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## RESPONSE TO RFI

<b>SW139</b>
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<b>Project</b>	<b>CCSF - Joint Use Facility</b>	<b>Date</b>	<b>4/15/10</b>
<b>Owner</b>	City College of San Francisco	<b>VBN</b>	<b>Proj. No.</b> 06024
<b>DSA</b>	<b>File No.</b> 38-C1 <b>App. No.</b> 01-109279		<b>File No.</b> 24.01
<b>To</b>	<b>Adam Benzuly</b> Project Engineer Bovis Lend Lease 71 Stevenson St. Suite 800 San Francisco, CA 94105	<b>Tel No.</b>	415 797 2051
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<b>From</b>	<b>Fred King</b>	<b>E-mail</b>	fred@vbnarch.com
<b>Item (s)</b>	<b>Reservoir Site Work RFI #139 Response</b>		
<b>Via</b>	<b>E-mail</b>	<b>No. of pages</b>	<b>8</b> (including cover)

**Comments**

It is acceptable to install chip seal on Parking Lot Q. The submitted chip seals are acceptable to met LEED requirements for SRI values >29. Chip seal is an alternate in the final landscaping package.

- End -

**Attachment(s)**

Contractor's RFI #SW139 Form

<b>Copied</b>	<b>Via</b>	<b>Contact/Role</b>	<b>Company</b>	<b>Address</b>	<b>E-mail</b>
<input checked="" type="checkbox"/>	E-mail	Neil Brodhead IOR	CoName	Street City, State Zip	neilb@frontiernet.net



# Request for Information 0139

Detailed, RFIs Grouped by RFI Number

**CCSF Reservoir Site Work** **Project # 62970200** **Bovis Lend Lease, Inc.**  
Tel: Fax:

**RFI #: 0139** **Date Created: 4/14/2010**

Answer Company	Answered By	Author Company	Authored By
VBN Architects VBN Building 560 14th Street Oakland, CA 94612-1443	Fred King	Bovis Lend Lease, Inc. 71 Stevenson St. Suite 800 San Francisco, CA 94105	Adam Benzuly

**Co-Respondent** **Author RFI Number**

Subject	Discipline	Category
Chip seals in Parking Lot Q	Landscape	Confirmation

**Cc: Company Name** **Contact Name** **Copies** **Notes**

**Question** **Date Required: 4/21/2010**

Utilizing chip seals has many benefits such as help us to gain LEED credit and treat environment friendly. Please see attached cut sheet of chip seals and a sketch to indicate the area to install chip seals. Please confirm it is acceptable to install chip seals in Parking Lot Q.

**Suggestion**

**Answer** **Date Answered: 4/15/2010**

It is acceptable to install chip seal on Parking Lot Q. The submitted chip seals are acceptable to met LEED requirements for SRI values >29. Chip seal is an alternate in the final landscaping package.

# FGI – 8000 COOL PAVE COATING

## Heat Island Reduction Coating

### Unique Coatings – Extreme Results

One of the Zero Maintenance Performance Group Coatings

### Description

**FGI- 8000** Cool Pave Coat (CPC) is a ceramic based extremely unique ultimate performance Heat Island Effect Reduction coating. The **FGI- 8000** will remove the Heat Island Effect found in urban parking lots, parking garages, city streets and roads. **FGI- 8000** is an epoxy based coating that is impervious to heat and water. Can be applied directly over asphalt and concrete in one coat thus saving labor cost of typical multi-coat systems. The **FGI- 8000** offers unmatched protection against heat and cold extremes, alkali, UV, oils and grease. The coating maintains remarkable flexibility thus preventing cracking. Very easy to use with long pot life, high reflectivity, encapsulates friability of virtually all parking lot, pavement and concrete substrates. It's chemically inert finish, withstands acids, alkalis, animal fats, grease and oils and particularly heavy auto traffic. Stops Thermal shock and the freeze thaw cycle thus extending asphalt, concrete life with extreme adhesion and abrasion resistance.

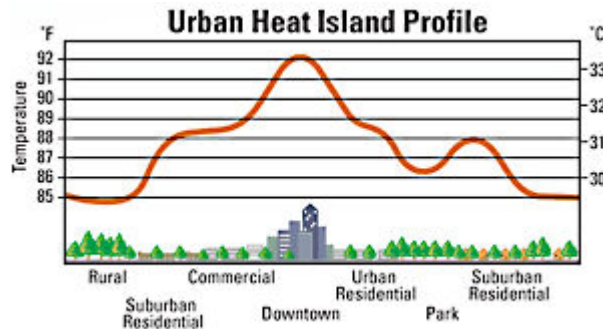
### Features & Benefits

- **Very High Reflectivity to lower temperature and extend substrate life.**
- **Can be applied directly to Asphalt or Concrete substrate in ONE coat**
- **Very Little Prep Work over Asphalt or Concrete**
- **UV, Weather, Chemical, Salt and Abrasion Resistant**
- **Extreme Adhesion to Substrate**
- **Extremely Durable Wear Surface**
- **No Top-Coat necessary**
- **Reduces surface and air temperature**
- **Reduces ozone formation, air pollution, energy use**
- **Reduces heat related deaths**
- **Increases nighttime illumination and noise reduction**
- **Contains No Zinc, Lead or Chromates**
- **Typical Applications: Asphalt or Concrete Parking Lots, Parking Garages, Streets and Roads, drive ways, side walks, asphalt roofs**

## What Are Urban Heat Islands?

On hot summer days, cities can be up to 8 degrees F hotter than their suburban and rural surroundings. This phenomenon occurs because urban development results in large amounts of paved and dark colored surfaces like roofs, roads, and parking lots that absorb, rather than reflect, the sun's heat, causing the surface and ambient air temperatures to rise.

The good news is that there are simple ways to reduce heat gain in cities, many of which also help solve other urban problems. The performance of a thin paint coating on the surface of the conventional dark asphalt pavement or concrete can reduce the surface temperature, from highs of 175 to 200 degrees F, down to the ambient temperature. This results in having a dark colored pavement surface while still achieving much higher albedo. The unique ceramic particles included in the coating have additional effect on reducing thermal conduction and heating of the coating



### Why Should Cities and Counties Care About Urban Heat Islands?

The Urban Heat Island (UHI) Effect can adversely impact a city's public health, air quality, energy demand, and infrastructure costs.

- **Poor Air Quality:** Hotter air in cities increases both the frequency and intensity of ground-level ozone (the main ingredient in smog) and can push metropolitan areas out of compliance with federal air quality standards.
- **Risks To Public Health:** The UHI Effect prolongs and intensifies heat waves in cities, making residents and workers uncomfortable and putting them at increased risk for heat exhaustion and heat stroke. In addition, high concentrations of ground level ozone aggravate respiratory problems such as asthma, putting children and the elderly at particular risk.
- **High Energy Use:** Hotter temperatures increase demand for air conditioning, increasing energy use when demand is already high. This in turn contributes to power shortages and raises energy expenditures at a time when energy costs are at their highest.
- **Global Warming:** Global warming is in large part caused by the burning of fossil fuels to produce electricity for heating and cooling buildings. Urban Heat Islands contribute to global warming by increasing the demand for electricity to cool our buildings. Depending on the fuel mix used in producing electricity in your region, each kilowatt hour of electricity consumed can produce up to 2.3 pounds of carbon dioxide (CO<sub>2</sub>), the main greenhouse gas contributing to global warming.

Mitigating Urban Heat Islands is a simple way to decrease the risk to public health during heat waves, while also reducing energy use, the emissions that contribute to global warming, and the conditions that cause smog.

### Application Methods

**FGI-8000** may be applied by brush, texture sprayer or hopper gun. Surfaces should be free of loose paint, and dirt and any other film-forming foreign material and other contaminants. Applied properly, one 16 mil wet coat dries to 13 mils making it impervious to water and heat thus

removing the Heat Island Effect, providing for flexibility and unsurpassed protection of the asphalt or concrete substrate.

No primer is needed thereby reducing total job cost. Texture sprayer is the most efficient application method for larger projects. Brushes and rollers may be used for detail work such as edge termination, filling of voids, pinholes, and small cracks.

**MIXING: Prior to combining Part A and Part B, mechanically mix Part A pail and Part B pail for 2 minutes**, then thoroughly mechanically combine and mix (4 to 1 ratio) 4 Parts Base (part "B") with 1 Part Activator (part "A") for 5 minutes in the 5 gallon pail (or for 1 minute in one gallon pail), with a power mixer until all streaks and/or lumps disappear and the mixture has uniform color and consistency. Be sure to allow mixing blade to rub on sides and bottom of container to recombine any settling. Allow to stand (or ingest) for 45 minutes to one hour before adding thinner or beginning application. Use of thinner increases possibility of sag and reduces dry film thickness. Thinner also retards cure time. For best results, use just as it comes from the pail. However, thinner (use **new** lacquer thinner) can be added to the product with no harm to the coating. Thinning will necessitate applying more coats to achieve the desired mil thickness. Any overspray and equipment must be cleaned immediately with acetone, toluene, xylene, or MEK.

**FGI-8000** is 82% solids. Approx. Pot Life: 4 hours at 80 F. Drying time approx 24 hours to drive on depending upon ambient temperature. The cooler the ambient temperature the longer the cure will take. Apply 16 mils (.016 inches or 0.41 mm) wet to achieve a final dry mil thickness of 13 mils (0.013 inches or 0.33 mm). **FGI-8000** will cover approximately 100 square feet (9.3 sq meters) per gallon at 13 dry mils (0.33 mm) thickness. **FGI-8000 is also available in a Quick Dry formula applied with a plural component spray system enabling driving on the product in 30 minutes.**

Contact FGI representatives for specific applications.

Remove all filters from gun and hose, including bung hose.

Use pump such as a Graco texture sprayer.

Use in well ventilated area; if not possible, use a NIOSH approved self contained breathing apparatus or vapor filters on a mask. Protective gloves and safety glasses must be worn at all times. Only very high abrasion will remove the coating. Caution: With the extreme adhesion characteristics of this product all safety procedures must be followed.

### **Storage Stability & Shelf Life**

The shelf life of **FGI - 8000** is one year when stored in original, unopened container. Store cans in a well ventilated and covered area away from extreme heat and moisture. Please contact your FGI representative if you have any questions about product usability.

**Additional information is available at [www.fginternational.net](http://www.fginternational.net)**

Health, safety and environmental information are provided for this product in the Materials Safety Data Sheet. This gives details of potential hazards, precautions and First Aid measures, together with environmental effects and disposal of used products. Before using the product other than directed, please contact FGI for consultation.

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## Solar Reflective Coating

### 1. PRODUCT NAME

**SunShield™**

### 2. MANUFACTURER

Neyra Industries, Inc.  
10700 Evendale Drive  
Cincinnati, Ohio 45241

Phone: 513-733-1000  
Toll Free: 800-543-7077  
Fax: 513-733-3989  
Email: info@neyra.com  
Website: www.neyra.com

- **LEED Green Building Compliant:** SunShield is formulated to meet LEED “High Albedo Coatings” solar reflectance requirements.
- **High Performance:** Premium polymers and virgin aggregate create a tough and flexible coating. SunShield lasts up to five times longer than conventional emulsion pavement sealers.
- **Sustainable:** SunShield keeps the pavement cooler, prolonging its life.
- **Non-Fading:** Pure inorganic reflective pigments provide rich, long-lasting color for years of service.
- **Buyer Protection Warranty:** Neyra Industries and our national network of licensed contractors provide a 2-year dual warranty.

### 3. PRODUCT DESCRIPTION

SunShield solar protective coating is a premium quality, highly pigmented, polymeric surfacing system designed for heat reduction of parking surfaces. The product is formulated with infrared reflective pigments to reduce solar absorptance, increase reflectance and achieve the desired solar reflectance index (SRI). SunShield binds specifically graded subangular aggregate for non-slip performance and to achieve a diffuse reflective surface. SunShield contains no PAHs and has an extremely lowVOC content.

#### Packaging:

Bulk shipments are made in tank trucks. Also available in 5 gal. pails and 55 gal. steel drums. 260 gal. totes available as a special order.

#### Color:

The standard color is LEED gray. Custom colors are also available.

#### Basic Uses:

SunShield provides long wearing, non-fading color and texture to asphalt and concrete pavements including parking lots and walkways. SunShield standard gray meets the LEED-EB Heat Island Reduction: Non-Roof, Option B - Light Color, High Albedo Materials requirements for green buildings.

#### Composition:

SunShield solar protective coating is a blend of binders, pigments, surfactants

and aggregate in a water based emulsion. Premium quality polymers give SunShield its tough, long wearing character.

SunShield contains pure, high grade reflective mineral oxide pigments that have been tested for color stability and resistance to ultraviolet light.

The surfactants blended into SunShield create a superior bond between the product and the pavement surface.

The specifically graded aggregate loading in SunShield increases the durability and the non-skid and heat diffusing qualities.

#### Limitations:

In the liquid state, SunShield must be protected from freezing and rain. Do not store in direct sunlight or where temperature exceeds 120°F.

### 4. INSTALLATION

#### Preparatory Work:

The surface must be structurally sound, cured and free from all loose or foreign matter prior to the application of SunShield.

On a concrete surface, the finish should be wood float or light broom, not steel troweled.

In addition, new concrete surfaces should be lightly abraded or acid-etched and then primed with Polyprime (Product Data Sheet 155) prior to the application of SunShield. **Note:** In all cases a

vapor barrier beneath concrete surface is strongly recommended.

#### Methods:

SunShield can be applied by spray, rubber-bladed squeegee, brush or mechanical equipment specifically designed for this purpose. Due to the heavy bodied nature of the slurry-mixed SunShield, application by means of specialized equipment is recommended. This equipment can be of two types, high volume positive displacement airless spray or mechanical squeegee. Both types must be capable of keeping material thoroughly mixed and homogenous throughout the application process. All equipment used must be capable of supplying a sufficient quantity of material for uniform application over the entire width of the application mechanism to provide a uniformly coated surface.

#### Mix Design:

Mix well before use and apply at full strength. A maximum of 10% dilution with water may be required when the ambient temperature is above 85°F.

#### Application:

For use over sound asphalt pavement, the following application procedures are recommended for best results:

One gallon of SunShield will cover 90 square feet. Multiply square yards of surface x .10 to determine gallons of SunShield per coat.

Coverage rates can vary with the application method and the age, texture and porosity of the pavement to be coated. For low to moderate traffic areas, we recommend applying two full coats. For high traffic areas, a third coat is advised. A primer, Polyprime (Product Data Sheet 155) is required prior to application of SunShield. Each coat must be dry before additional applications. On a typical parking lot, a combination of application systems could be used. For example, two coats for the parking stalls and a third for the drive lanes where most of the wear occurs.

Application must be made when ambient temperatures and pavement temperatures are above 50°F. Good drying conditions above 50°F are required during the subsequent 8 hours and no temperatures below 50°F should be anticipated for 48 hours. Night time application is not recommended. It is recommended that the area over which the application is made be opened to use only after trial shows it to be dried and sufficiently cured to accept regular traffic. Lower temperatures, high humidity, clouds or shade, and lack of air movement retard cure.

#### **Precautions:**

Wet SunShield must be protected at all times from freezing. Keep out of reach of children. Container should be closed when not in use. Avoid breathing vapor or contact with skin or eyes. Consult specific Neyra material safety data sheet before use.

New asphalt should be allowed to cure for a minimum of 15 days prior to application and must not exhibit ribboning, crawling, nor show oil rings when 1 gal. of clean water is poured onto the surface.

New concrete pavement should be allowed to cure for a minimum of 30 days prior to application. SunShield cannot be used on concrete that has been sealed with silicone or which contains concrete curing compound.

#### **5. MAINTENANCE**

As a rule, a clean, well-marked parking lot is safer and will last longer. Occasional flushing with water or the

use of a contract cleaning service will help to retain an attractive appearance.

#### **6. TECHNICAL DATA**

##### **Applicable Standards:**

SunShield in standard gray meets LEED-EB Heat Island Reduction: Non-Roof Option B High Albedo Coatings™ when tested according to the following ASTM methods:

C1371 *Determination of Emittance of Materials near Room Temperature Using Portable Emissometers.*

E903 *Solar Absorptance, Reflectance & Transmittance of Materials Using Integrating Spheres.*

E1980 *Calculating Solar Reflectance Index of Horizontal and Low Sloped Opaque Surfaces.*

SunShield also meets the composition and performance standards of ASTM D2833, Architectural Paints and Coatings, when tested according to the following ASTM methods:

##### **Drying Time:**

When tested according to ASTM D1640, "set to touch" in 1 hour, dry to touch in 4 hours.

##### **Resistance to Kerosene:**

The cured coating exhibits no penetration or loss of adhesion after 24 hour immersion.

##### **Adhesion:**

When tested according to ASTM D3359 A, the dried film exhibits no loss of adhesion from the substrate.

##### **Flexibility:**

When tested according to ASTM D522 B, the dried film exhibits no loss of adhesion.

##### **Resistance to Water:**

When tested according to ASTM D870, the dried film exhibits no blistering, re-emulsification or color change.

##### **Chalking:**

When tested according to ASTM D4214, the dried film exhibits no chalking or friable powder development.

##### **Fading:**

When tested according to ASTM D4587, the dried film exhibits no fading or color loss.

##### **Environmental Considerations:**

SunShield contains no PAHs and is non-hazardous when tested according to the EPA's TCLP (Toxicity Characteristic Leaching Procedure). SunShield is a water based material containing less than 98 g/L (.82 lbs./gal.) VOC content.

#### **7. TECHNICAL SERVICES**

C.S.I. formatted application specifications, material safety data sheets, special project submittals, product and application recommendations as well as assistance with special situations and field service are available.

#### **8. WARRANTY**

The above specifications on product usage are believed to be true and accurate. Neyra Industries, Inc. guarantees that all materials manufactured comply with quality standards as described in the product data sheets. Because the application, handling, weather, workmanship and equipment are beyond the control of this manufacturer, only the quality of the products as shipped is guaranteed. In no case will the liability of Neyra Industries, Inc. exceed the purchase price of the shipped materials.

#### **9. ADDITIONAL INFORMATION**

Neyra Industries, Inc. manufactures a full line of asphalt pavement maintenance and recreational surface products as well as application equipment sold and distributed nationally at our plants and through distributors and contractors. To find the supplier most convenient to you, please contact us.



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