

LEED® v4/V4.1 Heat Island Reduction Credit

To achieve the credit there are 2 options. The following text is reproduced from the LEED V4/4.1 Reference Guide for Building Design and Construction (BD+C).

Option 1 Nonroof and Roof (2 points except Healthcare, 1 point Healthcare)

Meet the following criterion:

$$\frac{\text{Area of Nonroof Measures}}{0.5} + \frac{\text{Area of High Reflectance Roof}}{0.75} + \frac{\text{Area of Vegetated Roof}}{0.75} \geq \text{Total Site Paving Area} + \text{Total Roof Area}$$

Nonroof Measures

Use the existing plant material or install plants that provide shade over paving areas (including playgrounds) on the site within 10 years of planting. Install vegetated planters. Plants must be in place at the time of occupancy and cannot include artificial turf.

Provide shade with structures covered by energy generation systems, such as solar thermal collectors, photovoltaics, and wind turbines.

Provide shade with architectural devices or structures. If the device or structure is a roof, it shall have an aged solar reflectance (SR) value of a least 0.28 as measured in accordance with ANSI/CRRS S100. If the device or structure is not a roof, or it aged solar reflectance information is not available, it shall have at installation an initial SR of a least 0.33 as measured in accordance with ANSI/CRRS S100.

Provide shade with vegetated structures.

Use paving materials with an initial solar reflectance (SR) value of at least 0.33.

Use and open grid pavement system (at least 50% unbound).

High Reflectance Roof Measure

Use roofing materials that have an aged SRI equal to or greater than the values in Table 1. If aged SRI is not available, the roofing material shall have an initial SRI equal to greater than the values in Table 1.

Table 1. Minimum Solar Reflectance Index (SRI) Value, by Roof Slope

	Roof Slope	Initial SRI	Aged SRI
Low sloped roof	≤ 2:12	82	64
Steep sloped roof	> 2:12	39	32

Roof area that consists of functional, usable spaces (such as helipads, recreation courts, and similar amenity areas) may meet the requirements of nonroof measures. Applicable roof area excludes roof area covered by mechanical equipment, solar energy panels, skylights, and any other appurtenances.

Vegetated Roof

Install a vegetated roof using native or adapted plant species.

OR

Option 2. Parking Under Cover (1 point)

Place a minimum of 75% of parking spaces under cover. Any roof used to shade or cover parking must (1) have a 3 year aged SRI of at least 32 (if 3 year aged value information is not available, use materials with an initial SRI if at least 39 at installation. (2) be a vegetated roof, or (3) be covered by energy generation systems, such as solar thermal collectors, photovoltaics, and wind turbines.

The credit calculations must include all existing and new off-street parking spaces that are leased or owned by the project, including parking that is outside the project boundary but is used by the project. On-street parking in public rights-of-way is excluded from these calculations.

The project site includes the building's roof, parking lot, roadways, walkways, and other hardscapes. To achieve the 1 or 2 points for the Heat Island Reduction Credit, a designer or building owner needs to address more than the roof. If the hardscapes are not intended to or able to meet the above requirements, then the roof does not need to meet these requirements either, as the credit will not be achieved by the roofing alone.

Conventional Roofing and Vegetative Roofing have been added as an option for covering not just the building, but the parking lot, or shading above walkways. This may allow for a more diverse use of roofing materials extending outside the building footprint.