MOISTURE BLOC®
Vapor Reduction Systems

Protecting flooring installations from the ground up

LEED® Guide

Committed to a better environment

VEXCON CHEMICALS, INC.

ECO-FRIENDLY

U.S. GREEN BUILDING COUNCIL MEMBER

MOISTURE BLOC®
Vapor Reduction Systems

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I. Introduction and Background

Vexcon Chemicals, a leading manufacturer of architectural protective treatments for the building industry, is dedicated to developing and producing materials that are high quality, meet the toughest performance standards as well as being “eco-friendly.”

Our commitment is to reduce the impact our products and processes have on the environment.

For additional information about Vexcon’s commitment to a better environment, see Vexcon’s Environmental Policy Statement which can be down loaded @ vexcon.com along with other information.

Moisture effects on a buildings flooring systems

Indoor air quality issues often start at the floor surface. Excess moisture vapor emission coming from a concrete slab can contribute to mold growth which has shown to be a contributing factor to poor indoor air quality.

The National Academy of Sciences Institute of Medicine issued a report, "Damp Indoor Spaces and Health." The report found that certain health effects can be linked to specific environmental conditions, namely excessive moisture in buildings. Many experts have linked these respiratory illnesses specifically with mold. The study points out that excessive moisture causes a number of other biological occurrences that could also contribute to symptoms among occupants.

In addition, excess moisture can also cause floor failures such as delamination, adhesive bleed, blistering, staining and emit odor.

Some common examples of sources of moisture emitting from a concrete slab are:

- The amount of water (w/cm ratio) in concrete.
- Moisture vapor from sources below the slab.
- Concrete exposed to external moisture during the construction process
- Improperly installed or damaged vapor barriers
- Fast track construction that does not allow the concrete sufficient time to dry.
- Improper curing methods
- Improper surface finish
- Regular cleaning and maintenance schedules

MOISTURE BLOC®
Vapor Reduction Systems

Why Choose a MoistureBloc floor?

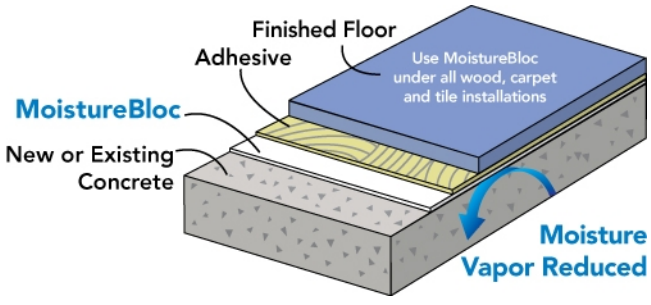
The most effective method of avoiding problems associated with moisture is to have a plan of prevention in the first place.

MoistureBloc is:

- Guaranteed to reduce moisture vapor emissions
- Alkali, mold and mildew resistant
- Comes with a full floor warranty

Additional MoistureBloc benefits:

- Quick solution to on time delivery
- Cures fresh concrete
- Low installed cost



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II. US Green Building Council (USGBC) and LEED

According United States Green Building Council or USGBC, buildings today have a substantial impact on the environment.

Buildings:

- Account for 40-50% of all energy consumed
- Utilize valuable land resources
- Consume billions of gallons of water
- Generate a substantial amount of waste during the construction phase of a project.

U.S. BUILDINGS IMPACTS ON RESOURCES

39% of total energy consumption

71% of electricity consumption

39% CO_2 emissions

30% of raw materials use

30% of waste output

12% of potable water consumption

The USGBC founded in 1993, is the leading organization that represents the building industry on environmental matters. Their goal is to transform the built environment to be energy efficient and environmentally friendly. The USGBC attempts to develop tools that project teams can utilize in the sustainable design, development, operation and maintenance of “green” buildings. To assist in this endeavor, Leadership in Energy and Environmental Design or LEED was developed and introduced in 2000.

LEED is a voluntary point system based on accepted energy and environmental principles and standards which provides a framework for assessing a buildings performance and meeting sustainability standards. LEED provides project teams a practical set of design and performance goals and independent third party verification of their achievements. Although there is no governing body for “green” construction, LEED is considered by many as the defining standard for green building. For more information on USGBC and LEED visit www.usgbc.org.

There are six separate categories project teams can earn LEED points in:

- Sustainable Sites–seeks to limit development to only appropriate sites, reuse existing buildings, sites or both, protect natural and agricultural areas, and reduce the need for automobiles.
- Water Efficiency–seeks to reduce the quantity of water withdrawn from rivers, streams and reservoirs.
- Energy & Atmosphere–seeks to optimize energy efficiency, encourage renewable, and alternative energy sources.
- Materials & Resources–seeks to reduce the amount of materials needed, use materials with less environmental impact and reduce and manage waste.
- Indoor Environmental Quality–establishes indoor air quality, eliminates, reduces and manages the sources of indoor air pollutants, ensures thermal comfort and controllability, and provides for occupant connection to the outdoors.
- Innovation & Design Process–recognizes projects for innovative building features and sustainable knowledge.

The project must meet all prerequisites and a minimum of 26 points is required. There are four levels of certification:

- 26-32 points to get certified
- 33-38 points to receive a silver rating
- 39-51 points to receive a gold rating
- 52-69 points to receive a platinum rating

In addition to the beneficial impact green building has on the environment, other attributes include:

- Positive health benefits of building occupants
- Potential improvement in productivity of building occupants
- Reduction in operating costs of a green building
- Enhanced marketability of a green building and the companies that occupy them.
- Meet social expectations of the market place
- Meet the increasing demand of international, federal, state and local green building codes.

Currently or in development, USGBC offers specific rating systems for:

New Construction

LEED for New Construction and Major Renovations is designed to guide and distinguish high-performance commercial and institutional projects.

Existing Buildings

LEED for Existing Buildings: Operations & Maintenance provides a benchmark for building owners and operators to measure operations, improvements and maintenance.

Commercial Interiors

LEED for Commercial Interiors is a benchmark for the tenant improvement market that gives the power to make sustainable choices to tenants and designers.

Core & Shell

LEED for Core & Shell aids designers, builders, developers and new building owners in implementing sustainable design for new core and shell construction.

Schools

LEED for Schools recognizes the unique nature of the design and construction of K-12 schools and addresses the specific needs of school spaces.

Retail

LEED for Retail recognizes the unique nature of retail design and construction projects and addresses the specific needs of retail spaces.

Healthcare

LEED for Healthcare promotes sustainable planning, design and construction for high-performance healthcare facilities.

Homes

LEED for Homes promotes the design and construction of high-performance green homes.

Neighborhood Development

LEED for Neighborhood Development integrates the principles of smart growth, urbanism and green building into the first national standard for neighborhood design.

III. Short Spec

MoistureBloc: Master Format section 09 61 00 Flooring Treatments

Part 1 General

System Description

- Moisture vapor reduction system:
  - System guaranteed to reduce moisture vapor by 70% as tested per ASTM F 1869, Standard Practices for Determining Moisture Related Acceptability of Concrete Floors to Receive Moisture Sensitive Finishes. Additionally, this test method is accepted by The World Floor Covering Association, The Resilient Floor Covering Institute, and The Carpet and Rug Institute.
  - Meets South Coast Air Quality Management Board (SQACMD) VOC rule #1113 July 2006-Waterproofing Sealers, Concrete/Masonry.
  - ASTM D 4541-500 psi. Standard Test Method for Pull-Off Strength of Coatings
  - ASTM D 2197-0.5 kgs. Standard Test Method for Adhesion of Organic Coatings
  - ASTM D 2794-10 lbs. Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation
  - ASTM D 2047-Non Slip. Standard Test Method for Static Coefficient of Friction

Quality Assurance:

- Installer Qualifications: Installer must complete Project Conference & Job Survey form.

Warranty:

- Manufacturer's standard warranty

LEED submittals:

- Product data sheet(s), MSDS, obtain manufacturer's LEED certification letter for referenced standard, if applicable.

Part 2 Products:

Manufacture:

- Vexcon Chemicals Inc. 7240 State Road Phila. PA 19135; telephone (888).Vexcon1, fax (215).332.9997, web site vexcon.com, email sales@vexcon.com.

Moisture vapor reduction system:

- Acceptable material(s): MoistureBloc Universal applied in all cases up to a maximum moisture reading of 9# /1000 sq.ft/24 hrs.

- LEED-NC (For New Construction & Major Renovations)

Analysis based on version 2.2-Projects registering after June 26, 2007

MoistureBloc can potentially contribute 6 or more LEED points in the following categories.

- EQ Credit 4.1 Low Emitting Materials: Adhesives & Sealants (1 point)
- EQ Credit 7.1 Thermal Comfort Design (1 point)
- EQ Credit 7.2 Thermal Comfort: Verification (1 point)
- MR Credit 2.1 and 2.2 Construction Waste Management (1 point each)
- MR Credit 5.1 and 5.2 Regional Materials (1 point each)
- ID Innovation in Design (1-4 points)

IV. Indoor Environmental Quality (EQ)

Materials used in buildings can emit harmful air pollutants potentially reducing the health, well being and productivity of building occupants. Project teams can improve indoor environmental quality and provide optimal air quality by incorporating the usage of materials that have low Volatile Organic Compounds (VOC'S)

EQ Credit 4.1:

Low Emitting Materials: Adhesives & Sealants (1 point)

Referenced Standard:

South Coast Air Quality Management District (SCAQMD) rule# 1168. July 2005.

Design Intent:

Reduce the quality of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well being of installers and building occupants.

Requirements:

All adhesives and sealants used on the interior of the building shall comply with the requirements of the referenced standard.

MoistureBloc applied on-site are VOC materials that meet the reference requirements of this section as a sealant. MoistureBloc also meets the more stringent, lower VOC limits of SCAQMD rule#1113 July 2006.

EQ Credit 7.1:

Thermal Comfort Design (1 point)

Referenced Standard:

ASHRAE Standard 55-2004-Thermal Comfort Conditions for Human Occupancy.

Design Intent:

Provide a comfortable thermal environment that supports the productivity and well being of building occupants.

Requirements:

Design HVAC systems and the building envelop to meet the requirements of the referenced standard.

The ANSI/ASHRAE Standard 55-2004, *Thermal Environmental Conditions for Human Occupancy,* addresses several facets of temperatures inside buildings. This standard addresses temperature, thermal radiation, humidity and air speed, along with personal factors such as activity and clothing. Specifications include combinations of indoor thermal environmental factors and personal factors that will produce thermal environmental conditions acceptable to a majority of the occupants within the space.

EQ Credit 7.2:

Thermal Comfort: Verification (1 point)

Referenced Standard:

ASHRAE Standard 55-2004-Thermal Comfort Conditions for Human Occupancy.

Design Intent:

Prove an assessment of a buildings thermal comfort within a period of six to 18 months after occupancy.

Requirements:

Implement a thermal comfort survey of building occupants. The survey should collect anonymous responses about thermal comfort in the building including an assessment of overall satisfaction with thermal performance and identification of thermal comfort related problems. Building owners must agree to develop a corrective plan of action if survey results indicate that more then 20% if occupants are dissatisfied with the thermal comfort of the building. This plan should include measurement of relevant environmental variables in problem areas in accordance with the referenced standard.

A MoistureBloc applied floor will reduce moisture vapor transmission through the concrete flooring. Improvement in building occupants comfort level can be achieved by contributing to the reduction of humidity levels, the potential for mold growth and odor development.

In January of 1997, Vexcon submitted to Troy Chemical, MoistureBloc analogs for the following bacterial evaluations:

Report # M97-029;

Antibacterial stability test. Test procedures, Troy standard test, 1.3 B.
Mildew Resistance test, Troy standard test, 1.4 B

These protocols use portions of or methods of;

ASTM D 5590 Standard Test Method for Determining the Resistance of Paint Films and Related Coatings to Fungal Defacement

ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings

ASTM E 1428 Standard Test Method for Evaluating the Performance of Antimicrobials in or on Polymeric Solids Against Staining by Stretoverticillium reticulum

Materials:

Bacteria:
Mixed bacteria inoculum of:
***Bacillus sbutilis* (ATCC # 6051)**
***Enterobacter aerogenes* (ATCC # 13048)**
***Escherichia coli* (ATCC # 11229**
***Pseudomonas aeruginosa* (ATCC # 10145)**

Mildew:
***Alternaria alternata* (ATCC # 20084)**
***Aierepbasodoi* (ATCC # 9348)**
***Penicillium sp*. (ATCC 12667)**

Results of Vexcon MoistureBloc passed both tests with no growth.

V. Other Possible LEED Points:

The above referenced sections are intended as suggestions only. The ultimate responsibility for compliance is that of the project teams. The team may want to consider the use of an accredited LEED professional to assist in interpretation, design and documentation of all potential credits. An added benefit of utilizing a LEED professional would be the addition of 1 LEED point per ID Credit 2: LEED Accredited Professional.

MR Credit 2.1 and 2.2 Construction Waste Management (1 point each)

Design Intent:

Divert construction and demolition debris from disposal in landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.

Requirements:

Recycle and/or salvage at least 50%/75% of non hazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or co-mingled. Calculations can be done by weight or volume, but must be consistent throughout.

MoistureBloc is supplied in 5-gallon plastic containers which can be diverted from landfill disposal by recycling.

The 5-gallon pail is a Type 2 high-density polyethylene (HDPE) pail. This type of container is a preferred plastic for recycling. The recycle code is molded into the container bottom, and the symbol is easily visible for sorting purposes. The metal handle is also recyclable.

MR Credit 5.1 and 5.2 Regional Materials (1 point each)

Centrally located between New-England and the mid south-eastern corridor protect teams can earn addition points if the project is within a 500 mile radius of our manufacturing plant.

ID Innovation in Design (1-4 points)

MoistureBloc meets ASTM C 309, Standard Test Method for Curing Concrete. With the added benefit of curing freshly placed concrete MositureBloc;

- **Saves time and cost.**
- **Complements fast track construction schedules while avoiding potential excess moisture vapor.**
- **Promotes concrete reaching its maximum long term performance and life expediency.**
- **A single product system insures complete product compatibility and performance.**
- **Reduces consumption and removal of other curing materials**

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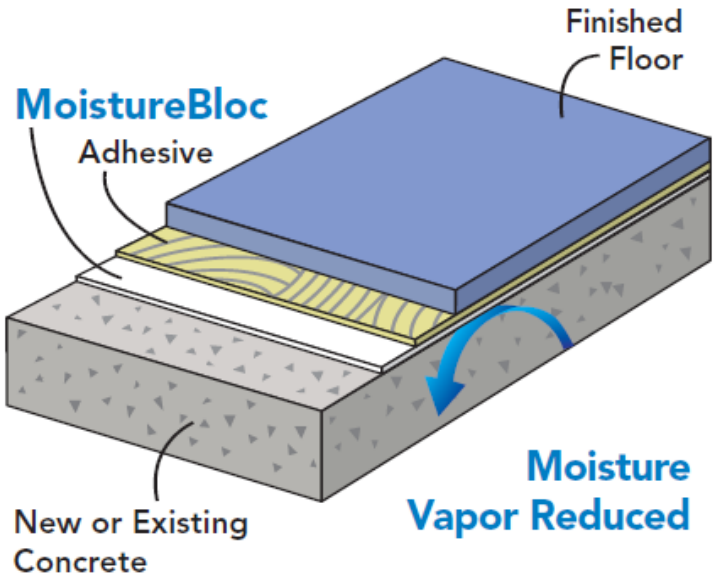
Protect floor coverings from the ground up

Today's fast-paced construction demands products that are easy to use while effectively preventing and solving concrete slab moisture issues. With MoistureBloc, floor covering can be economically installed without costly delays. MoistureBloc will remediate moisture vapor and pH issues on existing floors and properly cure new/fresh concrete, preventing flooring failures due to moisture vapor emissions as high as 27 pounds.

- Guaranteed to reduce moisture vapor by 75%
- Easy application and surface preparation
- Low installed cost
- Alkali, mold and mildew resistant
- Full floor warranty



VEXCON CHEMICALS, INC.

Concrete solutions for architects, engineers and builders since 1974

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MoistureBloc

Three easy steps to prevent or solve moisture vapor emission problems

1 Prepare the Surface

Adhesive Remover

MoistureBloc Adhesive Remover
Strips all types of adhesives from concrete floors with relative ease

MoistureBloc Stripper
Eco-friendly heavy bodied stripper designed for the cleaning and removal of coatings and other residues from concrete surfaces

Cleaning

MoistureBloc Floor Cleaner
Eco-friendly general all purpose surface preparation and maintenance cleaner

Meeting Your Installation Needs

MoistureBloc products are specially formulated to work together to meet the installation needs of almost any flooring project.

Customer Service & Technical Support

Get the answers and information you need from our experienced sales, technical support and customer service professionals. We can assist you with product recommendation, specification support and fast job site answers. Our customer service specialists can also expedite samples or literature, and keep you current with our status, delivery, and product availability. We're here for you. Call us toll-free 888-VEXCON1.

2 Select and Install

MoistureBloc One Step

- Reduces moisture vapor readings ranging from 9 to under 3 lbs.
- Very low per square foot cost
- Easy one coat application
- Adhesive ready in 12 hours
- Minimal odor

MoistureBloc Emulsion Vapor Reduction System

- Reduces moisture vapor readings ranging from 15 to under 3 lbs.
- Minimal odor/water base
- Can be used with reactive and non reactive adhesives

MoistureBloc Vapor Reduction System FT

- Reduces moisture vapor readings ranging from 15 to under 3 lbs.
- Adhesive ready in 18 hours
- Low odor/solvent base
- Can be used with reactive and non reactive adhesives

MoistureBloc MX & MX WB

- Reduces moisture vapor readings up to 27 lbs. to under 3 lbs.
- Maximum protection
- Cost effective
- Can be used with reactive and non reactive adhesives

MoistureBloc Universal

- Reduces moisture vapor readings ranging from 8 to under 3 lbs.
- Can be used with reactive and non reactive adhesives
- Adhesive ready within 12 hours
- Easy one coat application
- Minimal odor
- Interior or exterior
- Meets California VOC regulations
- LEED points

3 Floor Repair and Restoration

MoistureBloc Surface Bond

Improves the bond between a MoistureBloc treated surface and leveling compound

MoistureBloc SLU

High strength and fast setting self leveling underlayment designed to level and smooth interior substrates prior to installation of finished flooring

MoistureBloc Patch

Self curing advanced polymer modified high strength leveling compound for patching and restoration of interior concrete floor surface defects

MoistureBloc Flexible Joint Sealant

Breathable two part epoxy flexible joint filler designed for fast-track filling and sealing of moving joints

Moisture Vapor Level	MoistureBloc Solution	
	Non-Reactive Adhesives	Reactive Adhesives
Low Up to 8–9 lbs.	• MoistureBloc Emulsion One Step	• MoistureBloc Universal
Medium Up to 12–15 lbs.	• MoistureBloc Emulsion (water based) *or* • MoistureBloc Fast Track (FT) (solvent based)	• MoistureBloc Emulsion 3 (water based) *or* • MoistureBloc Fast Track (FT) 3 (solvent based)
High Up to 27 lbs.	• MoistureBloc MX WB (water based) *or* • MoistureBloc MX (solvent based)	• MoistureBloc MX WB (water based) *or* • MoistureBloc MX (solvent based)

VEXCON CHEMICALS, INC.

Vexcon products meet the toughest current environmental and performance standards in the market today. All Vexcon products comply with federal EPA and state VOC regulations as well as numerous industry standards and specifications. Consult specific product data sheet for more information. Learn more at vexcon.com/moisturebloc

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As the awareness of the long term benefits of green sustainable building become more popular the demand for high performing building material that have minimal impact on the environment will continue to grow exponentially. Vexcon is committed to producing products that are safe for all users, building occupants and the environment. We welcome your suggestions and comments.

For questions contact us at:

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