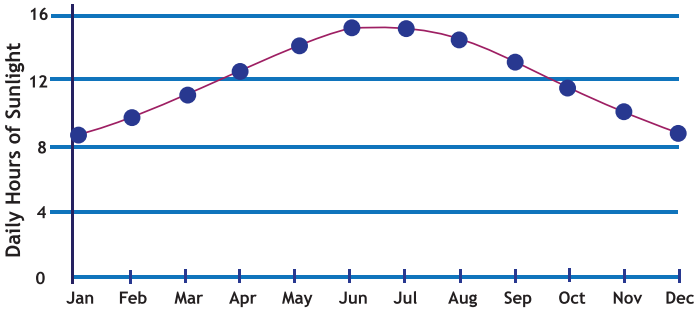
Wintertime or Summertime:

The Duro-Last® Cool Zone® Roofing System is Perfect for Every Season

Building owners and managers with facilities in northern climates often believe that energy savings provided by a reflective roof in summer will be offset by heat loss in winter; that is, a building with a white roof will not "warm up" from the sun during winter months as it would with a black roof. However, several factors make any potential wintertime heat gain from a dark roof relatively immaterial:

- Hot air rises, so any warmth transferred to the interior of a building from the outside will remain at the top, adding minimal warmth to the building or occupants.
- In all parts of North America, there are fewer wintertime hours of sunlight to affect energy costs (see chart). In fact, in some areas, there is a more than a six-hour difference between summer and winter daylight hours, meaning there is less sunlight available to warm a building. Plus, the angle of the sun is less direct, which also minimizes warming potential.



Daily hours of sunlight for US cities near the 45th parallel, including Augusta, Maine; Minneapolis, Minnesota; and Portland, Oregon

- In many areas, roofs are covered with snow for much of the winter, turning them "white" and eliminating any potential black roof heat gain.
- Prevalent cloudy skies during winter months mean even less sunlight hits the rooftop. Sunnier summer days provide more direct sunlight on the rooftop, where a cool roof system can help reduce building energy consumption.
- The energy required to air condition a building in the summer is usually considerably more than the energy to heat it in the winter, making the potential for summer energy cost savings much greater with a highly reflective white roof than winter savings with a heat-absorbing black roof.

Environmental solutions and quality workmanship.

Once summer rolls around, white roofing systems offer a number of advantages over dark systems:

- Reflective membranes such as the Duro-Last Cool Zone roofing system reflect up to 87% of the sun's energy – delivering real cost savings for building owners and managers in all climates throughout North America. The Cool Zone system can also help in obtaining credits toward LEED and LEED-EB certification.
- Cool roofs improve the efficiency of rooftop air conditioning units. Most HVAC units have efficiency ratings performed at 95 degrees F. As rooftop temperatures rise above 95 degrees, rooftop air conditioning efficiency drops. On hot days, surface temperatures on black roofs can reach 180 degrees and the HVAC inlet air temperature 30 inches above the roof surface can be up to 15 degrees hotter than with reflective roofs. Cool roofing systems enable rooftop HVAC equipment to run more efficiently, and may reduce capacity requirements.
- Extremely high summertime surface temperatures and UV and IR rays that penetrate dark systems can lower the effective R-value of insulation, often leading to higher operating and maintenance costs. Because cool roofing surfaces can be as much as 80 degrees cooler than black surfaces on hot days, the insulation can be 25 to 50 percent more effective at resisting thermal conductivity under summer heat loads.

A truly "cool" roof doesn't just deliver energy savings in the summertime.

Cool roofing products such as the Duro-Last Cool Zone system provide trouble-free service, competitive life-cycle costs, and environmental advantages throughout the year, and through the years ahead.

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