

## Cool Roofs

### Aged Solar Reflectance

Solar reflectance after a period of time (e.g., 3 years).

Aged solar reflectance values are certified and labeled per the Cool Roof Rating Council (CRRC) Rated Product Directory.

If the aged value for the reflectance is not available in the CRRC Rated Product Directory (for example, the product is not yet 3 years old) then the equation below can be used until the aged rated value for the reflectance is posted in the directory.

$$\text{Aged Solar Reflectance} = 0.2 + \beta [\rho_{\text{initial}} - 0.2]$$

$\rho_{\text{initial}}$  = Initial Solar Reflectance listed in the CRRC Rated Product Directory

$\beta$  = Soiling Resistance by product type as per [Table 110.8-B](#)

### Low-slope or Steep-slope

The angle of a roof.

Low-slope = Rise to run ratio of 2:12 or less (9.5 degrees or less from horizontal)

Steep-slope = Rise to run ratio greater than 2:12 (more than 9.5 degrees from horizontal)

### Radiant Barrier

A highly reflective, low-emitting material installed at the underside surface of the roof deck and the inside surface of gable ends or other exterior vertical surfaces in attics to reduce solar heat gain.

### Solar Reflectance

The ratio of the reflected solar flux to the incident solar flux. (The percentage of solar energy that reflects off the roof surface.)

The higher the solar reflectance, the cooler the roof.

### Thermal Emittance

The ratio of the radiant heat flux emitted by a sample to that emitted by a blackbody radiator at the same temperature.

The amount of absorbed solar radiation that is radiated back to the sky.

The higher the thermal emittance the cooler the roof.

## Fenestration

### SHGC

### Solar Heat Gain Coefficient

The ratio of the solar heat gain entering the space through the fenestration area to the incident solar radiation.

Includes directly transmitted solar heat and absorbed solar radiation, which is then reradiated, conducted, or convected into the space.

The lower the SHGC, the lower the amount of heat transmitted through the window.

### U-factor

The overall coefficient of thermal transmittance of a construction assembly, in Btu/(hr x ft<sup>2</sup> x °F), including air film resistance at both surfaces.

The lower the U-factor, the better (the less heat gets through the window).

## Space Heating

AFUE	Annual Fuel Utilization Efficiency	<p>A measure of the percentage of heat from the combustion of gas or oil which is transferred to the space being heated during a year, as determined using the applicable test method in the Appliance Efficiency Regulations (<a href="#">Title 20</a>) or Title 24, Part 6 <a href="#">Section 110.2</a>.</p> <p>The higher the AFUE, the more energy efficient the furnace / heater.</p>
HSPF	Heating Seasonal Performance Factor	<p>The total heating output of a central air-conditioning heat pump (in Btu) during its normal use period for heating divided by the total electrical energy input (in watt-hours) during the same period, as determined using the applicable test method in the Appliance Efficiency Regulations (<a href="#">Title 20</a>).</p> <p>The higher the HSPF, the more energy efficient the heat pump.</p>

## Space Cooling

EER	Energy Efficiency Ratio	<p>A measure of full-load efficiency typically used for AC units and heat pumps with capacities greater than or equal to 65,000 Btuh.</p> <p>The ratio of net cooling capacity (in Btuh) to total rate of electrical energy input (in watts) of a cooling system under designated operating conditions, as determined using the applicable test method in the Appliance Efficiency Regulations (<a href="#">Title 20</a>) or Title 24, Part 6 <a href="#">Section 110.2</a>.</p> <p>The higher the EER, the more energy efficient the AC unit / heat pump.</p>
SEER	Seasonal Energy Efficiency Ratio	<p>A measure of efficiency typically used for AC units and heat pumps with capacities less than 65,000 Btuh.</p> <p>The total cooling output of an air conditioner in Btu during its normal usage period for cooling divided by the total electrical energy input in watt-hours during the same period, as determined using the applicable test method in the Appliance Efficiency Regulations (<a href="#">Title 20</a>).</p> <p>(SEER is always a higher value than EER for the same equipment).</p> <p>The higher the SEER, the more energy efficient the AC unit / heat pump.</p>



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