



# COOL ROOFING MYTHS

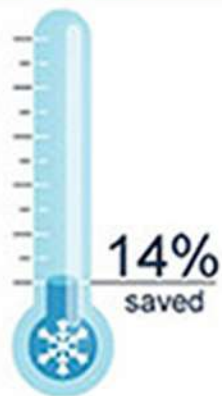
## BUSTED

### What Is A Cool Roof?

A cool roof reflects a large percentage of sunlight, and quickly emits any heat that is absorbed into the roofing membrane. Less heat entering the building through the roof reduces the need for and cost of building cooling.

### In one case study

In one case study, a 100,000 sq ft building in Austin, TX with a cool roof saved 14% on peak hour cooling cost, which resulted in an annual energy savings of \$9500



## Myth 1

Cool roofs make sense in hot climates but not in cool climates where absorption of heat from the sun helps to warm the building.

## Busted

Even in cool climates, cool roofs can save more money than black roofs.

SUMMER

Summer days are longer  
More sunlight for reflection

Winter days are shorter  
Less sunlight for heating

The sun is higher in the sky  
More heat is generated

The sun is much lower to the horizon  
Less heat is generated

More days of sunshine  
More solar radiation

Overcast skies & roofs covered by snow  
Less solar radiation

WINTER



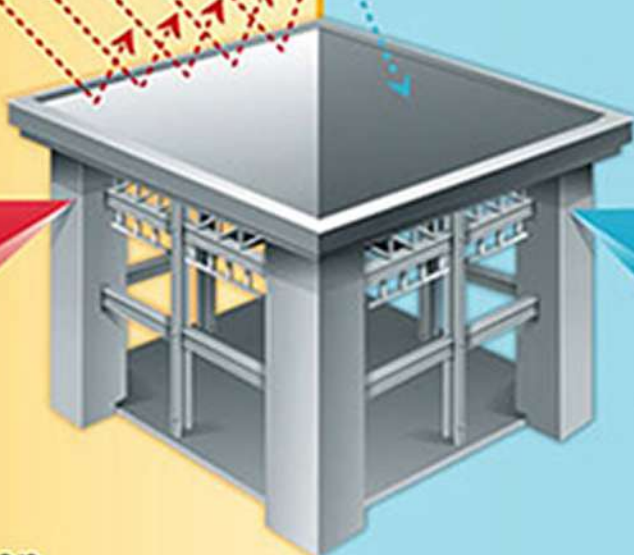
Less solar radiation  
for heating

Solar radiation in the summer is **5 times** greater than in the winter

The solar radiation cool roofs reflect away during summer help save:

**\$29.73/MMBtu**

Buildings are cooled with electricity during summer



Black roofs absorb solar energy during winter and help save:

**\$9.10/MMBtu**

Buildings are heated with natural gas during winter

In summary, even in cool climates

**Cooling Cost Savings with Cool Roofs**

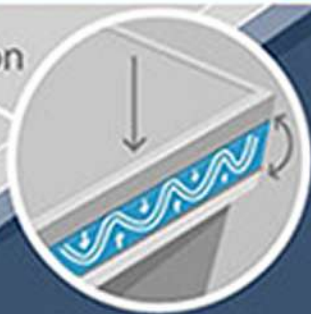
Can outweigh

**Heating Cost Savings with Black Roofs**

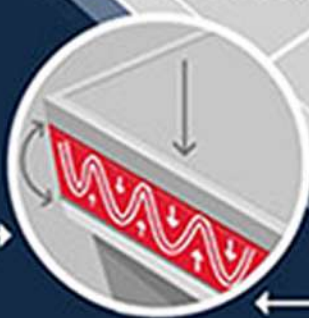
## Myth 2

Cooling energy cost benefit decreases with increased amounts of thermal insulation which is common in northern states.

Less insulation



More insulation



# Busted

With increased amount of insulation, the cooling savings are smaller but still positive

**1** Increased insulation reduces movement of both hot and cold air. Therefore, black roof heating benefits decrease as well.

**2** As illustrated in Myth 1, even in cool climates, cooling savings are greater than heating savings. The



savings from cool roofs remain higher than those from black roofs even with increased thickness of insulation.

## Myth 3

Cool roofs' benefits are reduced when the roof becomes dirty.

Dirty Roof

Clean Roof

**Busted** Most cool roofs don't lose significant cooling benefits when subject to various forms of soiling relative to black roof.

- 1 All surfaces outside are subject to getting dirty. However, a review of 448 low slope cool roof samples shows that **90%** of these products still retain good reflectivity after three years.

- 2 Plus, roof cleaning can restore practically **100%** of initial reflectivity for many products.

## Myth 4

Cool roofs are prone to unusual levels of condensation within the roofing system which does not dry out.

**Busted** All low slope roofs installed without a vapor barrier in northern climates are subject to condensation in the roofing system.

COOL ROOF



**1** Condensation will dry out in summer and without any harm to the roofing system components or the building's interior.

**2** There is no significant evidence to support that cool roofs have more condensation than black roofs or do not dry out.

## Myth 5

## Busted

A Stanford university study calls into question the energy and carbon benefits of cool roofs.

The overwhelming number of studies by scientists at **Lawrence Berkeley National Laboratory, Department of Energy, and the National Center for Atmospheric Research in America (NCAR), and the University of Perugia in Italy** support the energy and carbon benefits of cool roofing.

# CONCLUSION

Cool roof myths don't stand up to the facts! Cool roofs are a proven strategy to reduce building energy costs, greenhouse gas emissions and the urban heat island effect.

Produced by

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