LEED O+M: Existing Buildings | v4

Heat island reduction

Possible 2 points

Glossary

Intent

To minimize effects on microclimates and human and wildlife habitats by reducing heat islands.

Requirements

Choose one of the following options:

Option 1. nonroof (1 point)

Establishment

Use any combination of the following strategies for a minimum of 50% of the site paving.

- Use the existing plant material or install plants that provide shade over paving areas (including playgrounds) on the site within 10 years of planting. Plants must be in place at the time of certification application.
- Install vegetated planters. Plants must be in place at the time of occupancy permit 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 that have a three-year aged solar reflectance (SR) value of at least 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.33 at installation,
- Provide shade with vegetated structures.
- Use paving materials with a three-year aged solar reflectance (SR) value of at least 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.33 at installation.
- Use an open-grid pavement system (at least 50% unbound).

Performance

Implement a maintenance program that ensures all high-reflectance paving surfaces are cleaned at least every three years to maintain good reflectance.

OR

Option 2. roof (1 point)

Establishment

Use either roofing materials with a SRI equal to or greater than the values in Table 1 for a minimum of 75% of the roof area, or a vegetated roof for a minimum of 50% of the roof area, or both. If using both high-reflectance and vegetated roof surfaces, meet the following criterion:

Area of High-Reflectance Roof		Area of Vegetated Roof		
———————	+	———————	≥	Total Roof Area
0.75		0.5		

Alternatively, an SRI and SR weighted average approach may be used to calculate compliance.

Performance

Implement a maintenance program that ensures all high-reflectance roof surfaces are cleaned at least every three years to maintain good reflectance, and all vegetated roofs are maintained for plant health and good structural condition.

OR

Option 3. nonroof and roof (2 points)

Establishment

Meet the following criterion:

Area of Nonroof Measures		Area of High-Reflectance Roof		Area of Vegetated Roof				
———————	+	———————	+	———————	≥	Total Site Paving Area	+	Total Roof Area
0.5		0.75		0.50				

Alternatively, an SRI and SR weighted average approach may be used to calculate compliance.

Use any combination of the following strategies.

Nonroof measures
Use the measures listed in Option 1. Plant material must be in place at time of certification application.

High-reflectance roof
Use roofing materials that have an SRI equal to or greater than the values in Table 1. Meet the three-year aged SRI value. If three-year aged value information is not available, use materials that meet the initial SRI value.

Table 1. Minimum solar reflectance index value, by roof slope

	Slope	Initial SRI	3-year aged SRI
Low-sloped roof	≤ 2:12	82	64
Steep-sloped roof	> 2:12	39	32

Vegetated roof
Install a vegetated roof.

Performance

Implement a maintenance program that ensures all high-reflectance surfaces are cleaned at least every three years to maintain good reflectance, and all vegetated roofs are maintained for plant health and good structural condition.

OR

Option 4. Parking under cover (1 point)

Establishment

Place at least 50% of parking spaces under cover. Any roof used to shade or cover parking must (1) have a three-year aged SRI of at least 32 (if three-year aged value information is not available, use materials with an initial SRI of 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.

Performance

Implement a maintenance program that ensures all SRI surfaces are cleaned at least every three years to maintain good reflectance, and all vegetated roofs are maintained for plant health and good structural condition.