



# Carboline Fireproofing Products

Credit Contributions for Leadership in Energy and Environmental Design

(LEED v2009)



## Background

Carboline fireproofing products can contribute towards points under the LEED Green Building Rating System. The LEED Green Building Rating System does not certify construction products and materials. Instead, entire projects are certified on the basis of the environmental impact of the building materials employed and the overall building design. This document outlines Carboline's contributions towards available LEED credits.

## Energy and Atmosphere

### EA Credit 1: Optimize Energy Performance (1-19 points)

**Note:** This credit requires that an energy analysis be done that includes all energy costs within and associated with the building project. Points for this credit are assigned from 1-19 based on the percentage of energy cost savings the building materials or systems will provide

**Intent:** Achieve increasing levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use

**Requirements:** Select one of the compliance path options in compliance with EA Prerequisite 2 described in the LEED 2009 (page 35). Demonstrate a percentage improvement in the proposed building performance rating compared to the baseline building

**Carboline Contributions:** Carboline wet mix materials provide thermal resistance and noise reduction coefficient values. This will reduce the amount of energy needed for climate control and reduce any added materials needed for soundproofing. This credit only applies to Carboline materials when used within the building envelope

**Carboline Products That Contribute:** Pyrolite® 15, Pyrolite® 22, Southwest™ Type 5 GP, Southwest™ Type 5 MD, Southwest™ Type 5 EF, Southwest™ Type 1 XR, Southwest™ Type 7 GP, Southwest™ Type 7 HD, Southwest™ Type 7 TB, Southwest™ Type DK 3 Spattercoat, Pyrocrete® 239, Pyrocrete® 40, Pyrocrete® 240 HY, Pyrocrete® 241, Pyrocrete® 241 HD, Hardcoat 4500

## Materials and Resources

### MR Credit 1.1: Building Reuse: Maintain Existing Walls, Roofs and Floors (1-3 points)

**Note:** This credit is applicable when installing Carboline fireproofing materials to existing building rehab projects or when upgrading the fire rating of existing structures

**Intent:** Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transportation

**Requirements:** Maintain existing building structure (based on surface area), (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing materials). The minimum percentage building reuse for each point threshold is as follows: 55%: 1 point, 75%: 2 points, 95%: 3 points.

**Potential Technologies and Strategies:** Remove elements that pose contamination risk to the building occupants and upgrade components that would improve energy and water efficiency

**Carboline Contributions:** Carboline wet mix and intumescent materials are utilized for retrofit and rehab construction. These materials provide fire resistance ratings to unprotected structural members which will bring the existing building up to code. This will eliminate the need to replace the structural elements that were not code compliant

**Carboline Products That Contribute:** Pyrolite® 15, Pyrolite® 22, Southwest™ Type 5 GP, Southwest™ Type 5 MD, Southwest™ Type 5 EF, Southwest™ Type 1 XR, Southwest™ Type 7 GP, Southwest™ Type 7 HD, Southwest™ Type 7 TB, Southwest™ Type DK 3 Spattercoat, A/D Type TC-55, Pyroprime 775, Pyrocrete® 239, Pyrocrete® 40, Pyrocrete® 240 HY, Pyrocrete® 241, Pyrocrete® 241 HD, Hardcoat 4500, Firefilm® III, Firefilm® III C, Thermo-Sorb®, Thermo-Sorb® VOC, Nullifire® S605, Nullifire® S606, Thermo-Lag® 3000, Thermo-Lag E100

### MR Credit 1.2: Building Reuse: Maintain Interior Nonstructural Elements (1 point in Addition to MR Credit 1.1)

**Note:** This credit is applicable when installing Carboline fireproofing materials to existing building rehab projects or when upgrading the fire rating of existing structures

**Intent:** Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transportation

**Requirements:** Use existing interior nonstructural elements (e.g., interior walls, doors, floor coverings and ceiling systems) in at least 50% (by area) of the completed building, including additions

**Potential Technologies and Strategies:** Consider reusing existing building structures, envelopes and interior nonstructural elements. Remove elements that pose contamination risk to the building occupants and upgrade components that would improve energy and water efficiency

**Carboline Contributions:** Carboline wet mix and intumescent materials are utilized for retrofit and rehab construction. These materials provide fire resistance ratings to unprotected structural members which will bring the existing building up to code. This will eliminate the need to replace the structural elements that were not code compliant

**Carboline Products That Contribute:** Pyrolite® 15, Pyrolite® 22, Southwest™ Type 5 GP, Southwest™ Type 5 MD, Southwest™ Type 5 EF, Southwest™ Type 1 XR, Southwest™ Type 7 GP, Southwest™ Type 7 HD, Southwest™ Type 7 TB, Southwest™ Type DK 3 Spattercoat, A/D Type TC-55, Pyroprime 775, Pyrocrete® 239, Pyrocrete® 40, Pyrocrete® 240 HY, Pyrocrete® 241, Pyrocrete® 241 HD, Hardcoat 4500, Firefilm® III, Firefilm® III C, Thermo-Sorb®, Thermo-Sorb® VOC, Nullifire® S605, Nullifire® S606, Thermo-Lag® 3000, Thermo-Lag E100

### MR Credit 2: Construction Waste Management (1-2 points)

**Intent:** Divert construction, demolition and land clearing debris from landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to the appropriate sites

**Requirements:** Recycle and/or salvage at least 50% of non-hazardous construction and demolition debris. Develop and implement a construction waste management plan that identifies the materials to be diverted from disposal and what materials will be sorted on-site or commingled. Excavated soil and land clearing debris do not contribute to this credit. Calculations can be done by weight or volume, but must be consistent throughout. The minimum percentage debris to be recycled or salvaged for each point threshold is as follows: 50%: 1 point, 75%: 2 points

**Potential Technologies and Strategies:** Establish goals for diversion from disposals in landfills and incinerators and adopt a construction waste management plan to achieve these goals

**Carboline Contributions:** Carboline products are supplied in either paper bags, plastic pails or metal pails which can be recycled. The pallets used for shipment are also recyclable

**Carboline Products That Contribute:** Pyrolite® 15, Pyrolite® 22, Southwest™ Type 5 GP, Southwest™ Type 5 MD, Southwest™ Type 5 EF, Southwest™ Type 1 XR, Southwest™ Type 7 GP, Southwest™ Type 7 HD, Southwest™ Type 7 TB, Southwest™ Type DK 3 Spattercoat, A/D Type TC-55, Pyroprime 775, Pyrocrete® 239, Pyrocrete® 40, Pyrocrete® 240 HY, Pyrocrete® 241, Pyrocrete® 241 HD, Hardcoat 4500, Firefilm® III, Firefilm® III C, Thermo-Sorb®, Thermo-Sorb® VOC, Nullifire® S605, Nullifire® S606, Thermo-Lag® 3000, Thermo-Lag E100

**MR Credit 4: Recycled Content: (1-2 points)**

**Intent:** Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials

**Requirements:** Use materials with recycled content such that the sum of post-consumer recycled content plus one half of the pre-consumer content constitutes at least 10% or 20% (based on cost) of the total value of the materials in the project. The minimum percentage materials recycled for each point threshold is as follows: 10%: 1 point, 20%: 2 points

- The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of the assembly to determine the recycled content
- Post-consumer material is defined as waste material generated by households or by commercial, industrial and institutional facilities in their role as end users of the product which can no longer be used for its intended purpose
- Pre-consumer material is defined as material diverted from a waste stream during the manufacturing process. Excluded is the reutilization of materials such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it

**Potential Technologies and Strategies:** Establish a project goal for recycled content and identify material suppliers that can achieve this goal. During construction ensure that the specified recycled content materials are installed

**Carboline Contributions:** Several Carboline products are manufactured with post-consumer recycled materials

**Carboline Products That Contribute:** Southwest™ Type 5 GP (10% recycled content), Southwest™ Type 5 MD (10% recycled content), Southwest™ Type 5 EF (10% recycled content)

**MR Credit 5: Regional Materials: (1-2 points)**

**Intent:** Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation

**Requirements:** Use building materials that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% or 20% (based on cost) of the total materials value. If only a fraction of a product or material is extracted, harvested, recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value. The minimum percentage regional materials for each point threshold is as follows: 10%: 1 point, 20%: 2 points

**Potential Technologies and Strategies:** Establish a project goal for locally sourced materials and identify materials and material suppliers that can achieve this goal. During construction, ensure that the specified local products are installed and quantify the total percentage of local materials installed

**Carboline Contributions:** Carboline has strategically located manufacturing facilities. See map for manufacturing facility locations and the required 500 mile radius to earn this credit

**Carboline Products That Contribute:**

**Products manufactured in Louisa, VA:**

Pyrolite® 15, Pyrolite® 22, Southwest™ Type 5 GP, Southwest™ Type 5 MD, Southwest™ Type 5 EF, Southwest™ Type 1 XR , Southwest™ Type 7 GP, Southwest™ Type 7 HD, Southwest™ Type 7 TB, Southwest™ Type DK 3 Spattercoat , Pyrocrete® 239, Pyrocrete® 40, Pyrocrete® 240 HY , Pyrocrete® 241, Pyrocrete® 241 HD, Hardcoat 4500

**Products manufactured in Green Bay, WI:** Pyroprime 775

**Products manufactured in Dayton, NV:** Thermo-Lag 3000, Thermo-Lag E100

**Products manufactured in Toronto, ON:**

Firefilm® III, Firefilm® III C, A/D Type TC-55, Southwest™ Type 5 GP, Southwest™ Type 5 MD

**Products manufactured in Lake Charles, LA:**

Thermo-Sorb®, Thermo-Sorb® VOC, Nullifire® S605, Nullifire® S606, Thermo-Lag® 3000, Thermo-Lag E100



\*Manufacturing Locations: Toronto, ON • Louisa, VA • Lake Charles, LA • Dayton, NV • Green Bay, WI

## Indoor Environmental Quality

### EQ Credit 4.1: Low Emitting Materials: Adhesives and Sealants (1 point)

**Intent:** Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well being of installers and occupants.

**Requirements:** All adhesives and sealants used on the interior of the building (defined as the inside of the weatherproofing system and applied onsite) shall comply with the requirements of the following reference standards as outlined on page 66 of the LEED 2009.

**Potential Technologies and Strategies:** Specify low VOC materials in construction documents. Ensure that VOC limits are clearly stated in each section of the specification where adhesives and sealants are addressed.

**Carboline Contributions:** Carboline's Pyroprime 775 and A/D Type TC-55 are VOC compliant and meet the standards set forth by the South Coast Air Quality Management District Rule #1168.

**Carboline Products That Contribute:** Pyroprime 775, A/D Type TC-55

### EQ Credit 4.2: Low Emitting Materials: Paints and Coatings (1 point)

**Intent:** Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well being of installers and occupants

**Requirements:** Paints and coatings used on the interior of the building (defined as inside of the weatherproofing system and applied onsite) shall comply with the following criteria:

- Architectural paints, coatings and primers applied to interior walls and ceilings: do not exceed the VOC limits established in Green Seal Standard GS-11, Paints, First Edition, May 20, 1993:
  - \*Flats: 50 g/l
  - \*Non-Flats: 150 g/l
- Anti-corrosive and ant-rust paints applied to interior ferrous metal substrates must not exceed the VOC content limit of 250 g/l established in Green Seal Standard GS-03, Anti-Corrosive Paints, 2<sup>nd</sup> Edition, January 7, 1997
- Clear wood finishes, floor coatings, stains, primers, and shellacs applied to interior elements must not exceed the VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004.

The SCAQMD (South Coast Air Quality Management District) has been the nation's most stringent VOC regulating body for field applied paint, coatings and fireproofing materials for many years. These rules were originally designed to help reduce the air pollution levels in the Greater Los Angeles Area.

Since the organization's development, the SCAQMD regulations have been adopted as the nation's "LEED Platinum and LEED Gold standard" for VOC regulations and have been used to satisfy LEED requirements for commercial construction projects throughout the United States. Products that meets these VOC requirements, contribute toward a projects' LEED Certified, Gold, Silver or Platinum level.

As there is no fireproofing category in the LEED 2009, the SCAQMD regulations are commonly used to designate specialty coatings classifications for LEED applications.

The SCAQMD (Rule #1113) outlines the current VOC limits as of January 1, 2014 for several categories of specialty coatings as follows:

Specialty Coating Type	Current VOC Limit (g/l)
Concrete surface retarders	50
Driveway Sealers	50
Faux finishing coatings	200
<b>Fireproofing coatings</b>	<b>150</b>
Graphic art coatings	150
Mastic coatings	100
Metallic pigmented coatings	150
Anti-graffiti coatings	50

Intumescent coatings are considered part of the fireproofing package for commercial building projects. These coatings are used and applied to satisfy life safety requirements for commercial buildings. They are properly classified as fireproofing coatings, not paint coatings.

**Potential Technologies and Strategies:** Specify low VOC materials in construction documents. Ensure that VOC limits are clearly stated in each section of the specification where paints and coatings are addressed.

**Carboline Contributions:** Carboline’s Firefilm® and Thermo-Lag® and Thermo-Sorb® VOC products all meet the required VOC limits for this credit.

**Carboline Products That Contribute:** Firefilm® III, Firefilm® III C, Thermo-Sorb® VOC, Thermo-Lag® 3000, Thermo-Lag E100

**NOTE:** Carboline also has many primers and topcoats that meet the requirements for this credit. Consult your Carboline Technical Sales Representative for further information on what primer and topcoat systems should be use.