

## DURADEK LTD. — LEED INFORMATION

### SS CREDIT 7.2: HEAT ISLAND EFFECT—ROOF

1 Point

#### Intent

To reduce heat islands<sup>1</sup> to minimize impacts on microclimates and human and wildlife habitats.

#### Requirements

##### OPTION 1

Use roofing materials with a solar reflectance index<sup>2</sup> (SRI) equal to or greater than the values in the table below for a minimum of 75% of the roof surface.

Roofing materials having a lower SRI values than those listed below may be used if the weighted rooftop SRI average meets the following criteria:

$$\frac{\text{Area Roof Meeting Minimum SRI}}{\text{Total Roof Area}} \times \frac{\text{SRI of Installed Roof}}{\text{Required SRI}} \geq 75\%$$

Roof Type	Slope	SRI
Low-Sloped Roof	≤ 2:12	78
Steep-Sloped Roof	> 2:12	29

OR

##### OPTION 2

Install a vegetated roof that covers at least 50% of the roof area.

OR

##### OPTION 3

Install high-albedo and vegetated roof surfaces that, in combination, meet the following criteria:

$$\frac{\text{Area Roof Meeting Minimum SRI}}{0.75} \times \frac{\text{Area of vegetated roof}}{0.5} \geq \text{Total Roof Area}$$

Roof Type	Slope	SRI
Low-Sloped Roof	≤ 2:12	78
Steep-Sloped Roof	> 2:12	29

<sup>1</sup> Heat islands are defined as thermal gradient differences between developed and undeveloped areas.

<sup>2</sup> The solar reflectance index (SRI) is a measure of the constructed surface's ability to reflect solar heat, as shown by a small temperature rise. It is defined so that a standard black surface (reflectance 0.05, emittance 0.90) is 0 and a standard white surface (reflectance 0.80, emittance 0.90) is 100. To calculate the SRI for a given material, obtain the reflectance value and emittance value for the material. SRI is calculated according to ASTM E1980. Reflectance is measured according to ASTM E903, ASTM E1918 or ASTM C1549. Emittance is measured according to ASTM E408 or ASTM C1371.

#### Duradek Option 1: Possible % of Total Roof Area (approximate)

Duradek Membrane	Roof Type	Slope	SRI	% of Total Roof Area
Ultra Heritage Sunrise	Low-Sloped Roof	<2.12	69	15%
Ultra Marble Slate	Low-Sloped Roof	<2.12	62	5%

Note: Hemispherical Spectral Reflectance and Total Emittance Test Report available.

**MR CREDIT 5: REGIONAL MATERIALS**

**1 -2 Points**

**Intent**

To 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 or products 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, or recovered and manufactured locally, then only that percentage (by weight) can contribute to regional value. The minimum percentage regional materials for each point threshold is as follows:

Regional Materials	Points
10%	1
20%	2

Mechanical, electrical, and plumbing components and specialty items such as elevators and equipment must not be included in this calculation. Include only materials permanently installed in the project. Furniture may be included if it is included consistently in MR Credit 3: Materials Reuse through MR Credit 7: Certified Wood.

**Potential Technologies & 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 materials are installed, and quantify the total percentage of local materials installed. Consider a range of environmental, economic and performance attributes when selecting products and materials.

**Duradek Option: Regional Materials**

Product	Manufacturing Location
Duradek Ultra membrane	Jeanette, Pennsylvania
Duradek D763 water based adhesive	Roseville, California
Duradek D811 contact adhesive	Burlington, Ontario

**IE Q CREDIT 4.1: LOW-EMITTING MATERIALS—ADHESIVE & SEALANTS**

**1 Point**

**Intent**

To reduce the quantity of indoor air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of installers and occupants.

- The credit deals with all adhesives and sealants used on the interior of the building (defined as inside of the waterproofing system/waterproofing membrane). Therefore, adhesives used below the Duradek roof membrane to be in compliance with VOC limits required in the credit (250 g/l or less).

**Duradek Option: Low-emitting materials, adhesives & sealants**

Product	VOC Compliant
Duradek D763 water based adhesive	YES

**SS CREDIT 7.1: HEAT ISLAND EFFECT—NONROOF****1 Point****Intent**

To reduce heat islands<sup>1</sup> to minimize impacts on microclimates and human and wildlife habitats.

**Requirements****OPTION 1**

Use any combination of the following strategies for 50% of the site hardscape (including roads, sidewalks, courtyards and parking lots):

- Provide shade from the existing tree canopy or within 5 years of landscape installation. Landscaping (trees) must be in place at the time of occupancy.
- Provide shade from structures covered by solar panels that produce energy used to offset some non-renewable resource use.
- Provide shade from architectural devices or structures that have a solar reflectance index<sup>2</sup> (SRI) of at least 29.
- Use hardscape materials with an SRI of at least 29.
- Use an open-grid pavement system (at least 50% pervious).

**OR****OPTION 2**

Place a minimum of 50% of parking spaces under cover<sup>3</sup>. Any roof used to shade or cover parking must have an SRI of at least 29, be a vegetated green roof or be covered by solar panels that produce energy used to offset some non-renewable resource use.

**Potential Technologies & Strategies**

Employ strategies, materials and landscaping techniques that reduce the heat absorption of exterior materials. Use shade (calculated on June 21, noon solar time) from native or adapted trees and large shrubs, vegetated trellises or other exterior structures supporting vegetation. Consider using new coatings and integral colorants for asphalt to achieve light-colored surfaces instead of blacktop. Position photovoltaic cells to shade impervious surfaces.

Consider replacing constructed surfaces (e.g., roof, roads, sidewalks, etc.) with vegetated surfaces such as vegetated roofs and open grid paving or specify high-albedo materials, such as concrete, to reduce heat absorption.

**OPTION 1**

Tile with a SRI of at least 29 is a hardscape product that can be considered for a LEED project.

Duradek "Tiledek" can provide a waterproofing membrane below exterior tiles, if required.