

LEED Credits Impacted by MicroGuard® Coatings

By

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MicroGuard® is a clear, inorganic and siloxane sealant that forms a hard durable, chemical-resistant 6 micron thick layer of glass-like protection. MicroGuard® protects non-ferrous metals, HVAC systems, concrete floors, walls and other masonry surfaces, ceramic tile and grout, terrazzo, decorative stone, barrel tile and pre-finished roof surfaces.

Leadership in Energy and Environmental Design

The sustainability guidelines adopted by the US Green Building Council in the formation of the Leadership in Energy and Environmental Design (LEED) program encourages the use of products that promote the efficient use of energy, environmental stewardship and economic prosperity in business and residential applications. Because LEED does not promote products or services it is often necessary to review reputable third party research and assess the effectiveness of a product for its application to LEED projects.

The findings from research studies conducted by Florida Power and Light, Auburn University, USEPA, numerous ASTM methodologies and laboratory reports were reviewed to assess the contribution of MicroGuard® to LEED credits. Three LEED rating systems were considered (e.g. New Construction and Major Renovations, Core & Shell and Existing Building) for the impact of MicroGuard® usage. The studies evaluated for this assessment considered various uses and effectiveness of the MicroGuard® product on HVAC systems and surface coatings.

Because of the unique characteristics of each project attempting LEED certification it is difficult to identify the exact effect MicroGuard® use will have on the LEED credit attempted by the contractor or building owner. However, based on the research it appears that the use of MicroGuard® will enhance the achievement of the following LEED credits:

LEED for New Construction and Major Renovation & LEED for Core and Shell

Energy & Atmosphere

Prerequisite 1: Fundamental Commissioning of the Building Energy System

(Note: The reduction of energy consumption through the use of MicroGuard® on HVAC systems will directly affect energy performance which will indirectly impact Prerequisite 1.)

Prerequisite 2: Minimum Energy Performance

(Note: The reduction of energy consumption through the application of MicroGuard® on HVAC systems will directly affect energy performance and impact Prerequisite 2.)

Credit 1: Optimize Energy Efficiency Performance

(Note: The optimization of energy performance through the application of MicroGuard® on HVAC systems will directly impact Credit 2.)

Indoor Environmental Quality

Prerequisite 1: Minimum Indoor Air Quality Performance

(Note: The IAQ performance will be optimized by the HVAC system and directly affect energy consumption. Through the application of MicroGuard® on HVAC systems, meeting the credit requirement will require less energy consumption and assist in complying with EA Prerequisite 1.)

LEED for Existing Building Operation & Maintenance

Energy & Atmosphere

Prerequisite 2: Minimum Energy Performance

(Note: The reduction of energy consumption through the application of MicroGuard® on HVAC systems will directly affect energy performance and impact Prerequisite 2.)

Credit 1: Optimize Energy Efficiency Performance

(Note: The optimization of energy performance through the application of MicroGuard® on HVAC systems will directly impact Energy Efficiency Performance and Credit 2.)

Indoor Environmental Quality

Prerequisite 1: Minimum Indoor Air Quality Performance

(Note: The IAQ performance will be optimized by the HVAC system and directly affect energy consumption. Through the application of MicroGuard® on the HVAC system meeting the credit requirement will require less energy consumption and assist in complying with EA Prerequisites and Credits.)

Prerequisite 3: Green Cleaning Policy

Credit 3.1 Green Cleaning—High-Performance Cleaning Program

Credit 3.2 Green Cleaning—Custodial Effectiveness Assessment

Credit 3.3 Green Cleaning—Purchase of Sustainable Cleaning Products and Materials

Credit 3.4 Green Cleaning—Sustainable Cleaning Equipment

Credit 3.5 Green Cleaning—Indoor Chemical and Pollutant Source Control

(Note: The use of MicroGuard® as a coating on masonry surfaces (e.g. concrete floors, walls, etc) various flooring types, decorative stone, barrel tile, pre-finished roofs and metal surfaces will lengthen the life of the coated surface, eliminated the need for cleaning with harsh chemicals (if required) and reduce the cleaning frequency. This will both directly and indirectly impact compliance with the IEQ Prerequisite and Credits attempted for building certification.)

Summary

Because of the unique characteristics of each project attempting LEED certification is difficult to identify the exact effect MicroGuard® use will have on the LEED credit and where the affect will occur. However, based on the research it appears that the use of MicroGuard® will assist in attaining points through reduced energy consumption by use on building mechanical systems and through the protective coating properties provided that enhances the use of green cleaning products.

Some of the applications of MicroGuard® not visited by this review are corrosion reduction, friction reduction/laminar flow enhancement in hydraulic tubing and abrasion resistance applications. Many other applications may exist but will be project specific and beyond the scope of this review for LEED application.

References

- EPA Energy Study
- CDH Energy Corporation Study
- Florida Power & Light Energy Study
- Auburn University Laminar Flow Study
- Southern California Edison Energy Credits
- Texas University Infrared Heat Loss Study – Coated/Uncoated Condensing Coils
- University of Hawaii Corrosion Study – Coated/Uncoated Aluminium

ASTM Testing:

- B117 – Salt Chamber Test
- G-21 – Mold Growth Test
- D-2047-96 – Coefficient of Friction Test
- 4060 – Tabor Abrasion Test