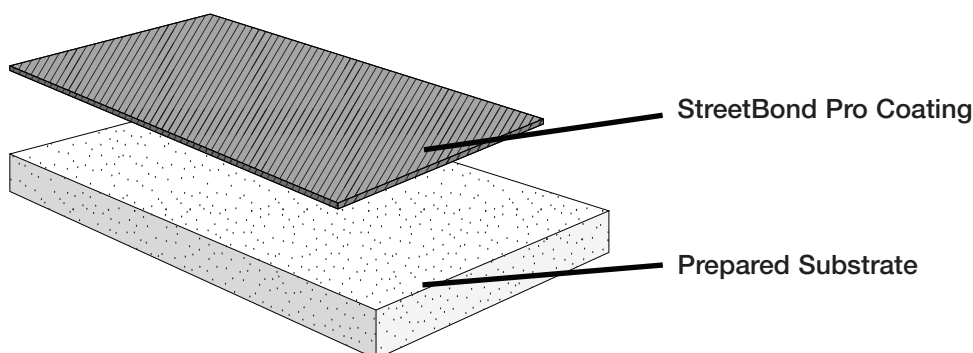


Figure 1:

## Product Configuration

See Figure 1.

## Products

The following products are used in StreetBond Pro 220 and Pro 250 Pavement Coating Systems:

## Pavement Coating System Components

StreetBond Pro 220 Resin (pedestrian and light vehicular traffic applications) Street Bond Pro 250 Resin (vehicular traffic applications)

## Accessories

- Pro Catalyst Powder

## Weather Restrictions

Do not apply StreetBond Pro 220 or Pro 250 products during precipitation or in the event there is a probability of precipitation during application, if condensation is present on the pavement surface to be coated, or the ambient temperature is within 5°F of the dew point. Ambient and substrate temperatures affect the application of StreetBond Pro 220 and Pro 250 materials. Ambient and substrate temperature guidelines and restrictions vary and are noted in the product sections of this guide.

## Protection

Upon completion of new system application (including all associated work), use appropriate procedures for protection of finished work during the remainder of the construction period. Protect all areas where pavement coating has been installed.

## II. Personal Protection

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### Safety and Protection

Refer to the Safety Data Sheet (SDS) for each StreetBond and Pro product for specific PPE information. The products referenced in this guide are flammable, and are harmful if inhaled, swallowed, or absorbed through the skin. They can cause skin, eye, and respiratory irritation, and may cause skin and respiratory sensitization.

Do not smoke, eat, or drink around these products. Keep the products away from open flame, fire, or any ignition source. Avoid breathing StreetBond and Pro product vapors and Pro Catalyst dust.

Use the products with adequate ventilation or respiratory protection as needed to keep exposure below threshold limit values (TLV). Do not ingest the products, and avoid contact with eyes, skin, and clothing. Wear suitable gloves and eye/face protection. Wash thoroughly after handling the products. Keep the products out of reach of children.

First aid information is available on StreetBond and Pro product SDS documents and product containers

## III. Storage

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Store products indoors in closed containers in a well-ventilated, cool, dry area away from heat, open fire, any ignition source, direct sunlight, oxidizing agents, strong acids, and strong alkalis. Resin products may auto-polymerize at temperatures greater than 140°F (60°C). Resin product shelf life is approximately 12 months from ship date. The shelf life of resin products will be reduced if the products are stored at temperatures above 77°F (25°C).

In powder form, Pro Catalyst is extremely heat sensitive. Proper storage is important to help ensure safe handling and that product quality is not compromised. To maintain product quality, the storage temperature of Pro Catalyst should not exceed 77°F (25°C). Pro Catalyst is packaged in a specially designed, vented box and should be stored in this box at all times until just prior to use. The reactivity/effectiveness of Pro Catalyst will decrease

progressively when stored under high temperature conditions. Exposure to a temperature of 122°F (50°C) or higher can result in self-accelerating decomposition of Pro Catalyst. Self-accelerating decomposition is signaled by the presence of bright white smoke, and can create temperatures in excess of 500°F (260°C), depending on the environmental conditions and quantity of catalyst present. Such temperatures can be hazardous in the presence of flammable materials. Therefore, Pro Catalyst should never be subjected to conditions that can result in self-accelerating decomposition.

Materials stored on the job site during application should be kept on a pallet in a shaded, well-ventilated area. In unshaded areas, materials should be covered with a white, reflective tarp in a manner that allows air circulation beneath the tarp.

## IV. Installation Materials, Tools, and Equipment

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### Substrate Preparation

- Blower, vacuum, & broom

### Mixing

- Plastic tarps or sheeting
- Variable speed drill with 1 /2-inch chuck
- Industrial mortar mixer (double-auger type)

- Mixing agitator
- Mixing stir sticks
- 1-tablespoon measure
- Plastic mixing buckets (1 and 5-gallon capacity)
- Battery operated scale with 40-lb (20-kg) capacity

### Application

- Tape (masking and duct tape)
- Margin trowel



- Application brushes
- Flat trowel and cement finishing trowel
- Squeegee
- Disposable heavy duty butyl rubber or nitrile gloves
- Non-shed roller, 3/8" nap

#### Miscellaneous

- Extension cords
- Clean cotton rags
- Plastic garbage bags
- Box or razor knife
- Infrared thermometer
- Conventional thermometer (ambient temperature)
- Tape measure
- Chalk line

## V. General Substrate Conditions

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The condition of the substrate will impact the performance of the StreetBond coatings. A highly stable pavement, free of defects, is strongly recommended. A durable and stable pavement mix design installed according to best practices over a

properly prepared stable substrate is a prerequisite for all long-lasting pavement surfaces. The application of a StreetBond Pavement Coating System does not change this requirement.

## VI. Key Asphalt Substrate Properties

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### Stable Sub-Grade and Base

A stable base and sub-grade underneath the HMA (hot mix asphalt) surface are necessary for proper HMA pavement performance.

**Sub-Grade:** Sub-grade is the layer of natural earth over which the pavement is built. Sub-grade needs to be removed to a stable layer that can be prepared and compacted. Proper moisture content is important for compaction. If the sub-grade is too moist or too dry, it will not compact properly and can result in settlement issues. Settlement can cause cracking in the asphalt, lowering the decorative value and performance of the StreetBond coating.

**Base:** Base refers to the aggregates that are placed on top of the sub-grade to build the pavement to the correct height. Typically made up of crushed aggregates, this layer is graded and compacted to form the foundation for the asphalt layer. Thickness and compaction of the base course is important to avoid settlement.

### Proper HMA Mix Design (for the intended use)

HMA is engineered/designed for specific use by modifying ingredients such as aggregate particle size and asphalt cement (AC) content and grade. The specific way HMA ingredients are combined may affect the stability, durability, and workability of the pavement. HMA is typically designed for specific uses ranging from driveways to highways. Each mix design

has been developed for the best performance for the intended use. Since StreetBond is a topical treatment for asphalt pavement surfaces, it is extremely important that the appropriate mix designed for the intended traffic use is installed; otherwise, common asphalt issues like scuffing, shoving, and rutting can affect the StreetBond Coating.

**Correct HMA Installation:** The proper installation of HMA is important because it can affect aesthetics and performance of the StreetBond Pavement Coating System if it is installed incorrectly. The key installation factors that most affect StreetBond Coatings are:

- **Compaction:** HMA needs to be compacted at a specified temperature, using a specified weight. The appropriate temperature will vary with mix design. Generally, if the asphalt is compacted at too low a temperature, the AC is too tacky and resists compaction. If the temperature at compaction is too hot, the AC will shove during compaction. In the correct temperature range, the AC acts as a lubricant and allows all materials to compact together. If the asphalt is not properly compacted, it may not be stable and can cause adverse effects, such as scuffing, shoving, or rutting on the StreetBond coated surface. Ensure that the HMA is compacted at the proper temperature using the proper compaction equipment.
- **Segregation:** Segregation refers to an inconsistent surface texture of the asphalt, usually caused by large aggregates brought to the

surface during hand work (raking). These areas can stand out more when coating is applied. Remove large aggregates from the surface when hand working the asphalt (rather than broadcasting them on top of the surface). This will produce a more consistent surface texture.

- **Finishing Detail:** The detail of workmanship around areas like curbs, manhole covers, and edges affects the StreetBond Pavement Coating System appearance. Care should be taken to ensure that asphalt finishing into a curb or landscaping is completed in a clean, consistent way. Straight, clean, and level finishing should be done with aesthetics in mind.

- **Age of Asphalt:** The StreetBond Coating should not be applied to newly placed asphalt. A minimum 30-day waiting period is required.

**NOTE:** Generally, all new HMA projects (regardless of mix design) will produce black tire tracking between the new and old surface until the fresh asphalt mix has had time to fully cure. New asphalt tracks will be especially noticeable on lighter colored StreetBond coatings.

## VII. Substrate Assessment

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A StreetBond Pavement Coating System is only as good as the surface on which it is placed.

### Assessing an Existing Asphalt Substrate

1. **Age of Asphalt:** Asphalt pavement over 5 years in age should be carefully considered. Additional products and steps may be required for StreetBond coating installations on asphalt pavement older than 5 years.
2. **Finishing Detail:** If asphalt installation is finished poorly around walls, edges, curbs, and manholes, it will affect the aesthetics of the finished product.
3. **Polishing of Aggregates:** Polishing occurs when traffic volumes cause the aggregates in the asphalt to wear smooth. Aggregate polishing may suggest that traffic volumes are high and that additional preparation may be required.
4. **Surface Texture:** Patch repairs, segregation, and raveling can all affect the finished look of the StreetBond coating as they can create inconsistent textures in the surface. Surface texture may also affect coating coverage rates.
5. **Rutting and Shoving:** Rutting and shoving is a depression or ripple of the pavement in the wheel path. It is a structural failure due to excessive loading of that pavement. Rutting and shoving is a sign of an unstable asphalt pavement experiencing plastic flow, and indicates that the pavement's internal structure is not strong enough to bear the weight of vehicle tires.
6. **Raveling and Potholes:** Raveling is a loss of aggregate from the surface as a result of poor installation and/or lack of AC in the mix. It will appear as a different texture on the pavement surface. Severe pavement fatigue cracking, which results in a total loss of asphalt pavement in a localized area, can create a pothole in the road. Asphalt will need to be replaced or refilled in the pothole.
7. **Bleeding/Flushing:** Consistent impact of vehicle tires on asphalt can cause heat and migration of excessive AC to the surface. If surface texture of asphalt becomes filled with liquid AC, it can create a weakened bond for the StreetBond coating.
8. **Utility Repairs:** Asphalt is often patched after repair of underground utilities. Most repairs are not installed to meet the asphalt stability requirements needed for their traffic conditions. This can lead to distortion and cracking of StreetBond Coating along saw cuts. Ensure that utility repairs are carefully done with aesthetics and performance in mind.
9. **Surface Contaminants:** There are many types of surface contaminants that may affect the performance and aesthetics of a StreetBond Pavement Coating System. Contaminants can prevent the coatings from adhering to the asphalt.
10. **Vehicle fluids:** oil, fuel, grease, and other vehicle fluids can affect the bond of a StreetBond Coating to the asphalt substrate. These contaminants need to be removed using a degreaser followed by power washing. If the fluids have soaked into the surface and cannot be washed away, then the pavement must be removed and replaced.
11. **Traffic Markings:** Areas that have existing traffic markings should be avoided. Traffic markings like acrylic or thermoplastic paint may remain visible through the coating and may cause adhesion issues. Such markings should be removed from the pavement surface prior to application of the pavement coating system.

12. Asphalt Sealers: Asphalt surfaces treated with asphalt sealer should be avoided. If StreetBond coatings have been applied on top of the sealers, and the sealer fails, the StreetBond Pavement Coating System will disbond along with the sealer. In such cases, contact the **StreetBond** Technical Department for additional information and possible remediation methods.
13. Settlement and Cracking: Cracking occurs due to shrinkage of the sub-grade or asphalt pavement, or excessive bending of the pavement surface. Cracks need to be addressed before coating to avoid further water penetration.

### **Assessing an Existing Concrete Substrate**

1. Age of the Concrete: Newly placed concrete is designed to develop design strength in approximately 28 days. The StreetBond Coating application cannot be applied before the concrete has cured and proper preparation has been undertaken.
2. Surface Contaminants: There are a variety of compounds that can penetrate into the concrete surface, including deicing salts, release agents, surface hardeners, greases, oils, food by-products, chemicals, carbonation, previously applied coatings, or dust and dirt. If any of these contaminants are present, they must be removed so that they do not impede the adhesion of StreetBond coatings to the concrete substrate.

## **VIII. Substrate Preparation**

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Preparation of the substrate is the responsibility of the installer, who should address and correct all of the conditions listed in this section.

### **Cleaning Asphalt Substrates**

Dirt, debris, water, and contaminants should be thoroughly cleaned using a broom and lower/ compressed air. Where dirt and debris are severe, a pressure washing may be required.

Areas containing chemical contaminants such as vehicle fluids need to be treated using an environmentally friendly degreasing solution. Proper removal of contaminants and degreasing solution is required prior to applying the StreetBond Pavement Coating System.

Care should be taken to ensure that the asphalt substrate is thoroughly dry before applying the StreetBond coatings.

### **Cleaning Concrete Substrates**

All concrete surfaces must be clean and free of any dirt, oil, grease, soapy films, surface chemicals, or other foreign contaminants.

## IX. Masking

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1. Masking is done to ensure sharp, aesthetically pleasing edges.
2. Use duct tape, painter's tape, masking tape, or comparable tape to mark edges of the area to be coated.
3. Mask off areas where coating is not wanted using plastic sheeting, tarps, coating shield, paper, or other suitable products as shown in Figure 2.



Figure 2: Typical Masking

## X. Measuring & Mixing StreetBond Pro 220 & 250

### General Guidelines

Resin products used in StreetBond Pro 220 and Pro 250 Pavement Coating Systems are fast setting and should only be catalyzed as needed for immediate application. Depending upon the resin type and ambient temperatures, the amount of catalyst needed will vary.

### Mixing StreetBond Pro 220 and Pro 250 Resins

Thoroughly mix the entire drum of uncatalyzed resin for 5 minutes prior to pouring off into a second container when batch mixing. This will redistribute liquids/solids that may have separated during storage. Catalyze only the amount of resin that can be used within the anticipated pot life. Add the pre-measured amount of Pro Catalyst to the resin. Stir for 2 minutes using a slow-speed mechanical agitator before applying to the substrate.



## XI. Pro Catalyst Charts for PMMA Resins

Pro Catalyst Powder Mixing Chart StreetBond Pro 220 and StreetBond Pro 250 Resins				
The amount of Pro Catalyst Powder required will vary depending upon ambient temperature as indicated in the following table:				
Resin Quantity	Catalyst Quantity Ambient temperature: 32°F to 59°F (0°C to 15°C)		Catalyst Quantity Ambient temperature: 59°F to 95°F (15°C to 35°C)	
	Tablespoons	0.1-kg bags	Tablespoons	0.1-kg bags
1 kg	2	n/a	1	n/a
12.5 kg	n/a	2	n/a	1
25 kg	n/a	4	n/a	2
Substrate temperature range for application of StreetBond Pro Resin is 32°F to 95° (0°C to 35°C).				

## XII. StreetBond Pro 220 and Pro 250 Pavement Coating Application

### General Coating Application Guidelines

StreetBond Pro 220 and Pro 250 Resins may be applied when the ambient and substrate temperature is between 32°F and 95°F (0° C and 35°C).

In warm temperatures, the substrate should be shaded immediately prior to and during application, as necessary, to maintain the substrate at temperatures below the high temperature threshold for the resin product to be used. The use of an infrared thermometer is recommended for measuring substrate temperature.

### Coating Application

After qualification/preparation, if other than existing polished asphalt, the catalyzed resin mixture is squeegee applied and backrolled using a conventional nap roller.

### Pot Life – StreetBond Pro 220 and Pro 250

The pot life of StreetBond Pro 220 and StreetBond Pro 250 is approximately 15 minutes when the catalyzed liquid is at 68°F (20°C). Pot life will be reduced if the resin is at higher temperatures. Pot life can be maximized by storing product under controlled conditions and ensuring that the liquid resin is at the low range of minimum storage temperature during/ following catalyzation and prior to application.

### Application Rates for StreetBond Pro 220 and Pro 250

#### StreetBond Pro 220

Approx. Thickness*	Approx. Coverage per 25-kg Pail**
45 mils*** (1.14 mm)	136 ft <sup>2</sup> (12.6 m <sup>2</sup> )
50 mils (1.27 mm)	122 ft <sup>2</sup> (11.72 m <sup>2</sup> )
55 mils (1.40 mm)	111 ft <sup>2</sup> (10.34 m <sup>2</sup> )
60 mils (1.52 mm)	102 ft <sup>2</sup> (9.48 m <sup>2</sup> )

#### StreetBond Pro 250

Approx. Thickness*	Approx. Coverage per 25-kg Pail**
80 mils*** (2.03 mm)	65 ft <sup>2</sup> (6.03 m <sup>2</sup> )
85 mils (2.16 mm)	61 ft <sup>2</sup> (5.68 m <sup>2</sup> )
90 mils (2.29 mm)	57.5 ft <sup>2</sup> (5.36 m <sup>2</sup> )
95 mils (2.41 mm)	54.5 ft <sup>2</sup> (5.08 m <sup>2</sup> )

\*Approximate mil thickness over a smooth substrate. Average mil thickness at a specific application/ coverage rate will vary depending upon substrate profile. Multiple mil thickness values are listed due to specification requirements that may vary by customer.

\*\*Coverage rates to generate a desired mil thickness will vary depending upon substrate profile. Aggressive surface profiles will require an increased application rate to generate a desired mil thickness. Coverage rate values per pail do not account for waste or overage.

\*\*\* Indicates the minimum recommended

### Set Times

Minimum set times noted below are approximate, and may vary. The information provided is based on laboratory conditions, and is intended for use as a guideline only. Actual set times and cure times should be established in the field, based on actual field conditions.

Rain Proof at 68°F (20°C): 30 minutes

Stress Resistant: 2 hours

## XIII. Care

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StreetBond Pro coatings protect asphalt from aging and weathering, providing a sustainable, renewable surface. Caring for the project will not only preserve the look of the project, but also lengthen its overall lifespan.

**Dirt, Sand, and Gravel:** If dirt, sand, or gravel are present at the interface between vehicle tires and the StreetBond Pro coated surface, a grinding action will occur. This will result in premature wear of the coating.

**Oil Stains:** Mild oil leaks will not damage the StreetBond Pro coated surface other than being unsightly. To remove oil stains, use a mild degreaser or detergent.

**Leaves:** In certain climates, some types of leaves can stain the StreetBond Pro coated surface. Light colored leaves tend to cause stains more readily than darker ones. In areas where leaf staining may be a problem, regular leaf cleaning is recommended.

**Chewing Gum:** Removal of chewing gum from pavement surfaces can be difficult. Use ice to freeze the gum, and then chip off the gum with a small paint scraper. Use care not to damage the underlaying StreetBond Pro coating.

**NOTE:** Pressure washing StreetBond Pro coated surfaces is acceptable, but exercise caution when using extremely high pressure commercial pressure washers. Extremely powerful water jets can cause damage to the StreetBond Pavement Coating System and the underlying asphalt or concrete pavement. **StreetBond** recommends 2000 psi or less when directly cleaning the surface. Alternatively, use road sweeper vehicles that are equipped with nylon rotating brushes and water sprayer/jet nozzles to remove dirt from the surface. Do not use rotating brushes with steel bristles, as that may cause damage and premature wear of the coating.

## XIV. Maintenance

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### Recoating

StreetBond Pro coatings provide a sustainable, renewable surface. Generally, the only maintenance required is recoating the surface. Recoating a worn area requires the same climate conditions and installation methods as a new application.

StreetBond Pro coating projects can be recoated at any time to make an old project look brand new. When doing maintenance, apply more coating to the areas that have experienced more focused wear. Targeting the areas that receive more traffic by applying more coating will allow for longer wear and more cost effective maintenance cycles.

## XV. Repair

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Although StreetBond Pro coatings are highly durable and long lasting, they are subject to the quality of the pavement on which they are applied. Occasionally, pavement repair may be required. The following key factors should always be considered when performing repairs to optimize the final look.

**Pavement Removal:** For repairs that require pavement removal, always use a saw to make cuts within joints if possible, as cuts outside of joints may be visible when the project is finished.

**Sub-Grade Issues:** If repairs will involve sub-grade, always replace any base material that was removed and ensure proper compaction to avoid uneven settlement of new pavement.

**Pavement Replacement:** When replacing pavement that has been removed, ensure that the new pavement is properly compacted so it sits flush with the existing pavement surface.

**XVI. Limited Warranty**

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All warranties are subject to the terms and conditions stated previously in this section. StreetBond Pro 220 and Pro 250 come standard with a 1-year Limited Warranty that is provided on the product packaging. Extended Limited Warranties are available as provided in the following table.



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