

# Vapor Intrusion Coating System for Existing Structures

**Retro-Coat<sup>®</sup>**

Vapor Intrusion Coating



# Key Benefits



Eliminates  
Risk



Excellent  
Constructability



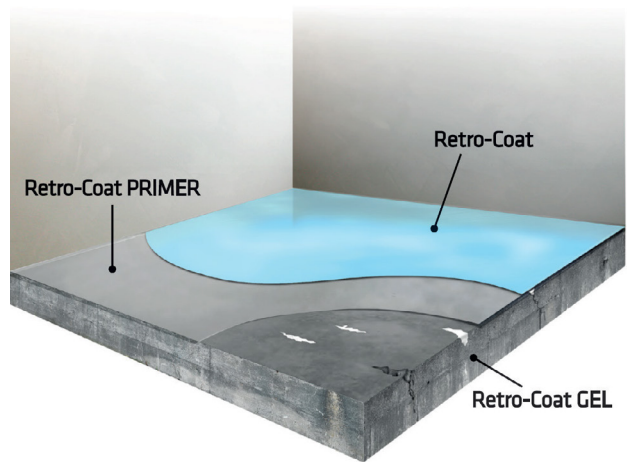
Proven Chemical  
Resistance



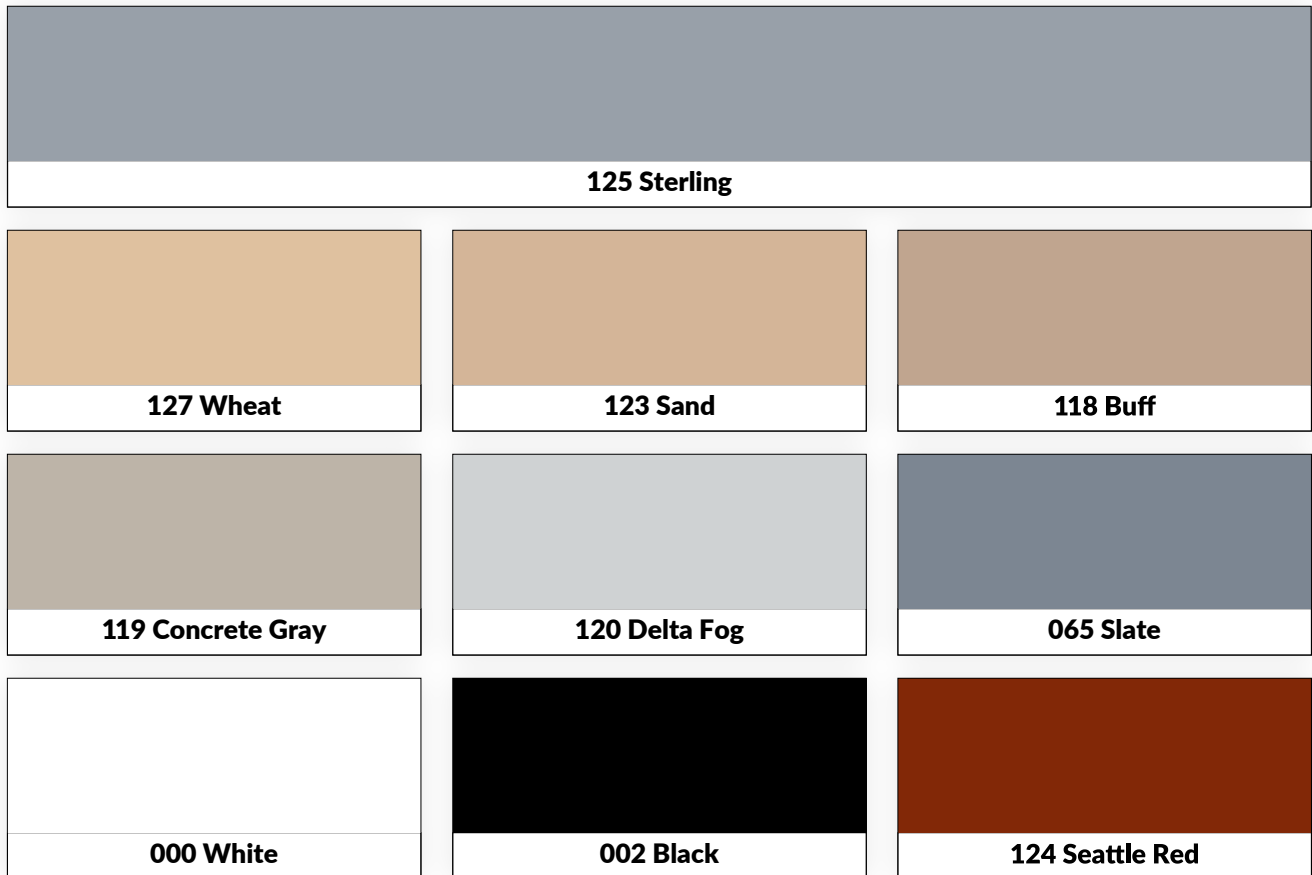
Competitively  
Priced

# Product Description

The Retro-Coat® Vapor Intrusion Coating System is a complete product line that consists of chemically resistant materials to properly protect existing structures from the threat of vapor intrusion without the need for additional concrete protection. Developed by the Research and Development team of Land Science®, the Retro-Coat system has been subjected to rigorous testing procedures to prove its ability to combat the most aggressive chemical vapors. The main component of the Retro-Coat system is the Retro-Coat coating which is a two part, odorless, no volatile organic compounds (VOCs), 100% solids coating.



Available in a variety of colors, Retro-Coat can be applied on damp as well as dry concrete, concrete masonry units, tile, brick, and metal. For enhanced slip resistance, a suitable aggregate can be added. In addition, other additives or materials can be utilized to achieve a desired performance or aesthetic look.



Aggregates are also available to achieve desired performance and decorative finishes. Inquire with your Land Science Representative for more information.





*Retro-Coat finishes to a high gloss, easy-to-clean surface that is impervious to vapor and moisture intrusion.*

## Typical Application

Retro-Coat is a suitable barrier to block contaminated vapors from entering existing structures. Particular uses include coating the horizontal surfaces of existing structures where contamination under, or adjacent to, a structure can potentially migrate inside the structure and create a vapor encroachment condition. This condition is most commonly found when the existing structure was operated as a dry cleaner, gas station, manufacturing facility, or located in close proximity to any structure where carcinogenic chemicals were utilized.

A typical application is comprised of a 6 mil coating of Retro-Coat PRIMER and a 20 mil coating of Retro-Coat. The Retro-Coat layer is most commonly applied as two 10 mil coats @ 160 ft<sup>2</sup>/gallon. This system can withstand forklift traffic, other machinery, and even act as secondary containment. However, if Retro-Coat is exposed to harsh conditions over a longer period of time and/or used for a unique application, please consult with a Land Science representative to discuss options and a recommended approach.

## Retro-Coat Advantages

- Our R&D team developed all of the Retro-Coat system components specifically for vapor intrusion protection in existing structures
- Resistant to both TCE and PCE
- A wearing surface, meaning no additional concrete protection is necessary
- No odor and fast cure time reduce building downtime
- Carpet, tile, linoleum or other floor coverings can be applied directly over Retro-Coat, if desired
- Eliminates the need to remove the existing slab and when combined with *in situ* treatment, lowers overall remediation cost
- Can increase the performance of an existing active sub-slab depressurization system
- Can aid in the retiring of existing active systems
- Available and installed by Land Science certified contractors



## Case Study: Renton, WA

### Former Jazz Club Protected from Vapor Intrusion

#### Challenge

Renton, Washington is a bedroom community located just outside of downtown Seattle. As a suburb to downtown Seattle, Renton has seen tremendous growth over the last two decades as technology giants like Microsoft, Amazon, and Nintendo chose the area for their global headquarters. With commercial properties and home values ever increasing, developers are looking for new ways to restore brownfield sites quickly and effectively, to allow them to move forward with future development. In the case of this former popular jazz club in the historic section of downtown Renton, indoor air quality was impacted

by volatile organic compounds associated with dry cleaning solvents that had spread from a nearby dry cleaning operation.

In May, 2017, Maul Foster Alongi conducted an indoor air quality assessment at the Property after installation of Retro-Coat VI System. In order to obtain samples representative of indoor air conditions at the Property and to ensure that the same indoor air conditions existed during the previous indoor air quality assessment conducted by Maul Foster Alongi in January 2017.

#### Results

The objective of mitigating VI of VOCs into the building structure for future occupants at the property has been met by the installation of the Retro-Coat VI System. The Retro-Coat VI System provides a long-term solution to the property indoor air quality issues arising from the adjoining dry cleaners facility.

Laboratory analytical results for the indoor air quality assessment after installation of the Retro-Coat VI System indicated the following:

The PCE concentration in the dining room area (JRIA-5 indoor air sample— $5.1 \mu\text{g}/\text{m}^3$ ) measured below the Department of Ecology Vapor Intrusion Indoor Air Method B cancer CUL of  $9.6 \mu\text{g}/\text{m}^3$  (DOE, 2016).

Other VOCs associated with dry-cleaning solvents, including carbon tetrachloride, 2 butanone, toluene, and xylenes, were also detected below their respective DOE Vapor Intrusion Indoor Air Method B cancer CULs.





# Case Study: Greenville, SC

## Former Industrial Manufacturing Facility Reborn

### Challenge

A former industrial manufacturing facility in Greenville, SC was purchased for redevelopment in 2017. Building improvements were planned to include a warehouse, offices, and self-storage units to serve a growing commercial area. Redevelopment plans included converting the industrial warehouse building into climate controlled self-storage units, and renovating the office into an apartment unit and office. Sub-slab soil gas samples detected various VOCs above the laboratory method detection limit. Bunnell Lammons

Engineering utilized the Environmental Protection Agency (EPA) Vapor Intrusion Screening Level (VISL) calculator to model potential indoor air concentrations of VOCs based on the sub-slab soil gas results. Based on EPA VISL calculations, two VOCs, chloroform and TCE, had estimated indoor air concentrations above their respective EPA Industrial/Commercial Risk Based Screening Level (RSL). The indoor air samples also had detections of TCE above the EPA Residential RSL.

### Results

Incorporating the vapor mitigation technology into the anticipated renovations was both cost and time effective for the site owner. The combination of Vapor-Vent and Retro-Coat was determined as a mitigation technique to reduce the potential risk of harmful vapor intrusion in the new apartment and

office. Bunnell Lammons Engineering plans for two rounds of post-mitigation sampling. One was already performed in the summer of 2019 and one is planned in the winter between December 2019 and February 2020 to verify the effectiveness to the system.

# World Class Clients

Environmental consultants, engineers, and real estate professionals trust Land Science to produce results knowing our expertise and industry knowledge has been proven time and again at the job site. Our world class clients include leaders in the food, banking, government, and housing industries.



## Get Started Today

To receive a custom vapor intrusion solution, please call (949) 481-8118 or email [info@landsciencetech.com](mailto:info@landsciencetech.com)

One of our Technical Solutions Managers will review your project details and provide you with a customized vapor intrusion solution designed to achieve your goals.



# Retro-Coat<sup>®</sup>

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## Vapor Intrusion Coating

**Are You Planning a Vapor Intrusion Mitigation Project? Contact us today for a free estimate.**

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