LOW CARBON SOLUTIONS

SHERWIN WILLIAMS®

COATING SOLUTIONS FOR SUSTAINABLE DESIGN

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COATING SOLUTIONS FOR SUSTAINABLE DESIGN

LOW CARBON SOLUTIONS

The Sherwin-Williams Company has a long history of innovation supporting sustainable building design while safeguarding human lives and protecting valuable assets. From a variety of environmentally-friendly protective coating solutions to cutting-edge software for fire protection design, our broad portfolio of products and services helps designers, architects and specifiers achieve credits, and ultimately comply with sustainable building certification programmes such as LEED and BREEAM.

Sustainable buildings aim to reduce impact on the environment and help protect natural resources due to their design and construction practices. Sherwin-Williams has been focused on contributing to our customers' sustainability goals in a variety of ways, including a broad portfolio of high-performance primer and topcoat systems for internal walls, floors and ceilings that help maintain good air quality for building residents and users. These coatings feature low or no volatile organic compound (VOC) content and are free of toxic and carcinogenic ingredients.

Backed by world-class passive fire protection systems, and analytical skills that include calculating the carbon equivalent of our products for coatings projects, the Sherwin-Williams team offers a comprehensive array of services to advance customers' sustainability goals.

HIGHLIGHTS

- Long track record of supporting architects and owners in green building construction
- Quick, customised carbon equivalent calculations
- Independently verified EPDs
- Emission testing
- LEED and BREEAM product attestations
- In-house sustainability expertise to guide customer projects
- Expert team of multi-discipline engineers for fire engineering support

GREEN SOLUTIONS

Innovative, environmentally-friendly products to support LEED and BREEAM projects:

- Corrosion-resistant primers to protect structural steel
- Passive fire protection with comprehensive approvals and certifications for water-based, solvent-based, epoxy-based and reactive MMA (Methyl MethAcrylate) technology
- Decorative topcoats, including epoxy, polyurethane and acrylic with water-based options
- Monolithic industrial and commercial flooring solutions for long term performance
- Flooring formulations which include natural vegetable oils

OVERVIEW OF CERTIFICATION PROGRAMMES AND METHODS

There are more than 100 sustainability certification systems globally – including the leading LEED and BREEAM programmes, as well as others such as DGNB, Green Globes, HQE and Green Star. In general, such certifications are not product based but focused on the whole life cycle of the building. However, individual products can contribute towards the credits needed to obtain these certifications.

Sherwin-Williams coating solutions help contribute towards the achievement of credits and ultimately comply with certification programmes like LEED and BREEAM. The impact of each product is described and quantified in our Environmental Product Declarations (EPD).

EMISSION TESTING

Sherwin-Williams works exclusively with independently verified laboratories to confirm the total emissions from our products. This information can then be used to validate compliance to specific building certification schemes, allowing our products to contribute towards credits and ultimately support a clean, breathable environment for the structure's occupants.

We are continually expanding our testing in this area, so please contact us directly for our latest attestations and to support you with a compliant specification for your project.

LEED (LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN)

LEED is the largest and most recognised global standard, administered by the U.S. Green Building Council with a 100-point system based on 4 tiers (Certified, Silver, Gold and Platinum). The currently used certification versions are LEED V4 and V4.1.

Sherwin-Williams has obtained specific product attestations for its protective coatings that contribute towards the emission credits, EPDs, and key areas within the LEED standard (materials and resources, indoor environmental air quality, and sustainable sites).

LEED rating levels	
Certified	40-49 points
Silver	50-59 points
Gold	60-79 points
Platinium	80+ points

MATERIALS AND RESOURCES

- Encourage the use of products having life cycle information, as well as environmentally, economically and socially preferable life cycle impacts.
- Minimise embodied energy and other impacts associated with the extraction, processing, transport, maintenance and disposal of building materials.
- Up to two credits are provided for selecting installed products that have an environmental impact assessment. Externally validated documents are 1½ times more valuable.

INDOOR ENVIRONMENTAL AIR QUALITY (V4.1)

- Reduce concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment.
- At least 75% of all paints and coatings, by volume or surface area, must meet the VOC emissions criteria, and 100% must meet the VOC content criteria.
- Includes paints and coatings applied on site or to be used on the interior of the building.
- Off site and 'non-interior' would typically not contribute.

SUSTAINABLE SITES

- Minimise the effect on microclimates and human and wildlife habitats by reducing heat islands.

BREEAM (BUILDING RESEARCH ESTABLISHMENT ENVIRONMENTAL ASSESSMENT METHOD)

BREEAM is a leading global green building rating system that applies to a wide range of project types (from new build to retrofit) and is based on performance assessments against nine categories and benchmark criteria. The method is widely recognised in 60 countries.

A wide selection of Sherwin-Williams solutions can contribute to achieving credits in order to obtain the BREEAM certification. In some cases, our passive fire protection coatings helped projects achieve the highest ("Outstanding") BREEAM rating.

BREEAM rating levels	
Good	≥ 45% score
Very good	≥ 55% score
Excellent	≥ 70% score
Outstanding	≥ 85% score

HEALTH AND WELL BEING

- Focused on HEA 02 indoor air quality.
- Sets maximum emission limits of formaldehyde, TVOC, Category 1A and 1B carcinogens.
- Must be externally verified by testing such as CDPH Standard Method v1.1.
- Applies to products exposed to the interior environment (typically, wall and floor coatings).

MATERIALS

- MAT 02 environmental impacts from construction products.
- Encourage reliable data on the impact of construction products by rewarding the specification of products with environmental products declarations.
- An 'EPD compliant with BREEAM' is an independently verified environmental label according to the requirements of ISO 14025.

CALCULATING THE CARBON EQUIVALENT ON YOUR PROJECT?

INTUMESCENT FIRE PROTECTION

Carbon equivalent (kg CO_2e) helps specifiers, focused on reducing the carbon impact, make informed choices during the design stage, and select products that directly contribute to sustainable building design.

A specialised team of Sherwin-Williams structural engineers offers this important service to help calculate and optimise the carbon content (output) of customers' fire protection requirements, providing designers with alternative choices when it comes to design and product selections.

HIGH PERFORMANCE FLOORING SPECIFICATION

Sherwin-Williams high performance resin flooring range features seamless finishes suitable for all industrial sectors.

These function as long term ergonomic solutions with very low VOC content verified by EPD's and standards such as Indoor Air Comfort Gold. This certified performance can add points to international green building rating assessments and demonstrates a brand focus on quality and contribution to a healthy indoor environment.

Our flooring team provides assistance with product and specification guidance and site presence to ensure customer requirements are met and product performance is appropriate for a project. The team uses our VOC Calculator system to provide embodied carbon information on flooring materials as required. For Architects and specifiers details on flooring systems can be supplied directly or via RIBA NBS Chorus product selection and RIBA CPD accredited presentations are offered either face to face or online.

FIRE ENGINEERING AND ESTIMATING TEAM (FEET)

Sherwin-Williams' team of multi-discipline mechanical and structural engineers leverages our state-of-the-art, innovative FIRETEX® Design Estimator (FDE) software to provide complex fire calculations, for both cellulosic and hydrocarbon fire preparedness, as early as during the conceptual design stage. For instance, we can quickly calculate the exact quantity of thin-film intumescent coating needed to provide fire protection to a specifically sized steel section – down to an individual beam. Combined steel and fire optimised designs offer the most cost effective, targeted and value engineered solutions to meet customer's requirements.

Our FDE software has been updated to include CO_2 equivalent values for our FIRETEX® range of materials with approved primers and topcoats. In addition, the software can design fire protection thickness and volumes at the click of a button, giving accurate estimates for a vast range of steel members, including the latest design processes for cellular beams. The software has the capacity to deal with any type of steel section including both rolled and plate profiles, in addition to designs based upon the engineer's specified critical temperatures. Structural fire engineering to British Standard (BS) and Eurocode (EN) is also available.

ENVIRONMENTAL PRODUCT DECLARATION (EPD)

An independently verified Environmental Product Declaration document communicates comparable and transparent information about the life cycle environmental impact of products.

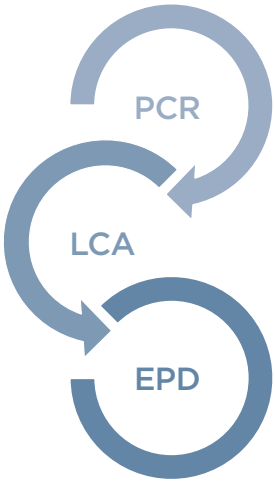
Compliant EPDs allow specifiers, architects and designers to select products that will help contribute additional credits to achieve a green building certification.

Our EPDs have been independently verified by NSF International (a trusted third-party accrediting body) in accordance with ISO 21930 and ISO 14025, and which can count towards the credits needed to obtain sustainability certifications. The NSF verification creates higher value for LEED accreditations and is mandatory for BREEAM certifications.

Unlike many EPDs which only cover "cradle to gate," the life cycle assessments (LCA) we use to generate the data are full "cradle-to-grave" assessments. This provides a more holistic approach that represents the entire process, from raw material extraction, application, ongoing maintenance to end-of-life.

Each individual EPD output is the quantity of product needed for the building life in kilogrammes and the resulting Global Warming Potential (GWP) in kilogrammes per carbon equivalent (kg CO_2e) for this product. See the key products listed in the tables that follow.

HOW DO YOU DEVELOP AN EPD?



Develop Product Category Rules **(PCR)**

Utilise the PCR to conduct a Life Cycle Assessment **(LCA)**

Use the template in the PCR and results of the LCA to create the **EPD**

Sherwin-Williams also uses an ACA Architectural Coating PCR for the development of EPDs for corrosion protection and passive fire protection systems.

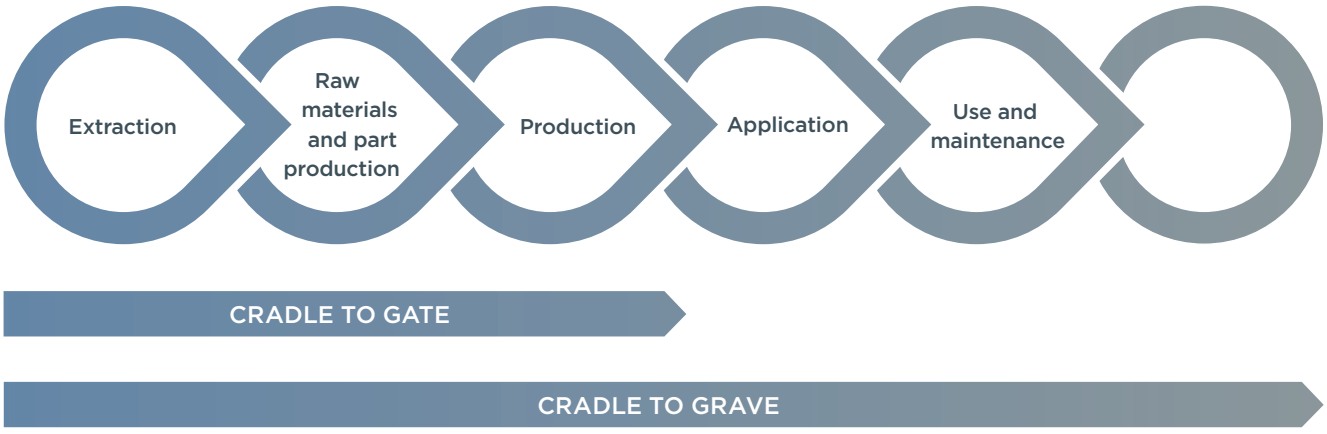
Protective products	Type	GWP Inc. Bio Carb (kg CO_2e) per kg (A/B)	GWP Inc. Bio Carb (kg CO_2e) per litre (kg x density)
FIRETEX® FX2000 series	Solvent-based intumescent	2.66	3.51
FIRETEX® FX5000 series	Water-based intumescent	2.00	2.80
FIRETEX® FX6002	MMA-based intumescent	3.34	4.91
FIRETEX® FX9500	Epoxy-based intumescent	3.89	5.30
FIRETEX® M72	Solvent-based intumescent repair	4.21	5.93
FIRETEX® M71V2	Acrylic topcoat	4.28	5.36
Macropoxy™ 400	Epoxy primer	3.39	5.32
Macropoxy™ 646	Epoxy tintable primer finish	4.09	6.34
Dura-Plate™ 301W	Surface-tolerant epoxy primer	5.05	6.57
Acrolon™ 7300	Polyurethane topcoat	4.63	6.85
Sher-Cryl™ M770	Water-based topcoat	2.96	3.46

Flooring products	Type	GWP Inc. Bio Carb (kg CO_2e) per kg (Mixed)
FasTop® Multi TG69	Polyurethane cement floor screed	1.19
FasTop® Multi RS69	Polyurethane cement resin rich floor screed	1.95
FasTop® Multi DP	Polyurethane cement floor screed for aggregate scatter	2.09
FasTop® Multi SL45	Polyurethane cement self levelling floor screed	2.19
FasTop® Multi SL23	Polyurethane cement self levelling floor screed	2.32
FasTop® Multi WR	Polyurethane cement coving screed	1.72
FasTop® Multi T150	Polyurethane cement coating	3.34
FasTop® Multi Primer	Polyurethane cement primer	3.53
SofTop® SD	Polyurethane self levelling floor membrane	4.71
SofTop® SLR	Polyurethane flexible self levelling floor	3.75
SofTop® SLR Flex	Polyurethane enhanced flexible self levelling floor	3.54
Resupen™ WB Colour	Polyurethane water based floor/wall coating	3.74

CRADLE TO GATE vs CRADLE TO GRAVE?

The 'Cradle to Gate' approach covers the potential environmental impact from raw material extraction to production of the finished product.

'Cradle to Grave' expands the investigation to cover extraction through to end-of-life management as detailed on the diagram below.



CONTINUING GREEN EDUCATION AND TRAINING

We have created a series of RIBA CPD accredited presentations available to be shared in person, at your premises, or through a series of webinars.

To book one of our CPD virtual seminars, **click here.**

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Fire engineering and estimation/FIRETEX thickness enquiries:

Tel: +44 (0)1204 556423 Email: feet.support@sherwin.com

FDE FIRETEX® Design Estimator 2.0

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