

A photograph of a modern, multi-story apartment building with a mix of orange and blue exterior walls. The building features several balconies with metal railings. The sky is a soft, hazy blue with some clouds. A large, stylized blue and white wave graphic curves across the bottom of the image.

Statement of Qualifications



Land Science®
a division of REGENESIS®

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INTRODUCTION

Land Science®, a division of REGENESIS®, develops vapor intrusion (VI) mitigation solutions that protect people and invigorate renewal of contaminated properties. We leverage our industry expertise to assist clients in developing site-specific solutions that are technically sound and cost-effective.

As experts in the field of contaminant VI mitigation, Land Science works with leading engineering firms, environmental consultants, building owners, and real estate developers to offer safe and effective contaminant VI mitigation solutions in the redevelopment of brownfield sites.

As risk standards and other compliance issues associated with contaminant VI continually evolve, engineered controls like those offered by Land Science provide a practical, cost-effective solution to eliminate risks. Recent advances in contaminant VI mitigation developed by Land Science have assisted developers, engineering firms, regulators, and land owners by providing technically sound solutions effectively mitigating these issues.



"Land Science has consistently provided timely, effective remediation product solutions... we recommended a floor sealing system for VI, and the owner selected the Retro-Coat system. At that site, indoor air contaminant concentrations were either eliminated or significantly reduced."

*Bruce Savage,
Director of Environmental Services*





Land Science teams with leading E&C firms, regulators, contractors, and end users to successfully implement advanced vapor intrusion mitigation systems

LEADERSHIP

As a wholly-owned division of REGENESIS, a recognized leader in the environmental industry, Land Science has been at the forefront of VI mitigation. With combined experience in VI mitigation and environmental remediation encompassing more than 26,000 projects worldwide in over 27 countries, Land Science has a unique advantage over other vapor intrusion solution providers.

In addition to its own research and science-based product development, Land Science benefits from its close association with REGENESIS by aligning teams and managing a broad range of VI mitigation issues. These products and solutions include patented vapor mitigation and environmental remediation technologies supported by the highest levels of scientific research.

Land Science leads the environmental remediation industry in:



Vapor mitigation technologies

Land Science has installed vapor mitigation technologies at over 800 project sites across the United States, totaling over 17,000,000 square feet. Our core technologies, each supported by the highest levels of scientific research, include the TerraShield™, Nitra-Seal™, MonoShield™ and Geo-Seal® composite sub-slab VI barriers for new construction, Retro-Coat™ concrete VI coating for existing buildings (retro-fit), and TerraVent™, a low profile, passive, sub-slab vapor venting system.



Quality assurance of vapor mitigation systems

Only contractors that we certify are allowed to install our technologies. This allows us to have oversight on the quality of the installation. Our technologies are guaranteed to be installed properly because we will require the owner to hire a 3rd party certified inspector, i.e. the specifying engineer, or a manufacturer's representative.



Federal and state regulatory approval

Land Science has worked with state and federal regulators to obtain regulatory approval of our technologies throughout North America.



World's leading vapor barrier system warranty

Land Science offers industry leading warranty options for its vapor barriers, including material and system warranties with durations from a 1-30 year material warranty and up to a 30 year system warranty.

OUR 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.



Land Science: A World Class Team

(Detailed resumes available upon request)



Nick Mjolsness – West Region Manager

Nick Mjolsness is the West Region Manager of the Land Science division of REGENESIS, Inc. Nick's role includes providing technical support in the design and installation of Land Science vapor mitigation systems, and educating the environmental community on advancements in vapor intrusion barrier technology, implementation, and quality control by making presentations to environmental firms, regulatory agencies and developers.



Ryan Miller – East Region Manager

Ryan Miller is the East Region Manager of the Land Science division of REGENESIS, Inc., and is based in northern New Jersey. Ryan's role includes providing technical support in the design and installation of Land Science vapor mitigation systems, and educating the environmental community on the advancements in vapor intrusion barrier technology, implementation, and quality control by making presentations to environmental firms, regulatory agencies, and developers.



Jordan Knight – Central Region Manager

Jordan Knight is the Central Region Manager of the Land Science division of REGENESIS, Inc., and is based in Atlanta, Georgia. Jordan's role includes providing technical support in the design and installation of Land Science vapor mitigation systems, and educating the environmental community on advancements in vapor intrusion barrier technology, implementation, and quality control by making presentations to environmental firms, regulatory agencies and developers.



Kim Bradley - Inside Sales Manager

Kim Bradley is the Inside Sales Manager of the Land Science Division of REGENESIS, Inc. Kim's role includes providing technical and project support for consultant and developer clients of the Land Science sales management team addressing VI sites across North America. Kim also initiates community outreach and education on VI barrier solutions, emerging regulations, and industry best-practices by moderating presentations to property owners, developers, architects, environmental firms, and general contractors.



Thomas Szocinski – Director of Vapor Intrusion

Thomas Szocinski is the Director of Vapor Intrusion of the Land Science division of REGENESIS, Inc. In his role, Tom provides executive leadership, market strategy and sales support, while further strengthening relationships with state and federal regulators, applicators and environmental consultants. Tom is a nationally recognized vapor intrusion expert with over 16 years' experience as an environmental scientist, focusing on vapor intrusion assessment and mitigation, remediation, site assessment, and Brownfield site management.



Hieu Nguyen – Senior Research Engineer

Hieu Nguyen is the Senior Research Engineer of the Land Science division of REGENESIS, Inc. In his role, Nguyen oversees product development and implementation at construction sites and provides technical support to regional and district managers as well as Land Science clients. Hieu offers over 14 years of experience supporting Brownfield redevelopment project designs, specifications and installations across United States, Canada and Australia.



Scott Wilson - Chief Executive Officer

Mr. Wilson is a widely published expert with 30 years of experience in environmental remediation. He is a recognized thought leader in the commercialization of environmental technologies with a proven track record spanning three decades. He has overseen the design and implementation of more than 100 innovative full-scale remediation projects employing advanced technologies.



Rick Gillespie – Vice President, North America

Mr. Gillespie serves as Senior Vice President North America for REGENESIS and Land Science. In his role, Mr. Gillespie directs a team of technical sales consultants and engineers across North America providing industry-leading support to REGENESIS and Land Science customers. He has over 20 years of experience in the environmental remediation industry.

VAPOR INTRUSION MITIGATION TECHNOLOGIES

TerraShield



TerraShield™ is a significant step forward for VI barriers. Employing an innovative dual-metallized film technology, TerraShield provides superior chemical resistance over any existing vapor barrier currently on the market. It is the

ideal vapor mitigation solution for residential, industrial, and commercial developments with volatile contaminant impacts that represent significant health hazards and economic liabilities.

The Difference is a Multi-Layer Base with Dual-Metallized Film Technology

The Land Science research and development team of scientists have invested years in developing the TerraShield vapor barrier system, which delivers orders of magnitude higher VI protection as compared to the leading vapor barrier system. The new, innovative dual-metallized material and multiple layers of protection are key to the increased performance. The R&D team also improved on the core material, incorporating nitrile, known for its chemical resistance, as a key component. The result is a 100x more effective protection as compared to a 10-mil high density polyethylene (HDPE) base layer in recent laboratory tests.

When developing properties on sites with known environmental impacts, one of the biggest issues is the risk to human health. Failure to address these issues can result in adverse health effects and millions of dollars in legal exposure. TerraShield was designed specifically to eliminate risk of exposure by employing innovative technologies to provide best-in-class chemical resistance and durability. Backed by a robust warranty and installed by Land Science-certified applicators, each TerraShield installation is rigorously tested to ensure the quality of every seal and ultimately the complete passive vapor barrier system installed.

Key Product Benefits

- **TERRABASE IS 100X MORE EFFECTIVE**

TerraBase lab-tested to be 100x more effective against vapor intrusion

- **NITRA-CORE**

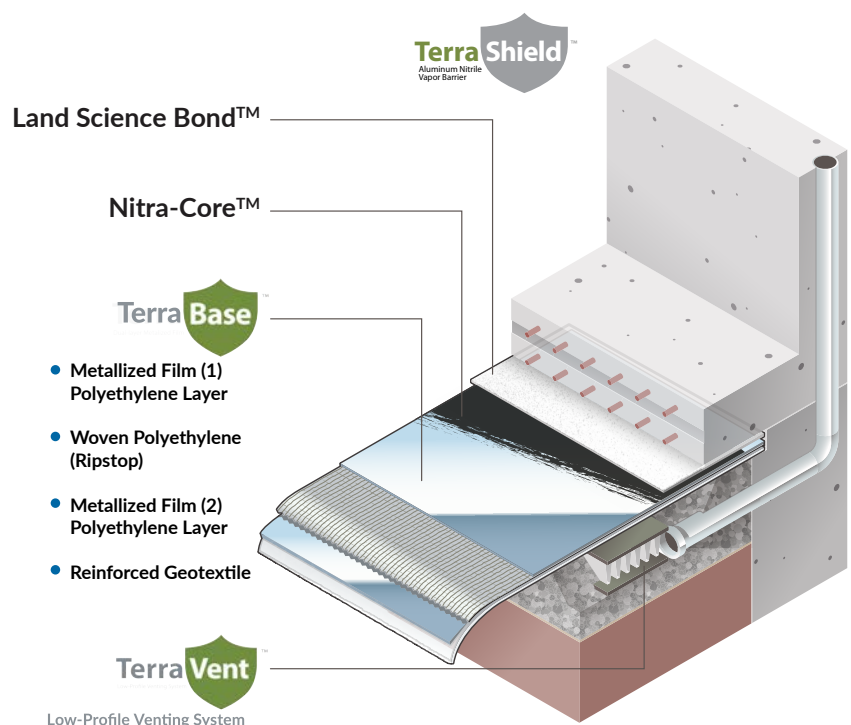
Nitra-Core nitrile-modified core lab-tested to be up to 10x more effective than spray-applied asphalt latex core material

- **HIGHEST CHEMICAL RESISTANCE**

Highest level of protection available in a vapor barrier system

- **CERTIFIED APPLICATORS**

Land Science Certified Applicators ensure barriers are properly installed, reducing risk



VAPOR INTRUSION MITIGATION TECHNOLOGIES

Nitra-Seal



Nitra-Seal™ is an update/improvement on current vapor barrier systems. Originally, passive vapor barrier systems were waterproofing systems adapted for use as contaminant vapor barriers. An acknowledged weakness in these systems is in the penetration and perimeter termination locations, where spray-applied core material composed of Styrene-Butadiene (SBR)- or chloroprene-modified asphalt is used. While excellent at repelling water, aggressive chemicals such as petroleum solvents and chlorinated VOCs, will permeate into the SBR-modified or chloroprene-modified asphalt at a relatively high rate particularly in sensitive areas of the building construction such as barrier seams,

slab penetrations and perimeters. Nitra-Seal offers a substantial upgrade as it employs a more chemically resistant nitrile latex instead of the more susceptible SBR material.

Nitra-Seal has been lab-tested and proven to be highly effective against VOCs like chlorinated solvents and petroleum contaminants, and methane. The Nitra-Core component of this system is laboratory tested to be up to 10x more effective than typical spray-applied SBR modified asphalt material.

Key Product Benefits

• CHEMICAL RESISTANCE

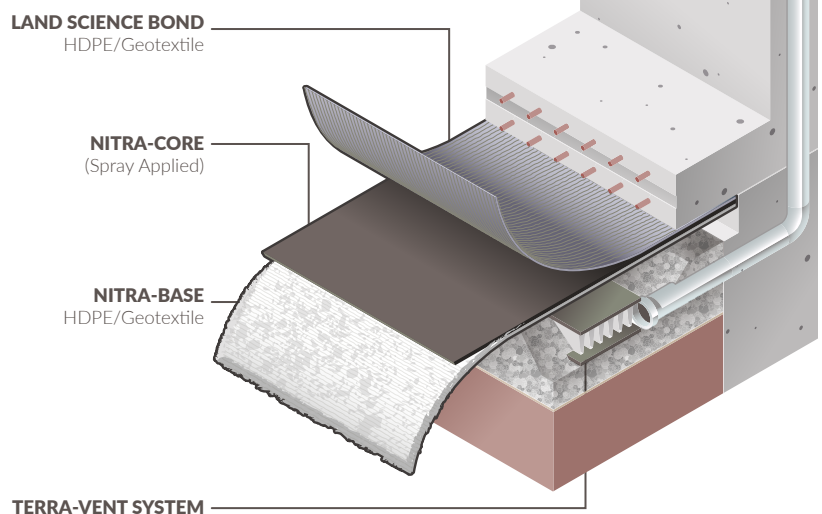
The dual chemically resistant layers combined with the spray-applied Nitra-Core form a barrier highly resistant to a broad range of chemical pollutant vapors.

• ENHANCED CURING

Nitra-Seal is “construction friendly” as the reduced curing time of the Nitra-Core layer and the ability to apply it in cooler temperatures ensures quick installation and minimizes the impact on construction schedules.

• PUNCTURE RESISTANCE

Nitra-Seal forms a highly puncture resistant barrier that greatly reduces the chance of damage occurring after installation and prior to the placement of concrete.



• ADDITIONAL PROTECTION

TerraVent can be used in conjunction with Nitra-Seal to alleviate the buildup of vapors beneath structures as a result of vapor barrier implementation. VaporVent can be utilized as an active or passive ventilation system pending on the requirements of the design engineer.

VAPOR INTRUSION MITIGATION TECHNOLOGIES

MonoShield



MonoShield™ is a chemically resistant and easy-to-apply barrier specifically designed as a preemptive solution for VI at brownfield redevelopment sites. It is backed by unparalleled design support, robust warranty options, and a network of certified applicators who can ensure quality installation.

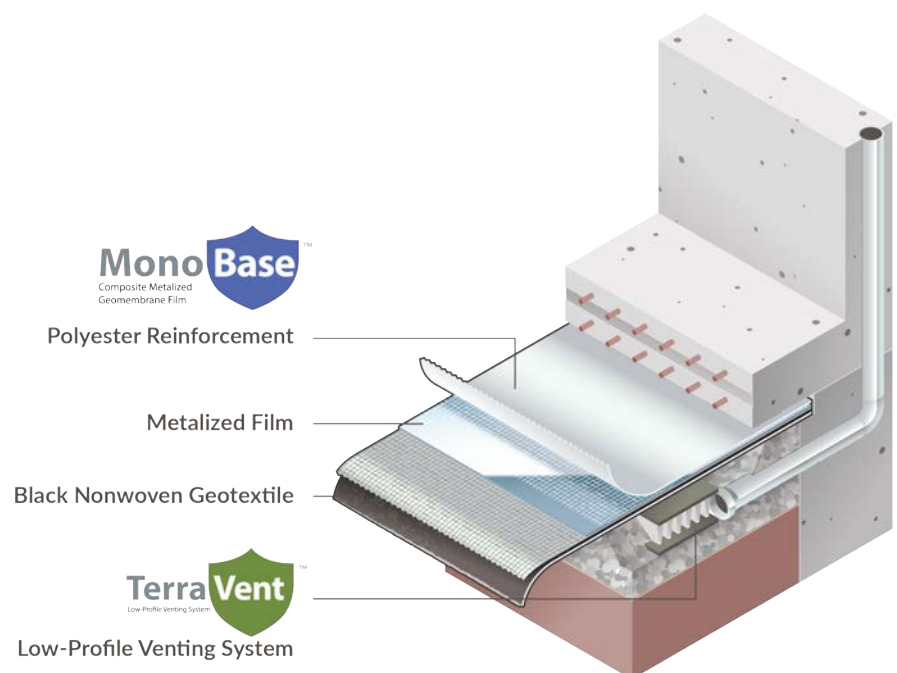
Prior to MonoShield, solutions for VI mitigation at large warehouses or retail developments, where regulatory requirements are not a driving factor, were easily-punctured thin-mil plastic sheets or inflexible and difficult-to-seal HDPE barriers. These solutions offered either chemical resistance or constructability, but not both. Composed of an innovative metallized film seamed with a nitrile-modified asphalt, MonoShield sets the standard for preventing diffusion and permeation of chemical vapors. The spray-applied seal is far more effective and easier to apply than tape-based or

heat-welded systems, MonoShield offers the best of both worlds, providing developers with a viable long-term solution for reducing liability and protecting human health at a competitive price.

MonoBase is a patent pending 30-mil composite geomembrane comprised of flexible chemically resistant metallized film laminated to a geotextile, a copolymer polyethylene and a tear resistant polyester reinforced grid structure. It is designed to act as a stand-alone vapor barrier in combination with Nitra-Core sealing around seams, penetrations and terminations. The nitrile core is applied at the seams of the Nitra-Core base layer, with a 6" overlap of the base layer, spraying both under and over the overlap. The nitrile core seals around the penetrations and perimeter terminations.

Key Product Benefits

- **FASTER**
Installation 30-40% faster on average
- **EASY TO INSTALL**
Advanced composite sheet incorporates continuous layer of aluminum encased in low permeance flexible polymers
- **SPRAY-APPLIED NITRILE SEAMS**
Unique spray-applied nitrile rubber offers an order of magnitude better resistance to contaminant vapors



VAPOR INTRUSION MITIGATION TECHNOLOGIES

Geo-Seal Vapor Intrusion Barrier

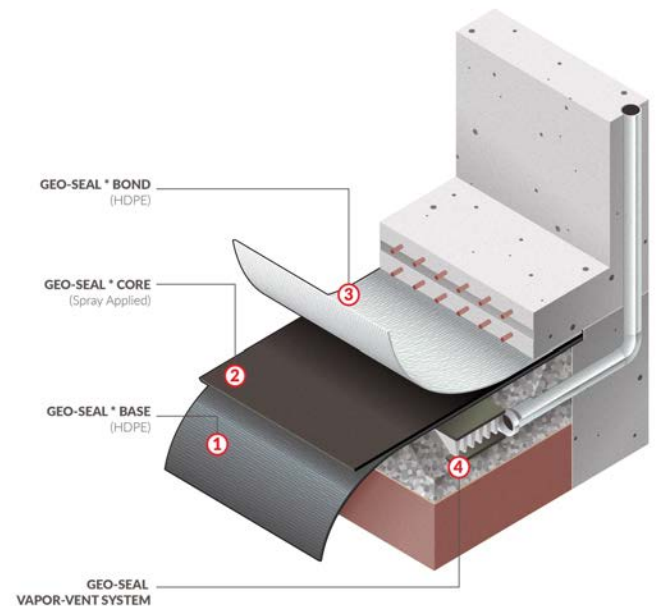


Geo-Seal is a sub-slab composite barrier system designed for waterproofing and adapted for use in blocking low concentrations of chemical vapors on brownfield sites. Geo-Seal is placed between the building foundation and the soil pad to minimize water vapors and minor

concentrations of chemical vapors from permeating through the slab. If moderate or elevated concentrations of chemical vapors may be present, a more chemically resistant barrier system is recommended such as TerraShield or Nitra-Seal.

Key Product Benefits

- Geo-Seal is a composite system that is proven to block water vapors and low concentrations of certain chemicals.
- Geo-Seal is rapidly applied.
- Broad certified applicator network available.



VAPOR INTRUSION MITIGATION TECHNOLOGIES

Retro-Coat Vapor Intrusion Coating

Retro-Coat[™]
Vapor Intrusion Coating

The Retro-Coat Vapor Intrusion Coating system is a chemically resistant coating technology which protects existing structures from the threat of contaminant vapor intrusion. Retro-Coat is installed on top of existing concrete and provides a durable, finished surface eliminating the need for additional concrete protection. The Retro-Coat system has been subjected to rigorous

testing procedures to prove its ability to combat the most aggressive chemical vapors. The system is rated for industrial use suitable for foot and forklift traffic and can be designed to allow vehicular traffic. Retro-Coat coating technology was specifically developed for vapor intrusion protection.

Key Product Benefits

- **TESTED AND PROVEN**

Tested and proven to be resistant to aggressive chlorinated compounds such as trichloroethylene (TCE), PCE and petroleum hydrocarbons.

- **QUICK INSTALL**

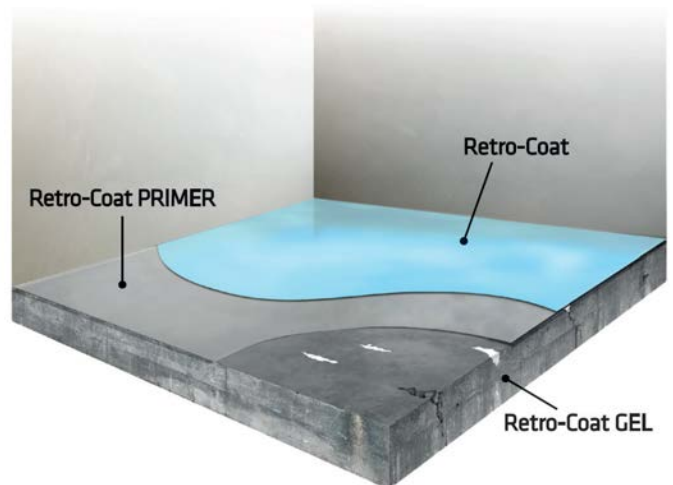
No odor and fast curing time reduce building downtime.

- **ELIMINATES NEED TO REMOVE SLAB**

Functions as a wearing surface, meaning no additional concrete protection is necessary. Carpet, tile, linoleum or other floor coverings can be applied directly over Retro-Coat, if desired.

- **CAN AID IN RETIRING ACTIVE SUB-SLAB SYSTEMS**

Retro-Coat can aid in the retiring of existing active sub-slab depressurization systems or provide greater efficiency to ongoing sub-slab depressurization system (SSDS).



“Without Land Science’s Retro-Coat vapor barriers, our redevelopment of a downtown Traverse City, Michigan Brownfield Site into upscale residential townhomes would have been impossible.”

Mike Wills, Project Manager,
Uptown Development TC, LLC

UPTOWN



CERTIFIED NETWORK FOR QUALITY ASSURANCE

To ensure the installation of our world-leading vapor barriers is performed correctly and will result in the best possible performance, Land Science has established a network of certified applicators and inspectors for our technologies. Only a certified applicator can install Land Science's vapor mitigation systems. These certified contractors ensure only the highest quality work goes into the installation of your vapor mitigation system.

Certified Applicator Network

Land Science trains and certifies contractors to install TerraShield, Nitra-Seal, MonoShield and Geo-Seal composite sub-slab vapor intrusion barriers for new construction, Retro-Coat concrete VI coating for existing buildings (retro-fit), and TerraVent, a low profile, passive, sub-slab vapor venting system. The Installation can be performed by any one of many certified installers throughout the country.

To find a certified applicator in your area, contact your regional Land Science representative or visit our website at landsciencetech.com/applicators

Certified Inspector Network

Land Science trains and certifies inspectors for the TerraShield, Nitra-Seal, MonoShield and Geo-Seal composite sub-slab vapor barriers, the Retro-Coat Vapor Intrusion Coating System, as well as the TerraVent sub-slab vapor venting system. The inspection of can be performed by any one of many certified inspectors throughout the country.

To find a certified applicator in your area, contact your regional Land Science representative or visit our website at landsciencetech.com/inspectors

"Project implementation has been seamless. The services group has been able to keep things moving ahead of schedule. Looking forward to the results and positive impact to the community."



THE WORLD'S LEADING VAPOR BARRIER SYSTEM WARRANTY

Land Science offers industry leading warranty options for its vapor barriers, including material and system warranties with durations from a 1-30 year material and system warranty. System warranties require site specific evaluations by Land Science prior to installation to determine if a system warranty can be offered. So you can rest assured that your investment in VI mitigation is protected.

Material Warranty

Warrants the integrity of the material (TerraShield, Nitra-Seal, MonoShield, Retro-Coat, and Geo-Seal).

OR

System Warranty*

Warrants the integrity of the material and the workmanship of the certified installer.

*Provided on a site-specific basis and requested prior to installation.



“Land Science is an excellent company that cares about our issues and projects. It is comforting to know that the people at Land Science are always available with the support and guidance we need!”

– Justin Allen,
Staff Environmental Scientist,
Carlin Environmental Consulting, Inc.

CASE STUDIES

MonoShield Aluminum Nitrile Vapor Barrier System Installed at Liberty Park Site

Challenge

Liberty Park is located in Sterling Heights, Michigan, 23 miles north of downtown Detroit. This region, known colloquially as “Automotive Alley,” is home to General Motors, Ford, and Daimler/Chrysler. The area has experienced a growing demand for high-end office and industrial warehouse space. In the last five years in particular, the region has experienced vacancy rates for manufacturing spaces as low as 1.5%.

Liberty Park is a landfill-based, brownfield site. Throughout the 1940's and 1950's, a nearby creek was filled with

incinerator waste which led to contamination at the site's low-lying areas. Liberty Park was first redeveloped into a recreation facility in the 1980's and operated until 2017.

This site posed multiple remediation challenges with a variety of known contaminants including arsenic, lead, and methane. In addition, the site was historically filled in an uncontrolled manner which left the soils with load-bearing capacity issues. To build on the site would require a unique foundation along with a VI mitigation solution.

Result

With MonoShield in place, Liberty Park is preemptively protected from any harmful VI. Additionally, applying this new technology was extremely cost and time-efficient for the developers. Oliver Hatcher completed construction in August 2019 and Liberty Park will be repurposed for light industrial warehousing and manufacturing. Ashley Capital

anticipates that this new space will bring hundreds of new jobs and economic growth into the eastern part of Michigan. All of the involved parties are very pleased with the results from MonoShield and with the successful redevelopment of this brownfield site.

Mono Shield

Reinforced Aluminum
Contaminant Vapor Barrier

"The MonoShield system was the most cost-effective system in the market... we've been able to shave off a couple months of our construction by going with this system."

Allen Dresselhouse,
VP Construction & Development

AshleyCapital

opportunity into value

CASE STUDIES

Vapor Barrier System Applied at Medical Supply Warehouse Distribution Center

Challenge

A 17.5 acre Brownfield site in Detroit once housed multiple factories, fuel storage operations, a rail yard, paint shops and commercial structures. The site has recently been developed into a medical distribution center for a major medical supply company. Subsurface investigations within the area identified that the historical operations released VOCs, including chlorinated solvents, which posed a potential risk to the indoor air quality of the proposed medical supply warehouse facility. The environmental consultant (AKT Peerless) was able to secure Brownfield funding through the Michigan

Department of Environmental Quality (MDEQ), now known as the Michigan Department of Environment, Great Lakes, and Energy (EGLE), and prepared and submitted a Vapor Mitigation System Work Plan to the EGLE which detailed the installation of the system design for the proposed new building.

Land Science assisted with providing details to AKT Peerless to aid in their design of the vapor mitigation system, which included a redundant ventilation and barrier system.

Result

The vapor barrier system was applied to the entire footprint of the medical supply warehouse (275,000-square-feet) to mitigate the VI risk. Post-installation smoke and pressure testing were completed to ensure optimum sub-surface ventilation and barrier performance. With a vapor mitigation system in place, construction continued on the \$28 million building. The facility is expected to bring 140 jobs to the area.



This project was awarded the Phoenix Award at the National Brownfields Conference



CASE STUDIES

Retro-Coat Applied To Former Jazz Club Ensures Protection 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 choose 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 with volatile organic compounds associated with dry cleaning solvents that had spread from a nearby dry cleaning operation.

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 ensure that the same indoor air conditions existed during the previous indoor air quality assessment conducted by Maul Foster Alongi.

Result

The objective of mitigating VI of volatile organic compounds (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 indoor air quality assessment after installation of the Retro-Coat VI System indicated the following:

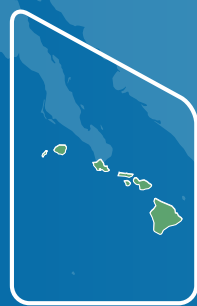
- PCE concentration in the dining room area (JRIA-5 indoor air sample— $5.1 \mu\text{g}/\text{m}^3$) measured below the Department of Ecology (DOE) Vapor Intrusion Indoor Air Method B cancer clean up level (CUL) of $9.6 \mu\text{g}/\text{m}^3$ (DOE, 2016).
- Other VOCs associated with dry-cleaning solvents, including carbon tetrachloride, 2 butanone, toluene, and xylenes, were also detected below their respective DOE Vapor Intrusion Indoor Air Method B cancer CULs.

Retro-Coat™
Vapor Intrusion Coating

"Your engineers provide solid information and backup for your technical assessments of sites; your products work; your company provides excellent case studies to compare and evaluate. I love working with technically competent people who are nice on top of it!"

– Yen-Vy Van, Senior Hydrogeologist,
MAUL FOSTER & ALONGI, INC.





-  **REGENESIS**
-  **REGENESIS REMEDIATION SERVICES DIVISION**
-  **LAND SCIENCE**



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Get Started Today

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.