

MEASURING THE IMPACT OF CARBON AVOIDING SOLUTIONS IN THE CONSTRUCTION INDUSTRY

Sika's cool roofs enable avoided emissions in the use phase of buildings

16% CO₂ reduction

per 1000 m² of roof

200'000 tons of CO₂ avoided

in 50 years, considering the main-selling countries in Europe and Americas.

Business-as-usual Scenario

- Energy used to cool buildings in summer represents a major portion of the overall energy consumption, resulting in high CO₂ emissions.
- As temperatures are increasing and buildings receive higher radiation from the sun, there is a growing demand for cooling energy in buildings.
- The reference scenario is a sample of 1000m² dark roofing membrane e.g., bituminous.



Low Carbon Scenario

- White roofing membranes (cool roofs) are prepared, covered or coated with materials that have special characteristics, which give them the ability to reflect sunlight and repel heat.
- Cool roofs are one of the most effective and easiest solutions to increase the thermal comfort of buildings and reduce cooling costs in hot climate countries with high solar radiation and outdoor temperatures
- Emission savings are created by reducing heat absorption and therefore reducing the cooling demand of buildings.

Capturing Avoided Emissions

Assessment Details

Functional Unit (FU): kg CO₂e/1'000 m² roof in average building in Spain or US

Impact: Spain: 119 ton CO₂e /1'000 m²
US: 135 ton CO₂e /1'000 m²

Approach: 50 years forward-looking

Scope: 2 cases: Spain (Sarnafil TS 77-18SR) and US (Sarnafil S327-18 Energy Smart)

System Boundaries: Use phase of the roof on the building

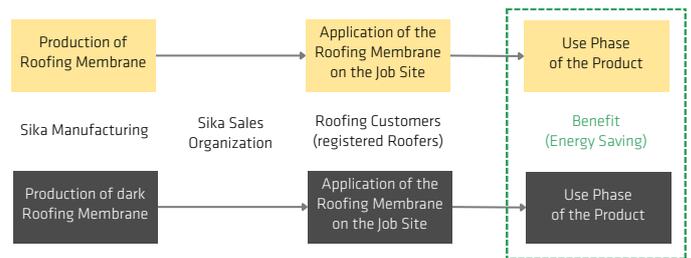
Lifecycle Emissions:

Solution -

Reference Scenario -

How It Works

System Boundaries



The solution helps reduce the Scope 2 emissions of the user (building owner/operator).

Assumption

The embodied carbon of roofing membranes represents less than 1% of the total emissions and has been excluded, with the building's heating and cooling energy dominating the carbon impact over the roof's lifetime. The end-of-life scenarios are similar for the solution and the reference and were also excluded.

- We assessed the potential negative side effects of our solution(s) in terms of environmental trade-offs and sustainability goals beyond GHG impact.
- We assessed and shared the potential rebound effects of our solution(s).

WBCSD Avoided Emission Eligibility Gates

- Gate 1 (Climate Action Credibility)
- Gate 2 (Climate Science Alignment)
- Gate 3 (Contribution Legitimacy)

Environmental and Social Side Effects

Improved occupant comfort, reduction of the need for mechanical air conditioning, reduction of heat island effect on urban areas.



Sika's Avoided Emissions

Scan for more details and further information.

Third-Party Verification

Energy savings were calculated using Sika's ESCR (Energy Savings Calculator Roofing). This tool was developed for Sika by the Zurich University of Applied Sciences and Arts (ZHAW).

Based on the WBCSD Avoided Emissions Framework: [Avoided Emissions](#) | [WBCSD](#)

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