



Saving Energy With Topps Products' White Roof Coatings



Certifications



Member



Abstract

What are the most important physical characteristics of a "cool roof" coating that provides longevity?

Which type of "cool roof" coatings are best for which substrates?

Topics to cover

A

Background

B

History of Topps Products

C

Types of Coatings

D

Physical Characteristics of Coatings

E

Roof Substrates

F

Cool Roofs Around The World

G

Cool Roof Case Studies

H

Conclusion



A Cool Roof In The Philippines!



Background

- Started in the USA 62 years of ago
- Manufacturer of elastomeric coatings, sealants and other products
- Subsidiaries in Europe, Asia, Africa and Australia
- Clients in more than 30 countries
 - Ford, Nissan, FedEx, UPS, American Airlines, Delta Airlines, General Electric, HP, Nestlé, Sony, Historic Society of Paris, Nippon Steel, East Japan Railway, Reykjavik Airport, Kansas City Downton Airport, General Motors, Mitsubishi, Secretaría de Agricultura, etc.
- 2019 world contest finalist



TOPPS SEAL COATING TO CREATE REFLECTIVE ROOF SURFACES - KENYA

Topps Seal Coating to Create Reflective Roof Surfaces will be implemented by Steam Plant Ltd in partnership with Topps Products. Based in Nairobi, the Steam Plant team will work with local leaders to sensitise the target communities to the benefits of cool roofing. The project will focus on recruiting and training young people to carry out pilot cool roof projects on key community buildings such as schools and medical clinics. They then plan to scale the project across the country through partnerships with NGOs, national and county-level governments.



Background (Cont')

- Products previously manufactured: SilverLeaf and other Bituminous Coatings. Coatings proved weak in comparison to the physical properties of the repair product Neoprene 66/Polyprene.
- Due to greater awareness, the need evolved for coatings that would provide more sustainable roofing and energy savings.
- Topps Products moved from standard coatings into white coatings and in 1983 developed our flagship product Topps Seal.



Types of Coatings

- Waterbased Coatings- Most common are Acrylics, Terpolymer and Fluoropolymer- Low VOC
- Waterfree (solvent based) - Most common are SBS or SEBS - High VOC
- Silicone - Siliconized Coatings-Low VOC
- Polyurethanes and Urethanes - Low VOC
- Bitumen or Asphaltic Emulsified Coatings - Low VOC





Physical Characteristics of Coatings

Cool



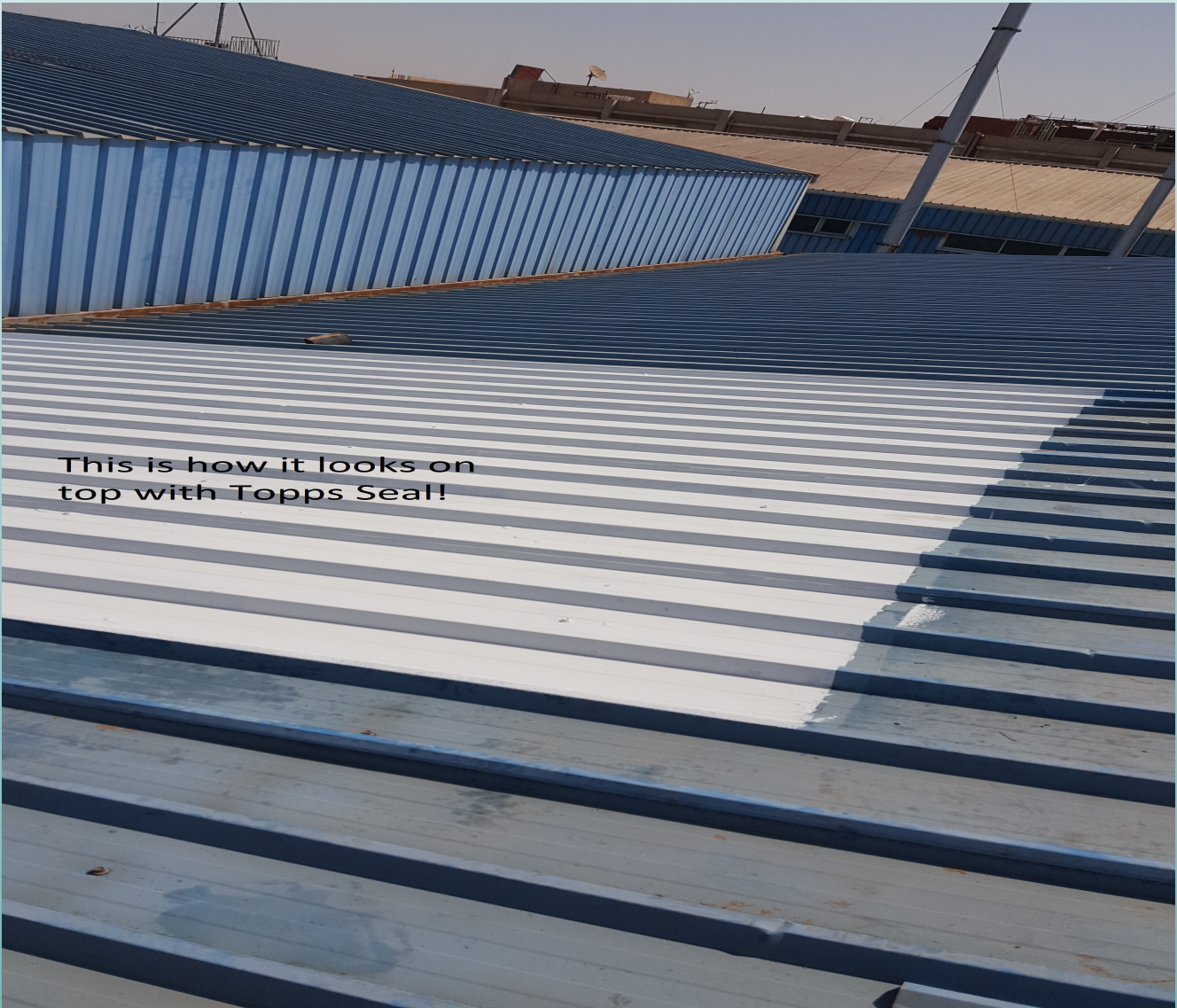
In



Niger

Topps Seal® Water-Free Elastomeric Roof Coating				What This Means
100% Acrylic Elastomeric Roof Coating ASTM D6083DADE minimums		Typical Silicone Properties		
Elongation (Ultimate) <i>Original</i>	100%	174%	900%	The ability to move with your roof and relative resistance to cracking.
Elongation (Ultimate) <i>Aged</i>	100%	126%	850%	
Tensile Strength (Ultimate) <i>Original</i>	200 psi	450 psi	1500 psi	The capacity to hold together and avoid breaking.
Tensile Strength (Ultimate) <i>Aged</i>	NR	450 psi	1000 psi	
Moisture Gain by Weight <i>Max</i>	20%	NR	0.74%	Capacity to absorb (water) vs. protect.
Perm Factor <i>Max</i>	50 perms	5.0	0.18 perms	Resistance to moisture transfer. Lower number shows greater resistance.
Peel (adhesion)	2.0 pli	NR	4.0 pli	The comparative ability of the system to remain adhered to the roof surface.
Tear Resistance	60 lbf/in min	35.8 lbf	195 lbf/in	The ability to resist abuse.

Cool



In



Egypt

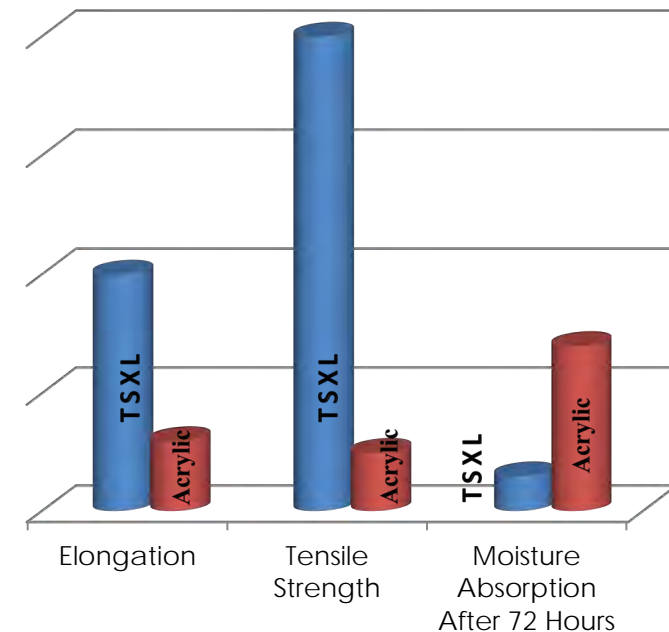


Acrylic Elastomers vs. Water Free Based Elastomers

Topps Seal® is a solvent base elastomeric. Topps Seal® WB is a waterborne elastomeric. When formulated properly, both types of products can, and should, perform successfully when used in the right situations.

Metal Market Needs - Elongation, Strength, Rust Prevention

- Topps® solvent-based rubber products were originally engineered and developed for the metal market
- Metal roofs have 2 major problems – rust and leaks.
- Rust occurs when moisture and oxygen are present.
- Solvent base product will not allow moisture or oxygen to pass through -- eliminating rust.
- Topps Seal liquid rubber, blended in a mild mineral spirits solution, far exceeds the physical properties of any water-based coatings — even our own Topps Seal® WB.
- Topps Seal has a minimum of 1000% elongation and 1,750 p.s.i tensile strength, which help it correct problems much longer than other coatings.
- The Topps Seal® solvent-base system is the preferred product for metal roofs.





Acrylic Elastomerics vs. Water-Free Based Elastomerics

Waterborne for Breathable (Porous) Surfaces

- Water-based products breathe.
- Water-based coatings should be used where entrapped moisture might be an issue.
- Should moisture be trapped in the substrate when the coating is applied, water-based products will allow some moisture vapor to escape.

Choose What is Best For Your Roof — Not Just What Someone is Selling.

Coating selection is the most important factor to consider. Topps® offers a complete line of maintenance products. Compare the specifications of each product to select the right one for your roof.



Silicone vs. Water-Free Based Elastomerics

Silicone for Breathable Ponding Surfaces

- Silicone products breathe but not as much as Acrylics
- Silicone coatings should be used where entrapped moisture might be an issue but most importantly where ponding is an issue.
- Should moisture be trapped in the substrate when the coating is applied, Silicone products will allow some moisture vapor to escape but not as much as Acrylics.

Choose What is Best For Your Roof — Not Just What Someone is Selling.

Coating selection is the most important factor to consider. Topps® offers a complete line of maintenance products. Compare the specifications of each product to select the right one for your roof.



Surface Prep

Failed Original Coating

It happens. This bargain acrylic used 3 years earlier failed. It will be removed with the power washing process so that we can stick direct to the metal rather than to a coating which is prone to failure to begin with.

METAL ROOFS



Metal roof prior to coating is leaky and rusted.



Power washing roof after RustArrestor™ application.



Finish coat of Topps Seal® stops rust, leaks, and saves on energy costs.



Seams sealed with RivetGuard™.



Spraying Topps Seal® Base Coat.

CONCRETE ROOFS



Concrete roof prior to coating.



Crack repair with Polyprene®.



Finished roof sealed against moisture and sun's rays.



PolyCore™ embedded for strength.



Topps Seal® Base Coat applied by spray.

FELT ROOFS



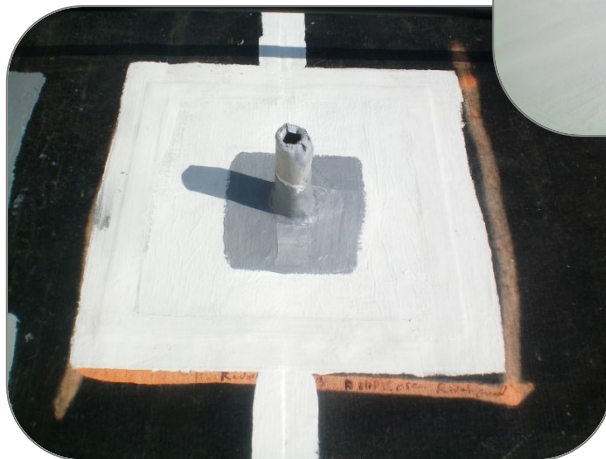
Felt roof prior to coating.



Polyprene® seals seams.



Bright white Topps Seal® finishes restoration to like-new condition.



Vent repaired with Polyprene®.



Topps Seal® Base Coat applied by roller.

Why TOPPS?

What is a Cool Roof?

A cool roof coating acts like a sunshade in the windshield of your car. The white coating deflects the sun's rays away from the building, which keeps the surface and interior of your building cooler, reduces your air-conditioning usage and thus, saves you money.

But a cool roof doesn't have to just save you money on energy costs; the same coating can also extend the life of your roof if an industrial grade cool roof maintenance coating like Topps Seal® is applied. Get maintenance and energy savings benefits wrapped into one coating with Topps Seal.

What are the benefits?

Energy Savings

Energy Star® qualified roof products can help reduce the amount of air conditioning needed in buildings, and can reduce peak cooling demand by 10%-15%.

Greater Roof Service

A well laid out plan can stop existing leaks and help prevent future ones.

Better for the Environment

A cool roof deflects the sun's rays back up to the sky, reducing greenhouse gases and keeping your building cooler inside.

Tax Breaks & Government Incentives

Some governments as well as local utilities offer incentives and tax breaks for roofs that qualify as a "cool roof" along with tax deductions for performing roof maintenance.

Won't Freeze - Won't Wash Off

Saves unwanted expense and mess.

Cool Solutions

The best part about Topps Seal® may be what it can do for your roof. A cool roof up on top often brings additional savings inside.

**45%
COOLER
AFTER
TOPPS
SEAL®!**



Baxley Companies
Dothan, AL



USDA - Mexican Ministry of Agriculture
Mexico

COOL ROOF BENEFITS

Energy Star® is a program of the U.S. government which recognizes those products capable of producing significant energy savings.



Additional certifications/approvals:

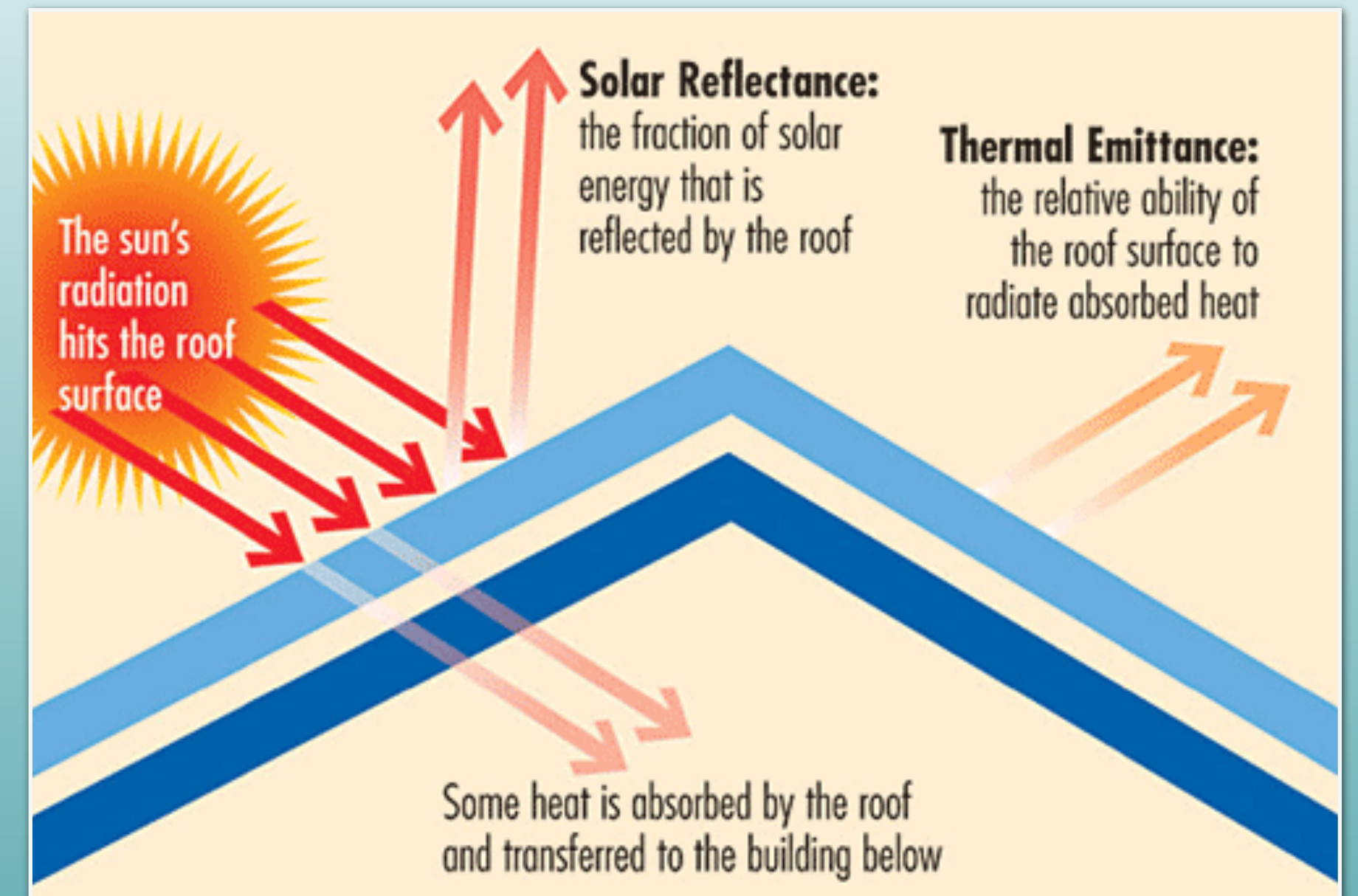




Coatings

PROTECTS AND IMPROVES YOUR ROOF

- Outstanding Elongation and Tensile Strength
- High Solar Reflectance, Thermal Emittance and SRI
- Greater thermal comfort inside the facility
- Up to 20% lower energy consumption of air conditioning
- Withstands ambient temperatures from -40 to 140 °F



* White color is the best to reflect solar radiation, however we also have other 11 standard colors



White	Medium Green	Brick Red	Autumn Gold	Horizon Blue	Graystone
Medium Gray	Green Mist	Sandstone	Natural Brown	Smoke Red	Black



White vs. Dark Roofs

Topps Seal Solar White Rates the Highest in Solar Reflectivity

Research reveals significant cooling cost reductions when the appropriate rooftop protection is applied, and one of the most crucial factors is solar reflectivity.

Percentage of Solar Reflectance

0 10 20 30 40 50 60 70 80 90

Topps Seal Solar White

White Enamel

White Metal

White Marble Slurry

Silver Reflective

Red Tile

Black Shingle



Total Emittance and Hemispherical Spectral Reflectance Test Report, No. 4908000, Atlas Weathering Services Group DSET Laboratories.





Certifications

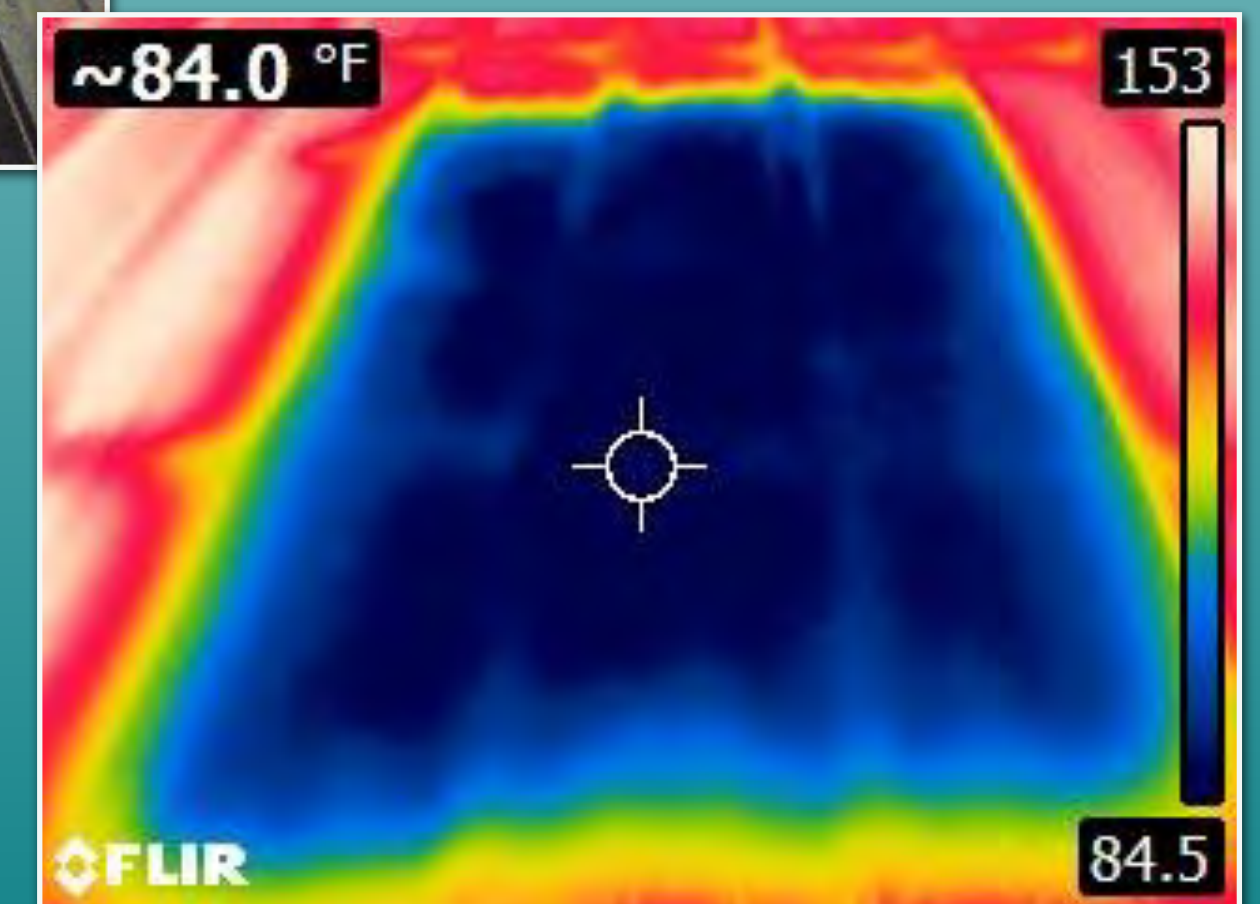
- Our top coatings have the following certifications:



Temperature
decrease
20.4°C
30%



Temperature
decrease
68.5°F
44.7%

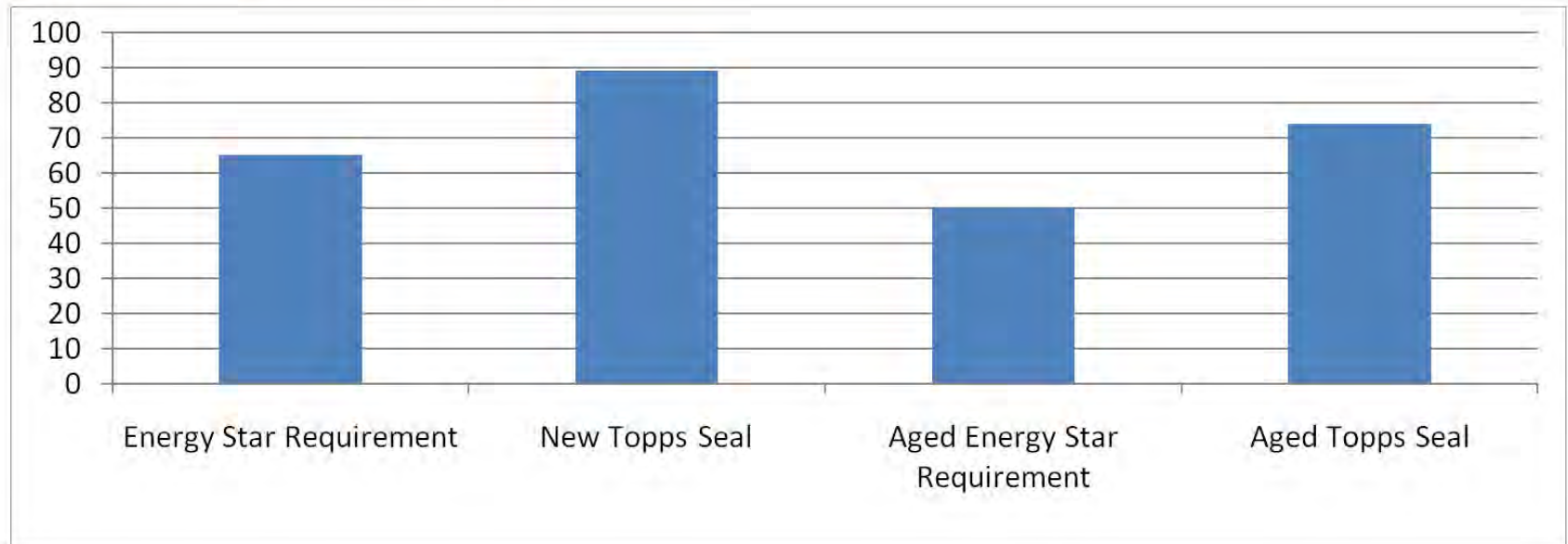




Raising the Bar

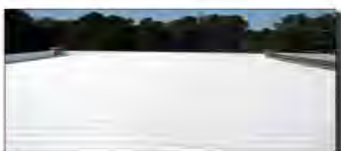
Aged Topps Seal Exceeds Standards
Set for Coatings When New

Reflectivity Requirements & Results





ENERGY SAVINGS CASE STUDY



Use of highly reflective Topps Seal™ has proven to yield increased occupant comfort, longer roof life, and substantial savings.

Central Baptist Church
Oak Ridge, TN
Topps Seal™ System 1000 Highly Reflective Solar White

Facility Type: Church
Total Roof Area: 27,000 ft²

<i>Energy Savings (kWh)</i>	Peak Month Energy Savings	8360 kWh
<i>Outside Temperature Variance</i>	After Application	↑ 6.3%
<i>Energy Reduction</i>	After Application	12.7%
Source data provided by local utility provider.		

Case study was conducted during comparative period prior to and after Topps Seal™ application.





ENERGY SAVINGS CASE STUDY



Use of highly reflective Topps Seal™ has proven to yield increased occupant comfort, longer roof life, and substantial savings.

The Bed Store

Knoxville, TN

Topps Seal™ System 1000 Highly Reflective Solar White

Facility Type: Retail Store

Total Roof Area: 16,000 ft²

<i>Cost Savings (dollars)</i>	Peak Months (June, July, Aug)	\$226.48
<i>Energy Savings (kWh)</i>	Peak Months (June, July, Aug)	2905 kWh
<i>Outside Temperature Variance</i>	After Application	↑ 5.5%
<i>Energy Reduction</i>	After Application	24.5%
Source data provided by local utility provider.		

ENERGY AUDIT



TITLE 24

Case study was conducted during comparative period prior to and after Topps Seal™ application.

Results will vary from building to building based upon building type, location, insulation, age, usage, etc.



ENERGY SAVINGS CASE STUDY

Lakeland Christian Church
Lakeland, FL
Topps Seal™ System 1000 Highly Reflective Solar White

Facility Type: Church
Total Roof Area: 27,000 ft²



Use of highly reflective Topps Seal™ has proven to yield increased occupant comfort, longer roof life, and substantial savings.

<i>Energy Savings (kWh)</i>	Peak Month Energy Savings	848 kWh
<i>Outside Temperature Variance</i>	After Application	↑ 1.0%
<i>Energy Reduction</i>	After Application	14.4%
Source data provided by local utility company.		

Case study was conducted during comparative period prior to and after Topps Seal™ application.



Project 2: **One 40ft. Office containers with AC**

Prior applying TOPPS SEAL, our client used 3 AC (110,000 BTU/HR)
After TOPPS SEAL, we reduced to only 1 AC only (45,000 BTU/HR)

From: [REDACTED] [mailto:tim_ch@[REDACTED].ac.th]

Sent: Thursday, August 6, 2015 12:45 PM

To: Vincent Barrett; Nicolas Malgouyres; Umpon Na. Sulong

Cc: [REDACTED]; Goong Chansawang (Facility Manager)

Subject: Roof Paint

Dear Nicolas and Vince

I just wanted to confirm that the roof paint has made a significant difference to the temperature within the PCS office container. We now only need to run one air con unit instead of 3!

Many thanks for this suggestion.

Tim

[REDACTED]

[REDACTED] Bangkok

Tel : [REDACTED]

Fax : [REDACTED]

Website : [www.\[REDACTED\].ac.th](http://www.[REDACTED].ac.th)



Camps Bay South Africa-Before



Camps Bay South Africa-After





Cool Roofs In Europe





Conclusion

- Topps Products desire to partner with for profit, non-profit and other organizations to train and promote "cool roofs".
- "Cool Roofs" are a low cost method of reducing CO2 emissions while providing "Thermal Comfort" to millions of people around the world on every continent
- Topps Products will provide training on installation and maintenance of "cool roofs" for longevity and providing life skills to interested persons in the roofing business.



PROTECTS AND IMPROVES YOUR ROOF



800 867 7177



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P.O. Box 1632, Canton, Mississippi 39046, U.S.A.