GAF Cool Roofing Solutions
(COMGN235)

Updated: 12/17
If you’re not using a cool roof, you could be losing more than you think.

Five truths to ponder.
Cool roofs can help save you money on energy bills* in the North as well as the South. Here are some cool truths to ponder when planning a new roof.

**TRUTH 1**

It’s all about reflectivity.

A cool roof reflects the sun’s energy, reducing rooftop temperatures. While a sunlight-absorbing black roof can reach up to 190°F in the summer, a reflective roof’s temperature can be as much as 60°F lower. Dark surfaces also contribute to the urban heat island effect.

A cool roof reflects away the sun’s solar energy, unlike a dark roof which absorbs it and transfers heat to the building below.

*Energy cost savings are not guaranteed and the amount of savings may vary based on climate, utility rates, roof reflectance, insulation levels, HVAC equipment efficiency, and other factors.

For more information visit gaf.com/coolroofs
On a dark roof, absorbed heat warms the building, increasing air-conditioning loads and electricity bills. Because electricity generally costs more than natural gas, reducing air conditioning load provides a greater savings potential than reducing heating costs. If your building uses electric air conditioning and natural gas heat, a cool reflective roof can help lower your energy bills no matter where you are in the continental United States (including Northern states) by reducing the amount of air conditioning needed.

Reducing air conditioning can also help reduce demand charges (see box) that electric companies sometimes charge to commercial buildings based on the highest average electricity flow that they use during a billing period.

A cool roof can help lower demand charges

Some electric companies charge commercial and industrial buildings a demand charge based on a few peak minutes of electricity usage during each billing period. Buildings that use the most electricity at one time often get charged the largest amounts, which can represent up to 70% of their total electricity bill. Air conditioners, by their nature, surge electricity demand at peak times of the day.

Cool roofs can help reduce the air conditioning needed by your building by eliminating heat which would be absorbed by a black roof.

DID YOU KNOW?

On average, electricity costs almost

4 TIMES

as much as natural gas in the U.S. Demand charges can represent 30 to 70% of a building's total electric bill.

For more information visit gaf.com/coolroofs
TRUTH 3

The amount of sunlight is more important than “heating and cooling degree days.”

Your roof’s impact on your energy bills is based on the amount of sunlight reaching it, not on the ambient temperature. So even in regions with more “heating degree days” than “cooling degree days” (see box), a reflective cool roof will offset more hours of sunlight in summer — almost twice as many at the solstices — than a dark roof can absorb sunlight to offset heating costs in winter. And, of course, during those long winter nights, sunlight is having no effect on your roof at all. Add to that the fact that a dark roof covered in snow is, effectively, a white reflective roof. A snow-covered black roof reflects some of the sun’s rays in the winter, while remaining a heat-absorbing sponge all summer long.

Heating and cooling degree days

These units of measure describe how far the average daily temperature varies from a baseline of 65°F. When the temperature is greater than 65°F, it’s a cooling-degree day, because we need to cool the environment back to 65°F. Heating-degree days occur when the temperature falls below 65°F.

For example:
• When the average temperature is 70°F for one day, we record 5 cooling-degree days.
• If the temperature is 0°F for one day, we record 65 heating-degree days.

They are not actual days, and do not add up to 365 at the end of the year.

The longest summer day is over 15 hours
The shortest winter day is under 9 hours

For more information visit gaf.com/coolroofs
The amount of sunlight is more important than "heating and cooling degree days."

A properly designed roof reduces the risk of condensation issues.

A properly designed roof can offset condensation in a variety of ways, including using multiple layers of insulation with staggered joints, installing GAF SA vapor retarder, or installing a fully adhered system, to name just a few options. Adding layers of insulation can significantly reduce airflow to the dewpoint, preventing condensation.

For example, improper insulation design may cause condensation, whether the roof is a cool or dark membrane. Always consult with a design professional to design a roof system.

Single layer of insulation
A roof system designed without the proper amount of staggered insulation can have condensation issues regardless of membrane color.

![Diagram of single layer of insulation]

Double layer of insulation with staggered joints
A roof system designed properly will help reduce the risk of condensation regardless of membrane color.

![Diagram of double layer of insulation with staggered joints]

For more information visit gaf.com/coolroofs
TRUTH 5

Cool roofs are changing the roofing industry.

Commercial buildings are benefiting from cool-roof savings throughout the USA, even in Northern climates, and that is fundamentally shifting the roofing marketplace. For example, EPDM was the most popular single-ply membrane in the industry in 2003. Today, TPO makes up over 50% of the single-ply market.
Cool roofs are changing the roofing industry.

EPDM was the most popular single-ply membrane in the industry in 2003. Today, TPO makes up over 50% of the single-ply market.

Designed specifically for contractors, consultants, and building owners, the CREST Energy Calculator helps compare the energy-cost savings of different roofing system options. You can compare multiple roof designs and scenarios including levels of reflectivity and insulation. Simply go to cool.gaf.com and register and compare. It's free and easy.

For more information visit gaf.com/coolroofs
**Single Ply** - Available in both TPO and PVC, single-ply membranes are the most commonly installed roofing technologies due to the speed of installation and the variety of systems available.

**Asphaltic** - Available in BUR, APP, and SBS, these are great time-tested multi-ply systems that can be installed in a variety of systems.

**Coatings** - Available in acrylics, silicones, urethanes, PMMAs, and PVDFs, the GAF line of coatings can preserve and restore existing roofs.

---

**Single-Ply Membranes**
- EverGuard® TPO
- EverGuard Extreme® TPO
- EverGuard® Freedom™ TPO
- EverGuard® PVC

**Liquid Membranes**
- HydroStop® PremiumCoat® Breathable Acrylic Membrane System

**Asphaltic Cap Sheets**
- RUBEROID® EnergyCap™

**Roof Coatings**
- Roof Mate™ Elastomeric Roof Coating
- Diathon® Acrylic Elastomer Roof Coating
- Unisil Silicone Roof Coating
- Kymax™ PVDF Fluoropolymer Roof Coating

---

**How much can you save on energy bills?**
Find out by visiting [cool.gaf.com](http://cool.gaf.com) to try out our CREST energy calculator.