

NOTIFICATION OF ENERGY STAR® PRODUCT CERTIFICATION

Partner's EPA-issued Organization ID #: 1036669

Partner Name: SPM Thermo-Shield, Inc
Product Brand Name: THERMO-SHIELD / CLIMATE-SHIELD
Product Model Name: Roof Coat, Tank Shield, Stucco Shield

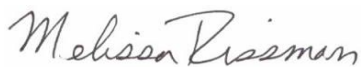
CB Unique Model Identifier: ES-SPM-0002
ENERGY STAR Specification Version: 3.0
Initial Solar Reflectance: 0.88
Solar Reflectance After 3 Years: 0.79
Initial Emissivity: 0.79
Slope Category: Low Slope? Yes Steep Slope? Yes

The Cool Roof Rating Council (CRRC), an ISO/IEC 17065 accredited EPA Certification Body, has reviewed the test results data provided by an EPA-certified testing laboratory and has determined that this roofing product meets the qualification criteria of ENERGY STAR's Program Requirements Product Specification for Roof Products.

This Notification of Product Certification is subject to all terms and conditions of the ENERGY STAR Partnership Agreement, ENERGY STAR Program Requirements for Roof Products: Partner Commitments and Eligibility (in accordance with the version that product is certified under), Evaluation Services-CRRC Agreement, and the Evaluation Services Certification Program Manual.

This Notice of Product Certification is only valid based on the certification status of the product. To determine if the product is actively certified please visit ENERGY STAR's Qualified Product List at:

<http://www.energystar.gov/productfinder/product/certified-roof-products/results>



Application Review



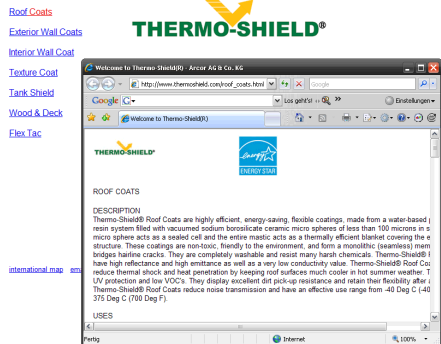
Management Approval

2017-05-15
Date

Certificate provided by:
Cool Roof Rating Council
449 15th St. Suite 400
Oakland, CA 94612

Certificate provided to:
SPM Thermo-Shield, Inc
4915 Rattlesnake Hammock Rd, Suite 266
Naples, FL 34113

The Energy Star Label for ThermoShield facts sheet

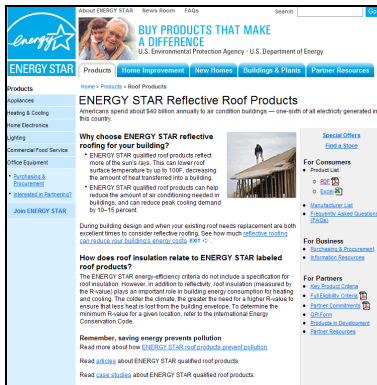


“You can save up to 50% on your energy bills by using Thermo-Shield®? Thermo-Shield® is a charter member of the Energy Star Program; it is Energy Star Rated. After 3-year aging in a test done at the US Government premiere laboratories, ORNL, Thermo-Shield® Roof Coating was reducing heat flux through the roof by 66% - the best of all the coatings tested. Some of the advantages in using Energy Star Roof products in addition to saving energy and money are: Downsizing Cooling Equipment, Decreasing Air Pollution in Urban Areas, and Increasing the Life of your Roof (as listed by the US Department of Energy and Environmental Protection Agency). For more information, visit www.energystar.gov”

Source: Thermo-Shield USA homepage

“The US Government sponsored a 3-year testing program to determine the benefits of reflective coatings in reducing Heat Flux into structures, and the effects of aging - dirt, air pollution, weathering, etc on the Effectiveness of the reflective coatings. **The US Government's premiere lab Oakridge Ridge National Laboratory conducted these test during a period expanding from 1997 to 2000.** The 3-year term was chosen because, in extensive testing all over the USA, it was determined that roofing products loose initial reflectivity at first but at the end of 3 years reach a plateau where their reflectivity remains constant until eventual failure of the coating. The results showed that after loss of reflectivity by all the products tested, Thermo-Shield®'s heat reduction was an incredible 66% - this was 30% better than the average of the other white coatings in the test.”

Source: Thermo-Shield USA homepage
Comment: results see following attached



snapshot 16-07-07

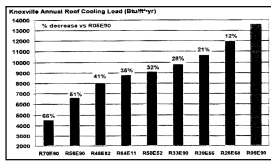
Company Name	Brand	Model	Type	Initial Solar Reflectance	Solar Reflectance after 3 years*	Low Slope?	Steep Slope?
AEP-SPAN	Bare	Cap, High, Seam, Span Seam - Bare Metal	Metal	0.78	0.58	Y	Y
AEP-SPAN	Bare	Flush Panel - Bare Metal	Metal	0.78	0.58	Y	Y
AEP-SPAN	Bare	Span Lot - Bare Metal	Metal	0.78	0.58	Y	Y
AEP-SPAN	Cool Antique Patina	DuraTech 5000	Metal	0.28	0.28	N	Y
AEP-SPAN	Cool Ash Gray	DuraTech 5000	Metal	0.38	0.37	N	Y
AEP-SPAN	Cool Copper Penny	DuraTech 5000	Metal	0.4	0.42	N	Y
AEP-SPAN	Cool Jade Green	DuraTech 5000	Metal	0.29	0.29	N	Y
AEP-SPAN	Cool Marine Green	DuraTech 5000	Metal	0.31	0.31	N	Y
AEP-SPAN	Cool Metallic Champagne	DuraTech 5000	Metal	0.38	0.38	N	Y
AEP-SPAN	Cool Parchment	DuraTech 5000	Metal	0.33	0.33	N	Y
AEP-SPAN	Cool Sierra Tan	DuraTech 5000	Metal	0.34	0.38	N	Y
AEP-SPAN	Cool Silver	DuraTech 5000	Metal	0.47	0.47	N	Y
AEP-SPAN	Cool Tahoe Blue	DuraTech 5000	Metal	0.28	0.28	N	Y
AEP-SPAN	Cool Weathered Copper	DuraTech 5000	Metal	0.27	0.28	N	Y
AEP-SPAN	Snowbird White	DuraTech 5000	Metal	0.66	0.56	N	Y
ALCO-INC, inc.	ALCO	Fiberglass Alumagard	Coating	0.74	0.51	Y	N
ALCO-INC, inc.	ALCO	Non-Fibered Alumagard	Coating	0.72	0.53	Y	N
ALCO-INC, inc.	ALCO	White Elastomeric	Coating	0.875	0.818	Y	Y
ALDO Products Company, Inc.	AldoCoat	AldoCoat 374 White	Coating	0.84	0.705	Y	Y

Facsimile: ENERGY STAR Roof Product List (List Current as of July 1, 2007)

SPM THERMO-SHIELD, Inc.	Thermo-Shield	Roof Coat	Coating	0.84	0.63	Y	N	5 - 15
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Thermo-Shield Roof Coat is listed on page 59 (PDF file) in the ENERGY STAR Roof Product List.

A1: Oakridge National Laboratories Testing (update from April 2000)



Since June 1997, 24 roof coating systems have been continuously tested on bitumen panels at Oak Ridge Laboratories in Tennessee, for: Solar reflection, Infrared Emittance, Surface Temperature, Heat Flux through the Roofing Panels.

OakRidge is developing methods to calculate the benefit of reflective coatings based on their solar reflection and emittance, when used on roofing systems of various R-Value constructions, and in various climates. Fig. 9 (Original)

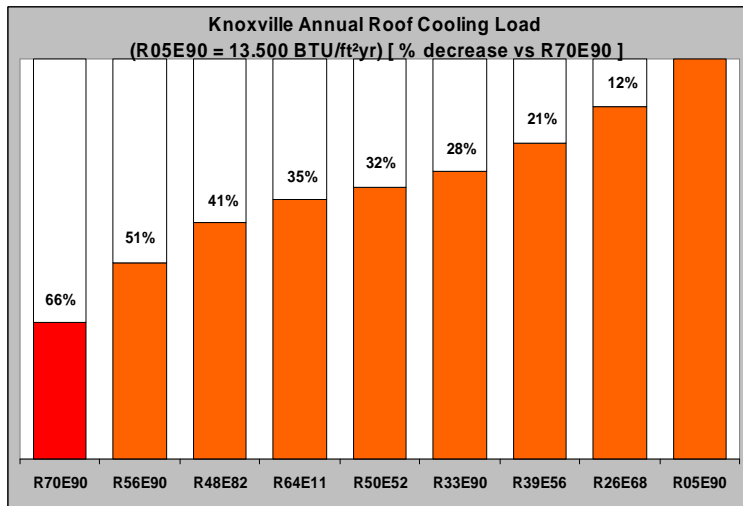


Fig. 9. Annual Cooling Loads per Unit Area of the RCMA Roof using TMY2 Data for Knoxville in STAR.

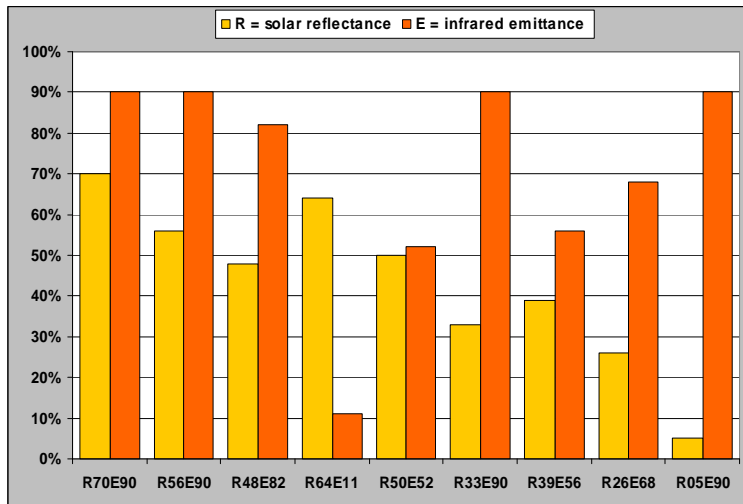


Fig. 9a: Products legend: R and E Values
 R = Reflectance in short wavelength, solar radiation
 E = Emission in long wavelength, IR radiation

Right column (R05E90) = Bitumen Test-Panel
 BTU/ft²yr = British Thermal Unit per Square Foot and year
 Fig. 9: comparison relatively to a Bitumen Test-Panel
 R70E90 = ThermoShield Coating with Clear Coat
 RCMA = Roof Coatings Manufacturers Association

A2: Oakridge National Laboratories Testing (update from June 2000)

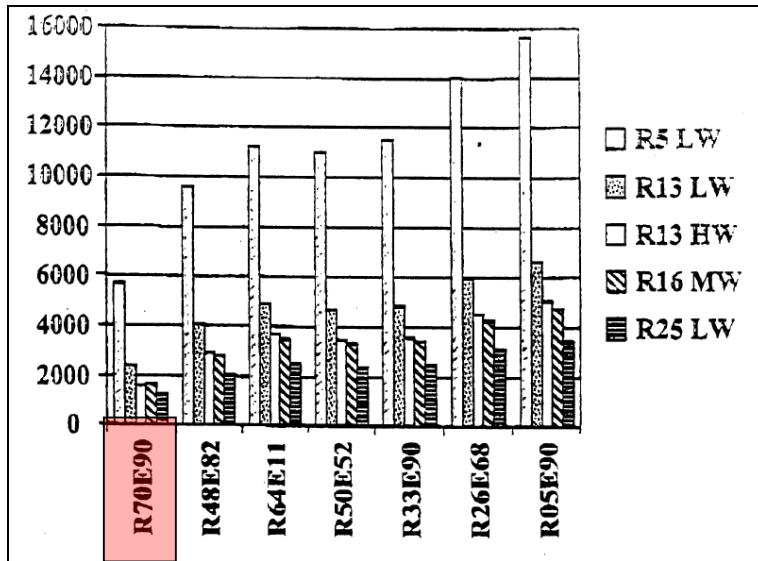


Figure 5: Annual Roof Cooling Load in Knoxville, Tennessee for Various Coatings, Roof Insulation Levels and Decks

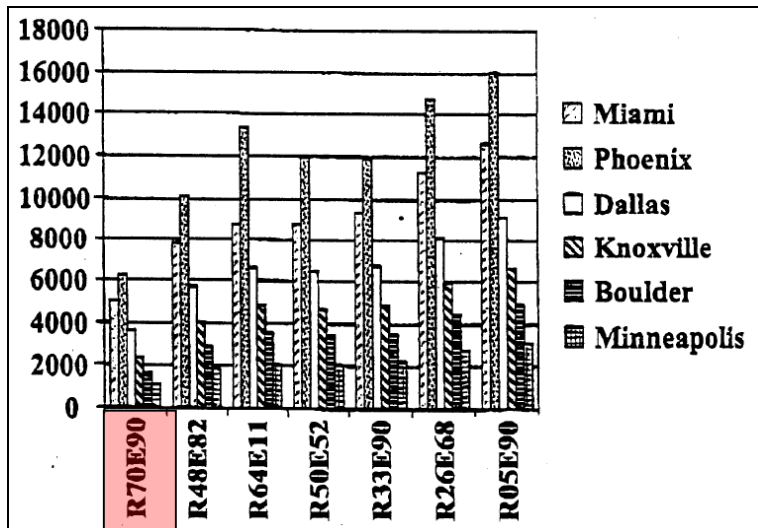


Figure 6: Annual Roof Cooling Load for an R13 Light Weight Roof for Various Coatings and Locations. This graph shows heat flux calculations in various climates. For example, a building in Phoenix, AZ with a light weight roof R-13, coated with Thermo-Shield would have an annual heat flux of about 6,100 BTU per square foot. The same type of bitumen R-13 roof would have 16,000 BTU per square foot.

Legend:

Values on the left = Annual Roof Cooling Load [BTU/ft²yr]

Fig. 5: for Knoxville

Fig. 6: for R-13 LW Roof

LW = light weight concrete or metal roofs

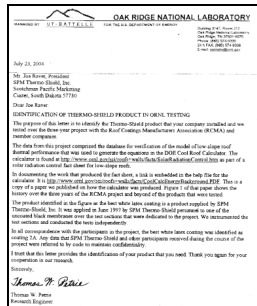
HW = heavy weight concrete

MW = middle weight insulated concrete

R70E90 = ThermoShield roof Coating (the left column)

A3: A letter from Oak Ridge National Laboratory, Oakridge TN, to SPM Thermo-Shield, Inc.

- Transcription -



A letter from Oak Ridge National Laboratory, Oakridge TN, to SPM Thermo-Shield, Inc., Custer SD

23. July 2004

Dear Joe Raver.

IDENTIFICATION OF THERMO-SHIELD PRODUCT IN ORNL TESTING

The purpose of this letter is to identify the Thermo-Shield product that your company installed and we tested over the three year project with the Roof Coatings Manufacturers Association (RCMA) and member companies.

The data from this project comprised the database for verification of the model of low-slope roof thermal performance that was used to generate the equations in the DOE Cool Roof Calculator. The calculator is found at

<http://www.ornl.gov/sci/roofs+walls/facts/SolarRadiationControl.htm>

as part of a solar radiation control fact sheet for low-slope roofs.

In documenting the work that produced the fact sheet, a link is embedded in the help file for the calculator It is

<http://www.ornl.gov/sci/roofs+walls/facts/CoolCalcEnergyBackground.pdf>

This is a copy of a paper we published on how the calculator was produced. Figure 1 of that paper shows the history over the three years of the RCMA project and beyond of the products that were tested.

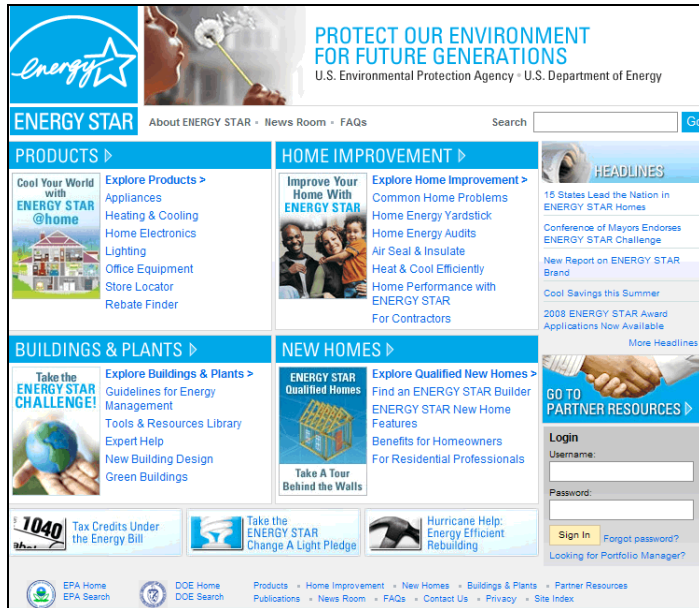
The product identified in the figure as the best white latex coating is a product supplied by SPM Thermo-Shield, Inc. It was applied in June 1997 by SPM Thermo-Shield personnel to one of the uncoated black membranes over the test sections that were dedicated to the project. We instrumented the test sections and conducted the tests independently.

In all correspondence with the participants in the project, the best white latex coating was identified as coating 2A. Any data that SPM Thermo-Shield and other participants received during the course of the project were referred to by code to maintain confidentiality.

I trust that this letter provides the identification of your product that you need. Thank you again for your cooperation in our research.

Sincerely,

Thomas W. Petrie
Research Engineer

A4: Abbreviations and Web Addresses**energy star**

snapshot 16-07-07

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping us all save money and protect the environment through energy efficient products and practices. In 1992 the EPA introduced ENERGY STAR as a voluntary labeling program designed to identify and promote energy-efficient products to reduce greenhouse gas emissions.

<http://www.energystar.gov>

DOE

U.S. Department of Energy

<http://www.energy.gov>

EPA

U.S. Environmental Protection Agency

<http://www.epa.gov/>

ORNL

Oak Ridge National Laboratory

<http://www.ornl.gov/>

SPM

SPM Thermo-Shield Inc.

<http://www.thermo-shield.com>

SICC

SICC GmbH ThermoShield Europe

<http://www.thermoshield-europe.com>

A5: Related Articles

- [1] "Radiation Control Fact sheet. How does solar radiation affect the temperature of a roof surface and heat flow through the roof?" Contents: Effect of Solar Radiation Control on Energy Costs | Estimator | Non-Energy Considerations | Installation, HTML document, ORNL, Revised June 2005,
<http://www.ornl.gov/sci/roofs+walls/facts/SolarRadiationControl.htm>
- [2] "Effect of Solar Radiation Control on Energy Costs – A Radiation Control Fact Sheet for Low-Slope Roofs (with post-publication corrections to Table 4 and Figure 4)" by Thomas W. Petrie, Jerald A. Atchley, Phillip W. Childs and André O. Desjarlais, Buildings Technology Center, Oak Ridge National Laboratory, Prepared by the Buildings Technology Center, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, managed by UT-Battelle, LLC, for the U.S. Department of Energy under contract No. DE-AC05-00OR22725
- [3] "Radiation Control Coatings Installed on Federal Buildings at Tyndall Air Force Base, Volume 1: Pre-Coating Monitoring and Fresh Coating Results" by Thomas W. Petrie and Phillip W. Childs, Buildings Technology Center, Oak Ridge National Laboratory, February 1997,
Prepared for the U.S. Department of Energy, Federal Energy Management Program under the terms of Stevenson-Wydler (15 USC 3710), Cooperative Research and Development Agreement with ThermoShield International, Ltd., ORNL96-0403, Prepared by the Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, managed by Lockheed Martin Energy Research Corporation for the U.S. Department of Energy under contract No. DE-AC05-96OR22464
- [4] "Radiation Control Coatings Installed on federal Buildings at Tyndall Air force Base, Volume 2, Long-Term Monitoring", by Thomas W. Petrie and Phillip W. Childs, Buildings Technology Center, Oak Ridge National Laboratory, June 1998,
Prepared for the U.S. Department of Energy, Federal Energy Management Program under the terms of Stevenson-Wydler (15 USC 3710) Cooperative Research and Development Agreement with ThermoShield International, Ltd., ORNL96-0403, Prepared by the Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, managed by Lockheed Martin Energy Research Corporation for the U.S. Department of Energy under contract No. DE-AC05-96OR22464
- [5] "ENERGY STAR Reflective Roof Products" from "Frequently Asked Questions (FAQ's): ENERGY STAR (Printable), 10/29/2004, saved as PDF file from:
http://www.energystar.gov/index.cfm?c:roofirrods.pr_roof_faqs&layout=print
[energy_star_2004.pdf]