Energy 20-50% Savings
*Industry Tested

SUPER THERM®
Cool Energy Savings Ceramic Coating

Cool Roof Energy Savings Kit™

ECO SAFE AND FRIENDLY
BLOCK 95% HEAT BE COOL SUPER THERM
NO FIRE SPREAD
CO_2 Emission Reduction
NASA Tested Flammability & Toxicity neotech

Part 1: **ROI Global Projects**
Part 2: **Testing & Certification**

neotech COATINGS AUSTRALIA
Future Proof with Tough Protection®

Visit supertherm.net.au or neo.cool for more testing information

CRA™ COOL ROOF AUSTRALIA

SUPER THERM®
Cool Energy Savings Ceramic Coating

SAVE ENERGY $AVE MONEY

Contents

neotech COATINGS AUSTRALIA
Future Proof with Tough Protection®

Visit NEOtechCoatings.com for more testing information

neotech COATINGS AUSTRALIA
Future Proof with Tough Protection®

SUPER THERM®

Cool Energy Savings Ceramic Coating

Super Therm® is guaranteed to make your life and the envrionment better with it's top 5 benefits!

1. Saves you thousands in energy costs with clients showing ROI within 3 years^ and industry tested to show 20-50% energy use reduction
2. World's only insulation coating tested and reflects 95% of solar heat
3. Proven to last over 30 years with a 20 year Manufacturer's Guarantee*
4. Prevents thermal shock protecting your assets, reduces fuel consumption and motor running costs
5. Environmentally friendly, safe and easy water based application and USDA Approved

Key Features and Benefits of Super Therm include:

PASSED

- Blocks 95% of Heat Load (blocks the absorption and transfer of heat) • Total Solar Reflectance 96.1
  - 99% of Ultra Violet Radiation (UV)
  - 92% of Visual Light (Short Wave Radiation)
  - 99.7% of Infra Red (Long Wave Radiation)
- Blocks Flame Spread and Smoke – Class "A" Fire Rating; "0" Flame Spread and Smoke (tested by NASA and Australian laboratories).
- Blocks Water and Moisture Penetration – certified and tested water barrier
- Resists chemicals and provides both insulation and corrosion protection
- No off-gassing – no smells or odours are produced while under application or on the structure
- Safe and non-toxic low VOC • Prevents Mould and Mildew
- Water can still be potable from the roof
- Environmentally Friendly water based, non-toxic, energy efficient results as Energy Star rated
- Works when dirty • UV and weather resistant
- Tested to blocks 68% of Sound Waves – sound deadening
- High technology insulation – when applied is only a 0.254mm thick (same as a business card)
- Easy to apply and clean with airless (1 coat), roller or brush (2 coats)
- No maintenance costs – apply and walk away – reapply 10+ years later to keep coating efficient
- Adaptable – can be applied to virtually any surface
- Simple single use coating ready-to-use formula
- Reduced electricity costs – save money as the air conditioner don't work as hard
- Improves efficiency of solar investments
- Improved personal/animal comfort – significant benefits in ambient temperature
- Reduces surface temperatures for safety
- Use on interior and exterior
- Offers carbon offset with improved contributions to urban heat island effect reduction

KAPOW HEAT!™

Visit Supertherm.net.au or NEOtechCoatings.com for more information

SPICoatings.com USA Manufacturer. NEOtech Coatings - sole Australian Distributor
*Approved Applicator ^Results may vary

ECO FRIENDLY • BLOCKS HEAT • FIREPROOF • WATER BASED • LASTS 20+ YEARS • SAFE

ENERGY SAVINGS COOL COATING

World's Leading Ceramic Heat Block Coating

UV • Visual • Infrared

Solar Heat Blocked 96.1%

20 YEARS COOL ROOF AUSTRALIAN WARRANTY
Conditions apply TM

For over 30 years Super Therm® has blocked the solar heat out!

Since 1989 Super Therm's proven heat block coating with 4 perfectly sized micron ceramics have blocked 96.1% of the solar heat worldwide...*including Australia!*

DISCOVER MORE!

SUPER THERM®
Cool Energy Savings Ceramic Coating

neo.cool

White Roofs Cool

Dark Roofs Heat

SUPER THERM®

Super Therm® = *future proof!*
Blocking the world's heat!

The stakes are high and we know how it feels to struggle with rising power costs and CO_2 emissions. In fact, this is a challenge facing the entire planet. **Super Therm®** has proven globally their advanced ceramic coating blocks solar heat.

This ultimately gives you multiple benefits including a return on your investment while protecting you, your assets and budget. For over **30 years, clients globally** have **reduced their struggle with heat and energy costs** in many different and extreme environmental challenges.

The cost of energy use?

Constant efforts go into saving money on power bills, energy efficient appliances, switching off air-conditioning or finding the best solar options. Not too mention dealing with the pure discomfort of heat entering buildings, creating a hot box that's expensive to cool.

There's also the unseen cost of thermal shock (expansion and contraction of your roof) causing long-term roof damage…**the blindspot in the solar heat battle is keeping the heat out by blocking as much UV, Visual and Infrared heat energy at the envelope of the building or structure. Super Therm® is the answer!**

Super Therm's unique differences:

- **Australia's highest ceramic coating TSR 96.1%**
- **20-50% Energy Savings** (Industry tested)
- **Works while dirty**
- **Lasts over 20 years - no cracking, flaking or peeling**
- **Single coat application (no priming)**
- **Easy to apply (follow instructions)**
- **Safe and water based**
- **Fireproof class 'A' rating - Won't Burn!**
- **Blocks 50-68% sound**
- **Proven globally for over 30+ years**
- **Only heat block coating developed with NASA**

NASA Tested BEST! Flammability & Toxicity

22% Energy Saving Tuscon Airport

USA

Blocking the initial heat load is the "key" to controlling heat load and flow into or out of a building structure… Super Therm® does just that!

Application to Nissan Factory	May	June
Before Super Therm® applied	3,767 kW	5,647 kW
After Super Therm® applied	519 kW	1,896 kW
TOTAL KW SAVINGS	**87%**	**67%**

Source & Photo: Daiko Shokai, Japan Distributor

5 Super Therm® Benefits

1. **World's only ceramic coating that blocks 96.1% of total solar** (radiational) heat; Infrared 99.5%, UV 99% & Visual 92% energy!
2. **Saves you thousands in energy costs** with many clients showing ROI within 3 years
3. **Proven to last over 30 years**
4. **Prevents thermal shock** protecting assets, **reduces fuel consumption, running engine costs, refrigeration and maintenance.**
5. **Environmentally friendly**, safe and simple water based application approved by the EPA. No fire spread or smoke.

JAPAN

75% Energy Saving Nissan

neo cool

SUPER THERM®

Proven for Over 30 Years Worldwide!

How Super Therm® Works

Formulated four ceramics compounds and globally tested to block 96.1% of Infrared, UV and Visible heat energy and Block Heat Load!

J.E. Pritchett, President of Superior Products International II. Inc., USA is a leading, global ceramic researcher and coatings specialist. He worked with NASA engineers for six years on **Super Therm®**'s original ceramic heat block coating development from 1989.

He also spoke at the ***NASA New Technologies Symposium*** in Chicago as a ceramics expert where he leads his field worldwide. This expertise has been invested into one of the world's truly outstanding ceramic coatings amongst other tough SPI Coatings solutions.

Super Therm® is the result as a robust, durable, long lasting and fire rated solar heat block coating!

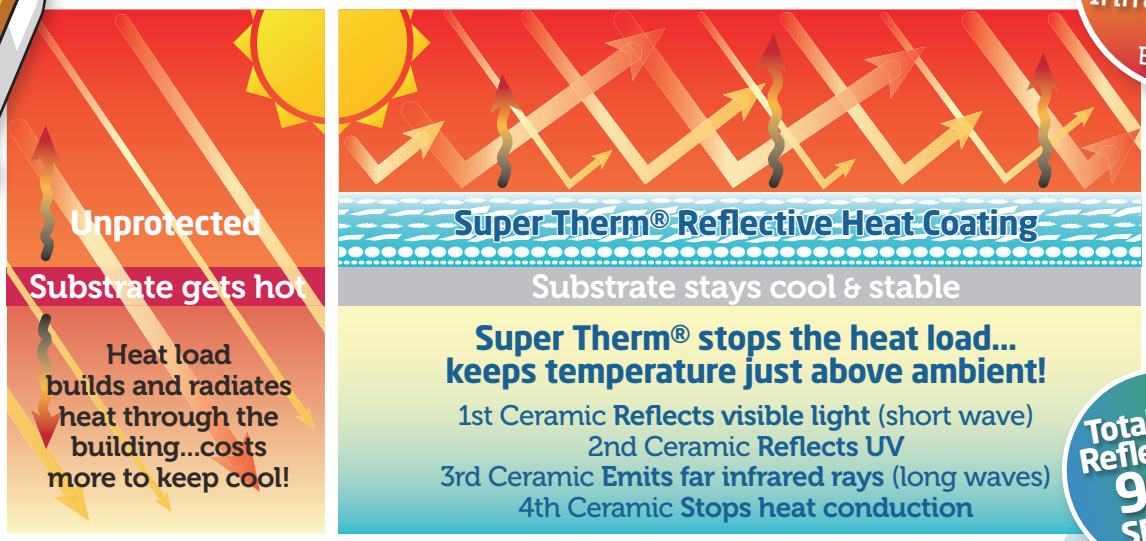
What's Super Therm made of?

Unlike any other, Super Therm® contains four natural ceramic compounds from over 7,000+. Three match each of the solar radiation waves of UV, IR and Visual to block their solar heat and the fourth has a density 50 times lighter than paper so the heat cannot physically load into the surface keeping it safe. This creates high emissivity and reduces heat transfer and conduction...**therefore very little heat load!**

Along with a combination of high-performance formulated urethanes, elastomeric acrylics and resin additives in a water-borne formula, **Super Therm®** is highly durable, tough and flexible.

The ceramic coating that blocks heat load!

STOPS 99.5% Infrared Heat ASTM E1461-92

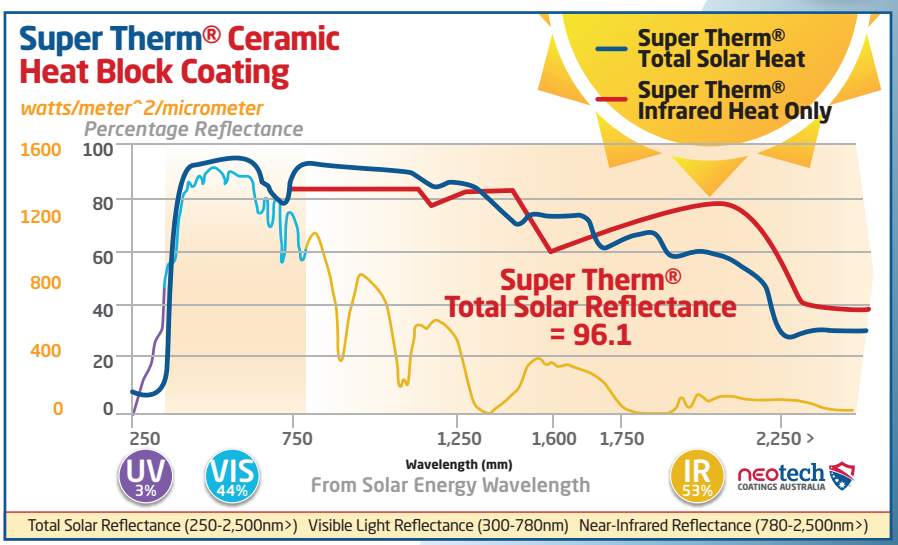


Total Solar Reflectance 96.1 SRI 102

Super Therm® was tested with a very low "absorption" emissivity of 0.05 and a very high "infrared emissivity" in the different radiation wave lengths of 92% and 99%.

The combination of the absorption emissivity of 0.05 and the infrared emissivity of 0.90 to release the surface heat and reflectivity in the different wave lengths of 92% for visual light (short wave) and 99% for infrared (long wave) radiations.

This makes **Super Therm®** an excellent coating to be applied over substrates to prevent heat gain into the surface while eliminating the heat from the surface super quick.



neo.cool

Super Therm® save energy and money with successful results!

Global Projects = Hero Solutions

20-50% energy savings

Industry testing with the Florida Energy Conservation Assistance Program after applying **Super Therm®** records moisture block and air flow reduction as well as a **20-30% energy savings on homes** (hot humid climates) and in Denver (dry climates) as well as steel containers in Texas finding **46-52% energy savings**!

40% air conditioning savings

Super Therm® was applied to 34,800m2 of the **Tucson International Airport**, it saw a **22% reduction in total energy usage** (lighting, elevators, food facilities, etc) and a **40% reduction in air conditioning costs.^**

55% energy savings

Cumming New Life Church, Cumming, GA, needed help with high electric bills from cooling units running all the time and inside temperatures not going below 25°C (78°F). The power bill from September previous year showed 11,320 kWh's used vs. September next year usage of 5,200 kWh's. **The cooling tonnage was re-tested at 16.97 tons from 22.8 tons. They reduced their energy use by 55% and the amount of cooling needed by 26%.**

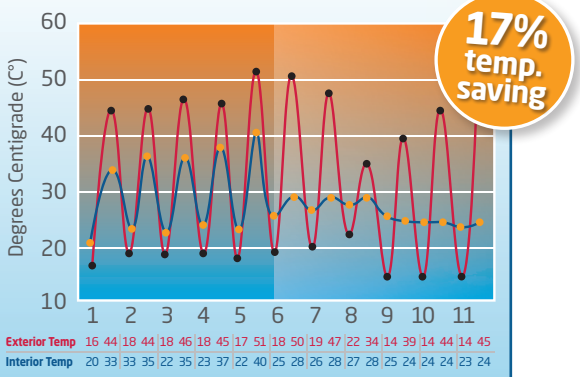
50-60% utility savings

Temperatures in **Las Vegas** average 43.3°c in July (summer). Adobe Homes coated the roof and walls with **Super Therm®** of a home and report up to 50–60% savings on the total utility bill. The house maintains temperatures not over 27°c without air conditioning.

52% reduction in KW

Vodafone Engineering Study shows **52% reduction in KW usage** from application of **Super Therm®** on mobile phone containers, which results in actual dollars saved on the total utility bill. Vodafone is the largest mobile telecommunications network company in the world.

Super Therm beats Spain's Heat!



A metal roof in Sevilla, Spain had temperature readings taken 8am to 2pm to determine temperatures and heat loads. **Super Therm®** was applied at the beginning of the 6th day. A noticeable change to the interior temperature compared to the exterior temperature readings previously (private industry test data). Internal temperature dropped from 30°C to 25°C or 17% saving.

Trucks & Reefers using Super Therm®

Denver to Phoenix, USA

Cool-down time was cut by **1.75 hours or 44%**
Extend the life of the refrigeration trailers
20% less fuel on the outbound "hot" haul
29% less fuel on the return "cold" leg

*neotechcoatings.com/super-therm-testing-and-results/
Individual results may vary from location to location

DISCOVER MORE!

Visit neo.cool for more savings / case studies

FUEL 20-30% SAVINGS INDUSTRY TESTED

neo.cool

Super Therm® stops the world's heat challenges

Super Therm® has been thoroughly tested and proven. It has been used by many multi-national organisations and governments which have applied millions of m2 around the world since it was first released in 1989. It has continued its long lasting, award-winning, proven success for over 30 years and the benefits, environmental rewards and sustainable results are comprehensive.

Global Organisations using Super Therm®

- Mitsubishi
- Nissan
- Panasonic
- General Dynamics
- Hoover Dam
- HEB Grocery Company
- Trucking - Refrigeration Trailers
- Major Global Oil Firms
- Halliburton
- Drydocks World
- Vodafone Group PLC
- Home Builders
- International Airports
- Pacific Shipping and Trucking
- U.S. Army
- U.S. Air Force
- U.S. Navy
- Canon
- Wal-Mart
- Paramount Pictures
- Exxon-Mobil
- Sony
- Toshiba
- Toyo Tire
- NEC
- UPS
- Yamaha
- Yokohama Tyre

Super Therm® Applications

- Aged Care Facilities
- Airports
- Aircraft Hangers
- Agriculture
- Car Sales showrooms
- Government Buildings
- Data Centres
- Distribution Centres
- Education
- Factories
- Homes/Houses
- Hospitals
- Leisure Centres
- Manufacturing
- Military
- Offices
- Plant Rooms
- Shipping Containers
- Shopping Malls
- Sporting Clubs
- Storage Units
- Supermarkets
- Transport
- Warehouses
- Wineries
- Workshops

Super Therm® applied to Nissan, Japan

Blue Chip Casino Boat with **Super Therm®**, Rust Grip®, Moist Metal Grip® and Enamo Grip®

Address Dubai Marina Hotel, **Super Therm®** completed application

Super Therm® used on a Pantech in Poland to save money and keep heat out

Super Therm® reduced flaring on LNG tanks owned by Saudi Aramco Oil in Saudi Arabia

Super Therm® applied to a house in Kapunda, South Australia

Containers in Hepburn Springs, Victoria, Australia. **Super Therm®** tinted to Desert Tan

Super Therm® Air conditioning ducts in Michigan, USA

Super Therm® part of the award-winning Hoover Dam project. Blocks heat load for visitors safety.

neotech COOL COLOURS
Beautiful Heat Protection

SUPER THERM®
Cool Energy Savings Ceramic Coating

CRA™ COOL ROOF AUSTRALIA

Super Therm® can be colour matched to these colours in the COLORBOND® steel range

Colorbond® Surfmist® 78%	Colorbond® Smooth Cream® 77%	Colorbond® Evening Haze® 69%	Colorbond® Paperbark® 66%	Colorbond® Shale Grey® 64%	Colorbond® Dune® 64%

White 95% SUPER THERM®	Golden Green 89%	Magenta 88%	Canary Yellow 87%	Light Yellow 86%	Light Cream 83%	Lavender 83%
Yellow Green 82%	Sploy Beigh 78%	Eggshell 78%	Cream 78%	Light Yellow Tan 77%	Light Golden Tan 77%	Light Peach 75%
Peach 75%	Mint 70%	Blushing Belge 69%	Yellow Tan 67%	Golden Tan 66%	Blue Smoke 66%	Grey Tan 64%
		Aqua 66%	Misty Grey 66%	Light Brown 65%	Smokey Green 64%	Smokey Brown 64%
				Light Grey 56%	Foggy Grey 55%	Solid Grey 52%

neotech COATINGS AUSTRALIA
Future Proof with Tough Protection®

The guide was tested in the SPI Coatings lab with a spectroscopic light gauge to check reflectance. They have not been tested with ASTM Standards. There is no warranty for tinted Super Therm®. Terms and conditions at neo.cool as conditions apply. Colours are a guide only. Paint tinting from your local paint store. Not supplied by NEOtech Coatings.

SUPER THERM®

Super Therm® Protects Our Planet

Easily reduce carbon emissions

Industries, government and residents globally rely on **Super Therm®** due to its unique and outstanding high performance and sustainability results and benefits. The core properties of **Super Therm®** continue to attract smart customers needing a genuine and long term eco-friendly solution that yields passive energy efficiency, reduces CO_2 emissions and reduces costs. **Super Therm®** stops the BTUs entering buildings means less cooling needs, therefore saving energy!

Super Therm® the proven leader!

EPA Energy Star Program

Super Therm® is an approved and accepted Energy Star Partner

- ASTM E 903-96 Reflectivity=80%
- Only 1% loss in reflectivity over 3 Years (3% over 10 years)
- ASTM C 1371 and C 1549 Solar Reflectance and Thermal Emittance
- Tested to maintains thermal efficiency for 30 years

CRRC (Cool Roof Rating Council)

Rated Products Directory: Field-Applied Coating.
CRRC Product ID# 0802-0001

LEED - Leadership in Energy & Environmental Design

Cradle to Cradle Silver Certification

Environmentally Safe and Eco-effective

SPI - Member U.S. Green Building Council

Save 39% more energy at 25°C

Con Edison, NY research stated "keep your thermostat set at 78°F (**25.5°C**) when your building is occupied...turning down the thermostat to 75°F (23.8°C) costs 18% more, and 72°F (22.2°C) costs 39% more!"* . Therefore BTU Reduction = KW savings = a ctual dollar savings...keeping out as much heat load as possible saves money and energy use.

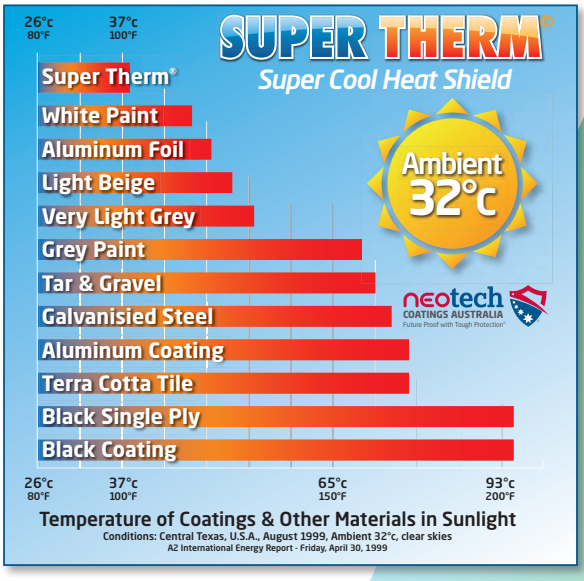
Super Therm blocks heat = less energy to cool!

Dark Roofs are Hot!

Dark surfaces attract 25-30% more heat than white due to emissivity. While dark surfaces may blend into the environment better, they **increase the temperature more in your building and contribute to the urban heat island effect!**

As energy prices and temperatures rise you'll need to consume more energy to remain cool, therefore it costs more and produces more CO_2. **Absorbing more heat, dark coloured surfaces magnify the temperature more**, sometimes **reaching 80°C+ on a hot day with no heat barrier**. This heat is transferred into the building where fibreglass insulation loads that heat and air conditioners work extremely hard to keep up...eventually its all overloaded and expensive!

Super Therm® blocks 96.1% of that heat at the best place, the envelope, leaving near ambient temperatures. This creates a very energy efficient building that also protects the roof from thermal shock, corrosion, sound and fire.



Certified, Tested and Approved

LEED
LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN

Future Proof with Tough Protection™

High Performance >>>
SUPER THERM®
Cool Energy Savings Ceramic Coating

At NEOtech Coatings Australia we understand the struggle with rising power costs, more energy use and rising environmental temperatures.

As summer's get hotter you can protect yourself with **Super Therm® high performance ceramic coating** tested and proven to **stop 96.1% of heat**, including **Infrared**. This reduces your air conditioner running, power costs and saves money. **In fact the US Department of Energy ran three separate tests showing Super Therm® brought an energy saving of 20-50%*.**

Industries cannot rely on unsustainable energy efficiency when delivering their products and systems. That's why **NEOtech Coatings** with **Superior Products International II. Inc.** are working hard for you to have outstanding energy solutions. **Super Therm® has proven to reduce heat and last over 30 years!**

We bring peace of mind to combating high energy use and associated costs. This is transformation across all industry sectors including business, government, trucking and transport, cool and cold storage, homes, schools and much more! **Contact us today to start truly blocking the heat!**

Super Therm® Physical Data

- **Solids:** By w/w 70% / By v/v : 54% (+/-2%)
- 30-60 minutes to tack free at 21°C (70°F)
- **Overcoat:** 2 hours when 21°C (70°F) at 40% Relative Humidity
- **Full Cure by Evaporation:** 21 days
- Lead and chromate free
- USDA approved and permitted for use for potable water
- **Weight: 1.42kg/litre** (11.88 lbs./gallon)
- **Shelf Life:** Up to 5 years if unopened under appropriate storage conditions (See SDS).
- **Vehicle Type:** Urethane/Acrylic/Resin blend
- **VOC Level:** 67.2 grams/litre 0.561 gal/lbs
- **Acid resistance:** Will withstand mild acids
- **Viscosity:** 105 - 110 KU
- **pH:** 8.5 - 9.0
- **Apply:** 425 microns (17 mils) wet

Visit neo.cool for full Technical and SDS pdfs

STOPS 99.5% Infrared Heat

TSR 96.1
Reflectivity 83%
Emissivity 90%
BTU 99.5%
ASTM E1461-92

Protect Your Industrial Assets

SUNSHIELD® Passive Solar Heat Block Coating
Rust Grip® World's Toughest Encapsulation Coating
Enamo Grip® The Ultimate Protection Coating
Moist Metal Grip® Corrosion Protection in Moisture
HPC COATING
SP Interlock® Protect & Encapsulate Stone and Concrete

NEOtech Coatings Australia Pty Ltd are Authorised Australian Distributors of Superior Products International (SPI) USA

SPI COATINGS
PROVEN PERFORMANCE • REAL WORLD SOLUTIONS
AUTHORIZED DISTRIBUTOR

Local Australian Dealer/Applicator

neotech COATINGS AUSTRALIA
Future Proof with Tough Protection®

DISCOVER MORE!

visit: neo.cool

SALES AND DISTRIBUTION
1-3 Edmund Street, Norwood SA 5067 • PO Box 54, Stepney SA 5069
Phone/WhatsApp +61 (0) 409 678 654 • sales@neotechcoatings.com

CERTIFICATE OF INSULATION

Contributing Certifications:

a. **BOCA** # 2125 (Building Officials Code Administrators)
Division 07, Thermal insulation and Moisture Protection
Section 07200 – Insulation
Signature: Engineering Staff

b. **Fuji Chimera Research Institute, Inc.// Daiko Shokai**
70% of "Insulation Paint" market
Signature: Research Staff

c. **Florida ECAP (Energy Conservation Assistance Program) Florida DOE**
Thermal Load Reduction under SUPER THERM for insulation.
Energy Conservation Assistance Programs and Test Method for
Comparing Utility Loads in Standard Constructed Buildings.
Using energy related products to displace conventional utility loads.
Signature: Alexander E. Othmer, CEA/CBA/NDEIII.
Mgr. Florida Department of Community Affairs Energy Office/
ECAP. University of South Florida / Small Business Development Center.

d. **Chicago General Contractor – Hartrich Construction, Engineering**
R equivalent value from BTU Omega Engineering measurements.
Wall readings and R-value rating given a 20 value from insulation measurements.

e. **California Cool Roof Program**
Qualifying Cool Roof Products List

f. **State of California Bureau of Home Furnishings and Thermal Insulation**
License Number TE 1392

g. **VTEC Laboratories, Inc. – New York.**
Certified Governmental Lab for insulation and fire protection.
Tested, analyzed and measured for Thermal Insulation value of RE 19.

h. **National Certified Testing Laboratories, Inc. – Pennsylvania**
Certified National Testing Laboratory for all ASTM (American Standards of Testing and Measurements).
ASTM C 236 Testing performed for Bombardier Transportation.
Thermal insulation testing proving Thermal Conductance.
Signature: Engineering Dept.

i. **Thermal Diffusivity / Conductivity by Flash Method** (ASTM E1461 (92) and ASTM E 1269), BTU conduction and thermal insulation resulted in BTU heat transfer reduced from 367.20 heat unit transfer down to 3.99 heat unit transfer with one coat of SUPER THERM applied over substrate surface.
Signature: Engineering Dept.

SUPER THERM is tested and certified for Thermal Insulation when applied over metal (ferrous and non-ferrous), fiberglass, concrete, wood, composite, plastic and glass surfaces.

Signed:

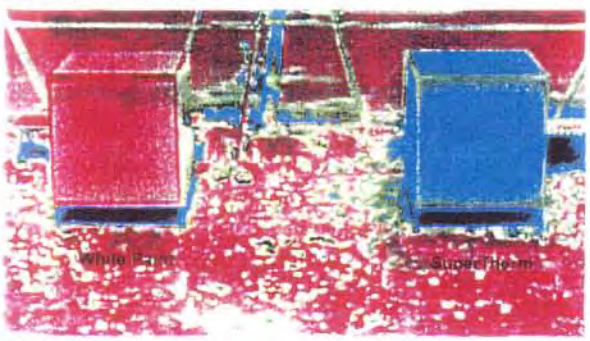
Notarized:

JULIANN PRITCHETT
NOTARY PUBLIC
STATE OF KANSAS
My Appt. Exp. _____

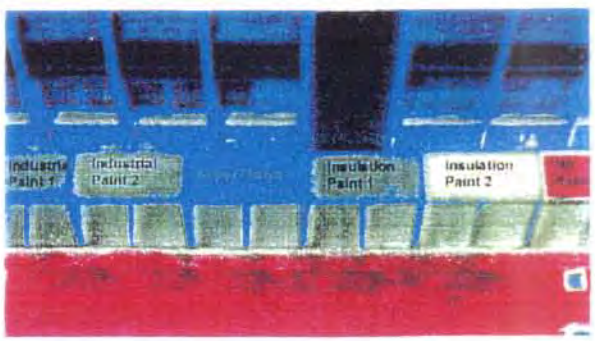
CERTIFIED

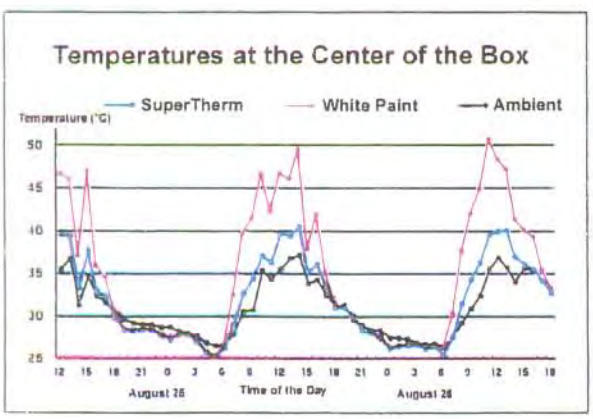
Heat Insulation Tests for SuperTherm

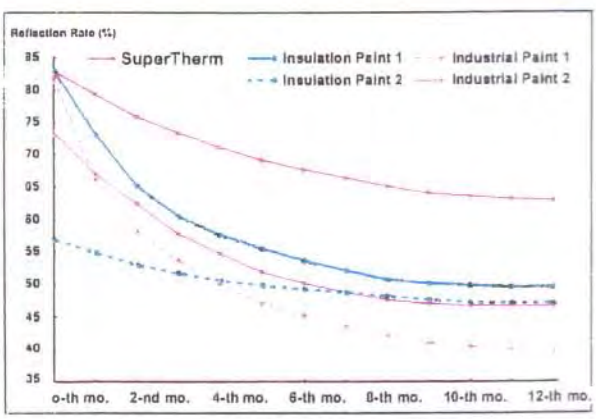
BOX TEST



Comparison of Heat Insulation of SuperTherm for Several Different Coatings on Metal Roofs

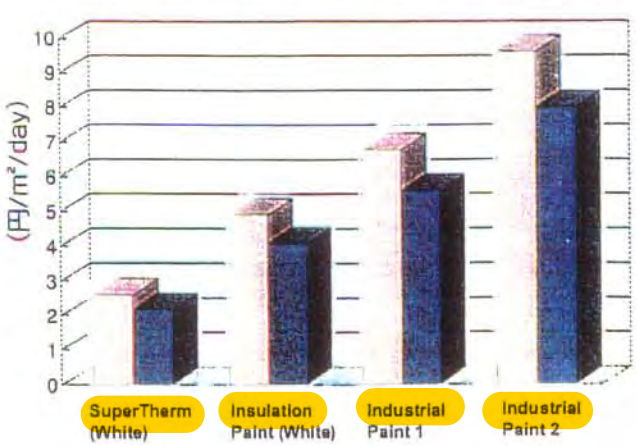






Decrease of Reflection Rate with Time

Cost Comparison for Air-Conditioning



Test Conditions
The test was conducted in Tokyo, Japan in August 15, 1999. The weather was clear. The indoor temperature was at 25 °C. The air-condition cost comparison was made for Yen per square meter per day.

Air Cooling (Yen /m²/day)
Water Cooling (Yen /m²/day)

*Elec. Cost= 13 Yen /kW

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

LONG TERM PERFORMANCE AND DURABILITY OF SUPER THERM®

SOLAR REFLECTANCE TEST OF SUPER THERM® AFTER 17 and 10 YEARS

Reflectance Test of 17 Year Old Roof in Western Kansas where SUPER THERM® Was Applied in 1989.

Reflectance Test of 10 Year Old Roof in Osaka, Japan at Kokuyo Co., Ltd. (Nagoya Distribution Center) where SUPER THERM® was applied in 1994.

RESEARCH ON HIGH REFLECTANCE COATINGS IN JAPAN

Research on Cool Roof in Japan by Mr. Yasushi Kondo, PhD of Musashi Institute of Technology at International Workshop on Countermeasures to Urban Heat Island.

SUPER THERM® performance and durability was proven over fifteen (15) years with a reduction in total reflectance of 19.4% and in visible light reflectance of 15.9%.

Of twenty-one other high reflectance coatings, the coating with the highest reflectance at the time of application lost 30% of total reflectance after 571 days (1½ years).

10835 W. 78th Street • Shawnee, Kansas 66214 • Phone: 913-962-4848; Fax: 913-962-6767
Website: www.spicoatings.com Email: sales@spicoatings.com

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

COMPARISON OF SUPER THERM®
TO OTHER REFLECTIVE COATINGS ON THE MARKET WHEN TESTED FOR ENERGY STAR PROGRAM

In the government testing procedures on the products by Insulating Coatings Corporation, Temp-Coat Brand Products, LLC, and SPM Thermoshield, Inc. dba Roof Guardian when tested for Energy Star Program, the testing was performed to demonstrate the reflectivity of a new roof and of a three-year old roof to determine the reduction in reflectivity/performance and loss of insulation effectiveness.

See the original report of the ENERGY STAR PROGRAM as of December 15, 2009, at http://www.energystar.gov/index.cfm?c=roof_prods.pr_roof_products.

Product	New Roof Reflectivity	3 Year Old Roof	Percentage Reduction in Reflectivity
Aztec 900	**85%**	**75%**	**- 11.8%**
	Warranty of I0 years would mean that at the end of 10 years the reflectivity would be reduced by a minimum of 30%		
Temp Coat	**88%**	**61%**	**- 31%**
	Warranty of I0 years would mean that at the end of 10 years the reflectivity would be reduced by a minimum of 90%		
Thermo-Shield (March 2007)	**84%**	**63%**	**- 25%**
	Warranty of I0 years would mean that at the end of 10 years the reflectivity would be reduced by a minimum of 75%		
Super Therm®	**.80%**	**.79%**	**- 01%**
	Warranty of I0 years would mean that at the end of 10 years the reflectivity would be reduced by less than 0.04%		
Envirotrol CC-I00	**Not Tested**	**Not Tested**	**Not Tested**

This comparison testing shows very clearly that SUPER THERM® is the best coating on the market to maintain its insulation ability over the years. The other coatings must be reapplied to maintain any insulation ability. SUPER THERM® does not have to reapplied.

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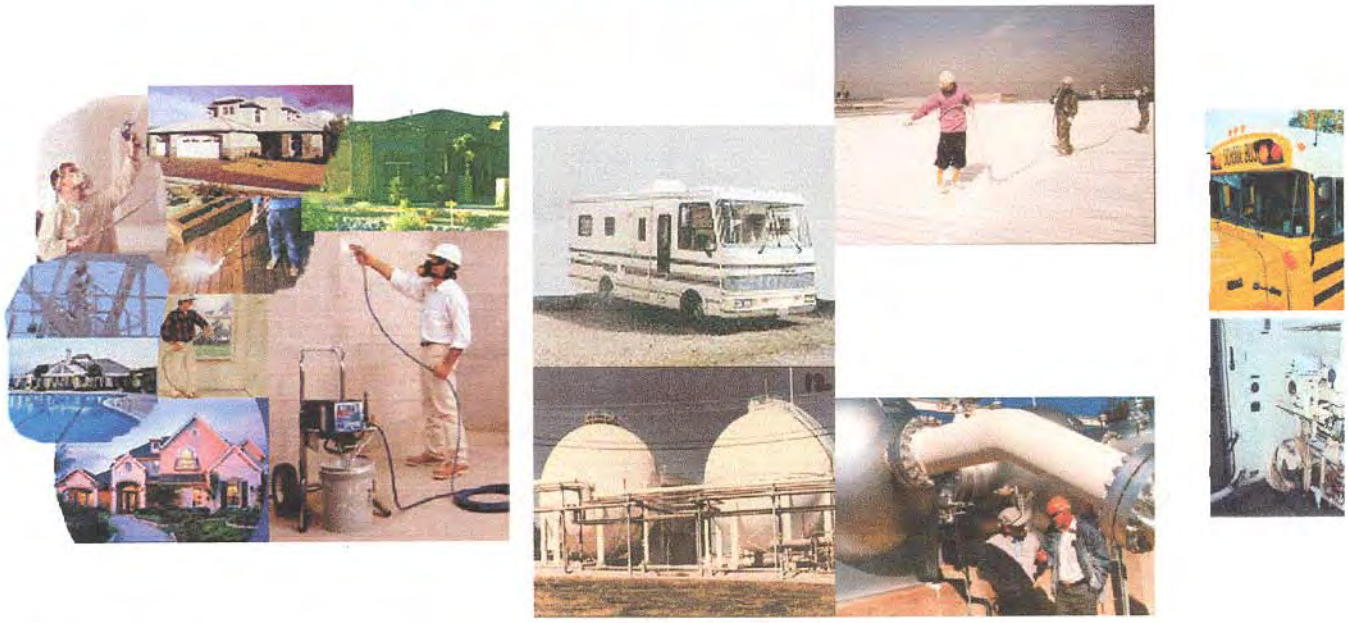
E-mail aothmer@coba.usf.edu

ENERGY 20-30% SAVINGS INDUSTRY TESTED

FIELD TEST RESULTS

SUPERTHERM



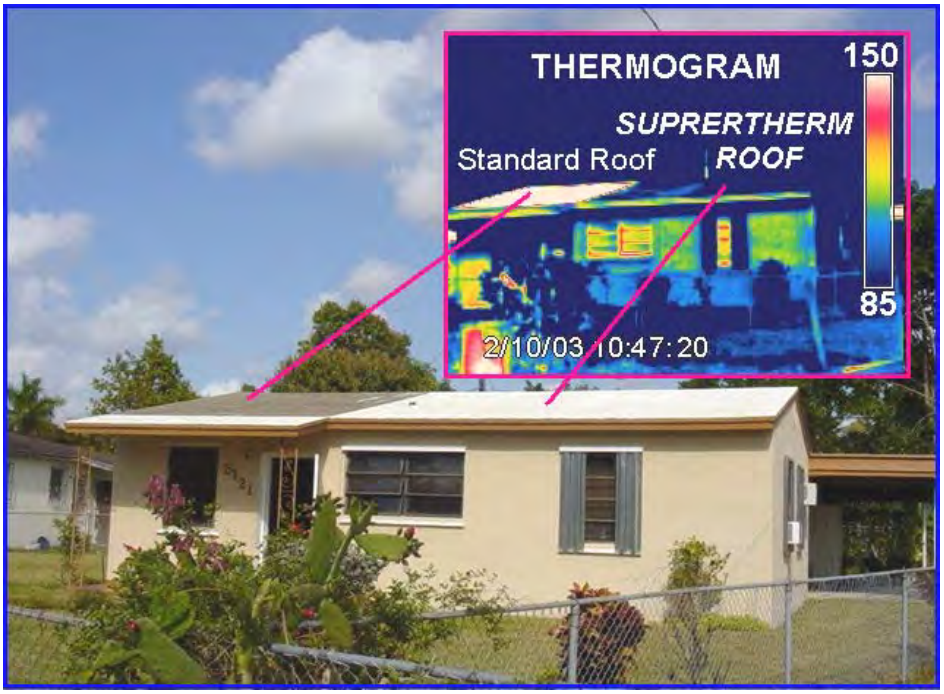
On February 10th & 11 th, 2003 a survey was conducted on the above product, applied to a residential home roofing system located in Dade County, Florida in accordance with the **S**tate of **F**lorida **E**nergy **O**ffice / **ENERGY CONSERVATION ASSISTANCE PROGRAMS Designation: ECAP-CUL-1-99**
Test Method for Comparing Utility Loads in Standard Constructed Buildings.

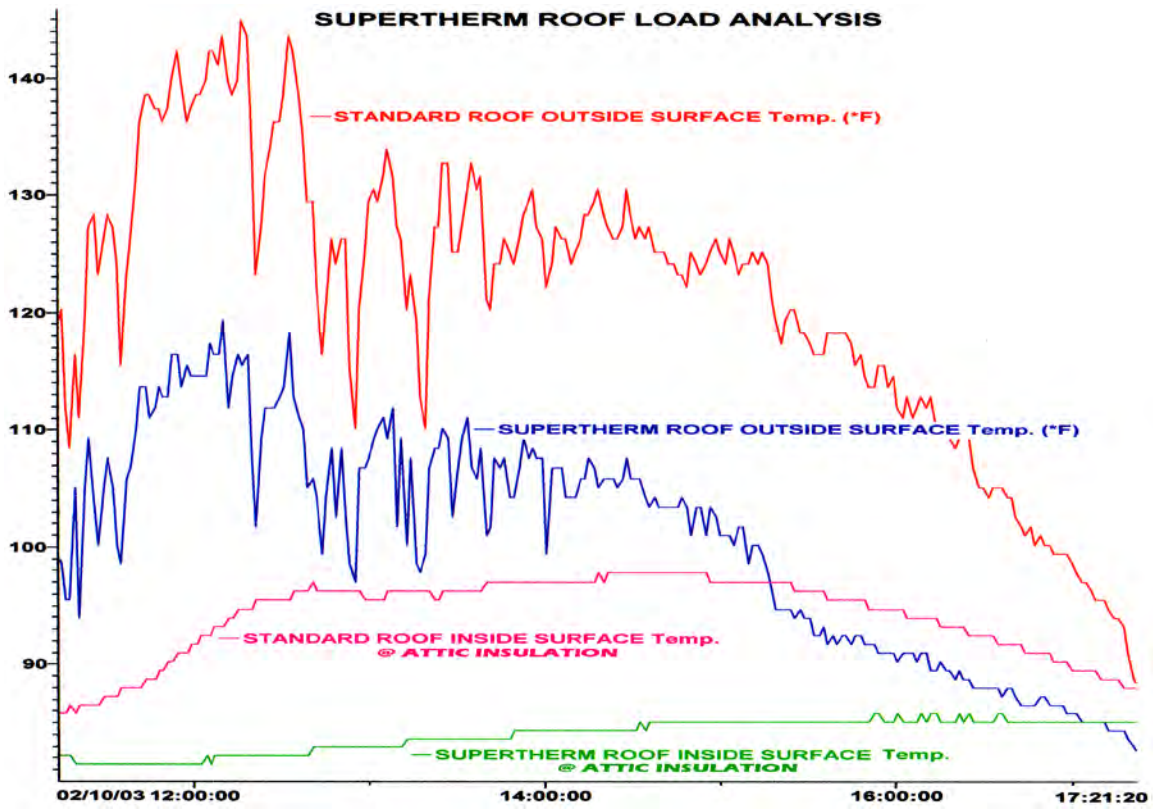
The objective of this procedure is to determine the ***actual impact on a facility, after the implementation of a Energy Conservation Retrofit*** and verify the reduced utility loads, if any, in occupied residential, commercial and government buildings. The focus of this procedure is to provide ***a comparison*** to known standards for all parties interested in using ***energy related products*** to ***displaced conventional utility loads***. This procedure addresses the energy consumption properties of the equipment and structural envelope tested and has no relationship to structural, electrical or fire code requirements.

- Our survey indicated that your application of ***SuperTherm*** reduced total Roof Solar Gain Loads by **20 to 30%.** This would qualify as an effective ***E***nergy ***C***onservation ***M***easure (***ECM***) fundable with Federal and State of Florida Energy Grant Dollars where applicable.

Survey Results

As can be seen in the Photo, Thermogram and chart below, significant load reductions were taking place ***on and under the section*** of roofing treated with the ***SuperTherm*** coatings.





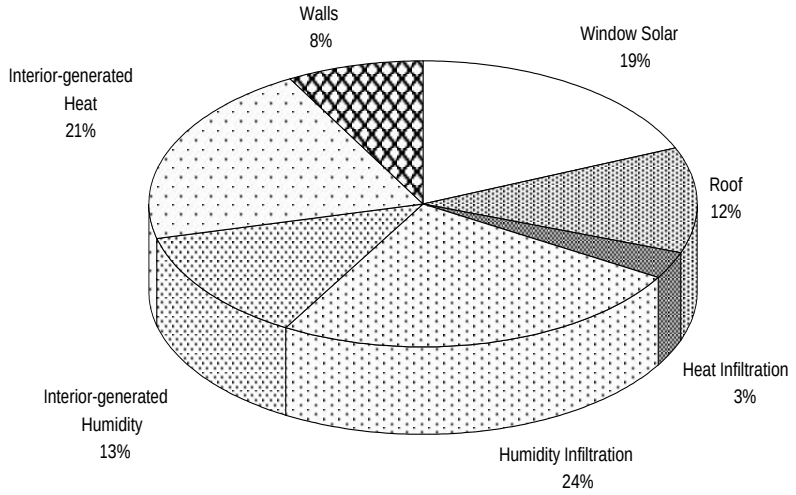
As aforementioned, the ***THERMAL LOAD REDUCTIONS in conduction, convection, and absorption were not restricted to the treated roofs outside surface.*** Over 5,780 data points were taken over a 24 hour period on a standard constructed concrete block home. Recordings were taken at;

- Outside roof surfaces.
- Inside roof surfaces.
- Inside attic insulation surfaces.
- And inside living area room temperatures.

The drawing below shows a synopsis of the data collected. Of particular interest was the effect on ***living area room temperatures*** during a period when we ***were not running either the heating or air conditioning system.***

Predicated on historically accepted Florida Air Conditioning building component load data (chart below) and the square footage of the project surveyed, the estimated air conditioning load savings from the SuperTherm retrofit was approximately 11.09 tons of load per 24 hour period.

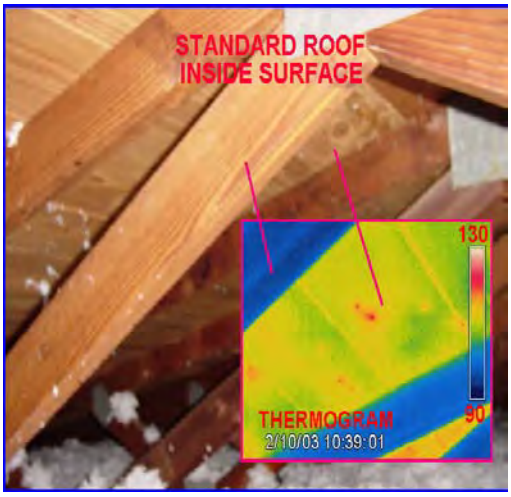
Calculator: www.epa.gov/energy/
greenhouse-gas-equivalencies-calculator



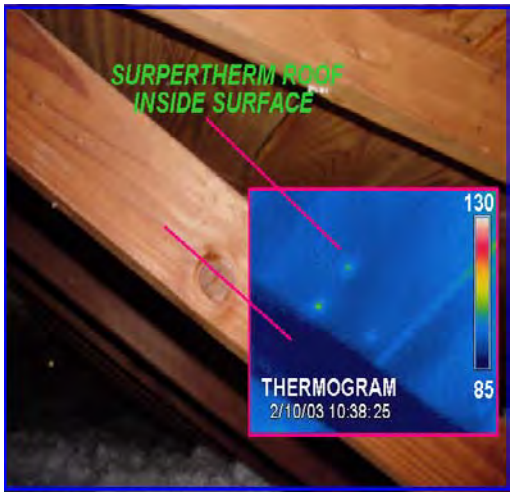
PERCENT OF COOLING DOLLARS WASTED

The ***THERMOGRAM (heat image)*** show some of the **LOADS** encountered during this survey.

INSIDE ROOF LOADS



WITHOUT SUPERTHERM



WITH SUPERTHERM

Average Weather conditions during the test period were as follows:

High Temperature	85.5 Deg. F.
Low Temperature	58.8 Deg. F
Average Wind Speed	4 to 8 MPH
Average ***UV*** intensity	99 A+B

Outside Humidity 88 %

Mostly sunny conditions with light cloud activity (See chart below)

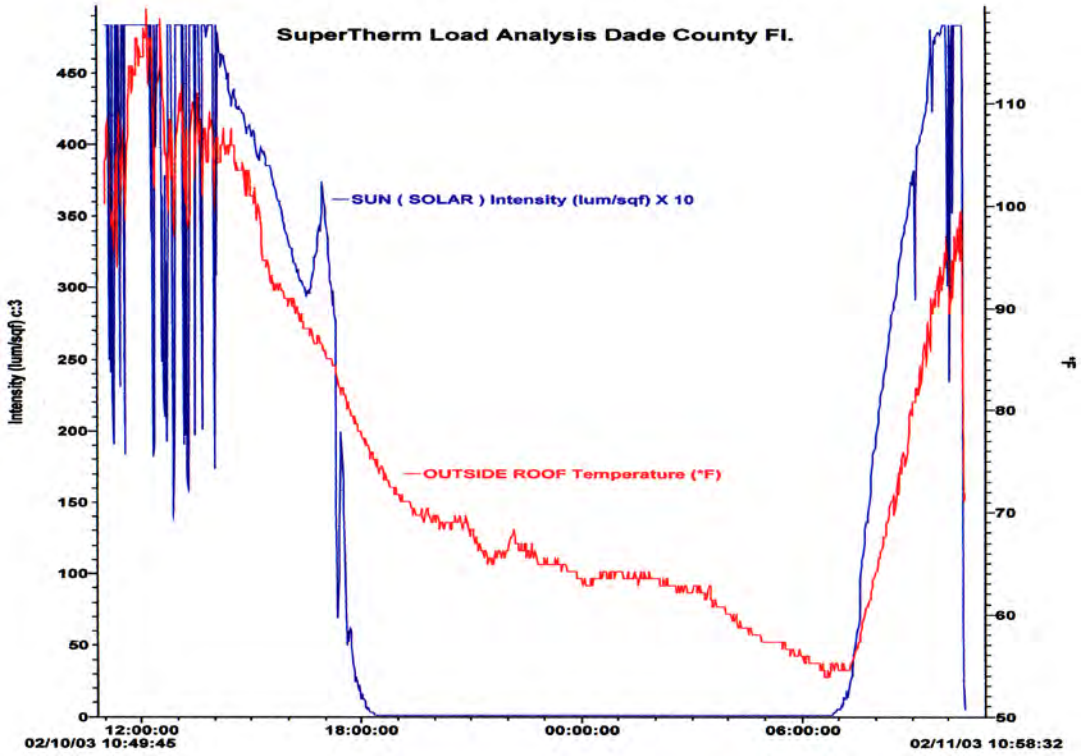
SYSTEMS TESTED Table # 1

The load producing components tested are as follows;

TYPE OF SYSTEM	BTU PER SQUARE FOOT PER HOUR SOLAR GAIN	INSIDE SURFACE TEMPERATURE RECORDED	APPROXIMATE R-VALUE	APPROXIMATE U-VALUE	TOTAL BTU / THERMAL LOAD & UV ABSORBTON
STANDARD ROOF	206	145 Max.	22.0	0.045	206 / 145 98.0
SuperTherm ROOF	85	118 Max.	19.0 Reflectance Equivalent	0.270	85 / 118 03.0

SYSTEM LOADS AS TESTED

TOTAL ROOF LOAD WITH NO RETROFIT **226,600 BTU'S \ HOUR.**
RETROFITTED ROOF LOAD **93,500 BTU'S \ HOUR.**
SAVINGS FROM RETROFIT **133,100 BTU'S \ PER HOUR.**
REDUCED ENVIROMENTAL IMPACT **66 POUNDS OF POWER PLANT EMMISIONS / HR.**



Closing Comments

As installed, at the time of this survey, the ***SuperTherm Roof Coating System*** proved to be an effective ***E***nergy ***C***onservation ***M***easure (***ECM***) that produced a reasonable simple

pay back of approximately 2.2 years on this particular project. This would indicate that it's application could be fundable with Federal and / or State of Florida Energy Grant Dollars where applicable.

On behalf of the United States Department of Energy, The State of Florida Energy Office and the United States Environmental Protection Agency, let me thank you for your efforts in developing an affordable product that obviously can be instrumental in Conserving Energy. We hope you will continue to consider ***Florida as a valuable market for your products*** .

We would also like to thank Mr. J.R. Howell of Construction Services Group and South Beach Solar Solutions for their generosity and display of Corporate responsibility for donating this Roofing Retrofit to a Front Porch Florida, Low Income Family, giving us the opportunity to use their home as a field test site. **Superior Products International II, Inc. is the manufacturer of SUPER THERM and the entire line of insulation, high temperature, fire protection and corrosion control coatings**. The data collected is a valuable asset to our program in building a comprehensive profiling of ***actual energy related loads*** that occur in ***occupied / operational buildings***. This type of data is critical to other Engineers and Home Owners facing similar decision making tasks, where published measurement and verification data is not yet available **or inaccurate**.

This report is meant to be an educational guide to familiarize you ***with the performance profiles of your chosen E**nergy **C**onservation **M**easure*, it ***should not be construed as an endorsement of any product or service by name or specific design.*** Please feel free to contact our offices if we can be of any assistance in helping you meet your future conservation goals.

Alexander E. Othmer ***CEA/CBA/NDEIII***

Mgr. Florida Department of Community Affairs Energy Office / E C A P
University Of South Florida / Small Business Development Center

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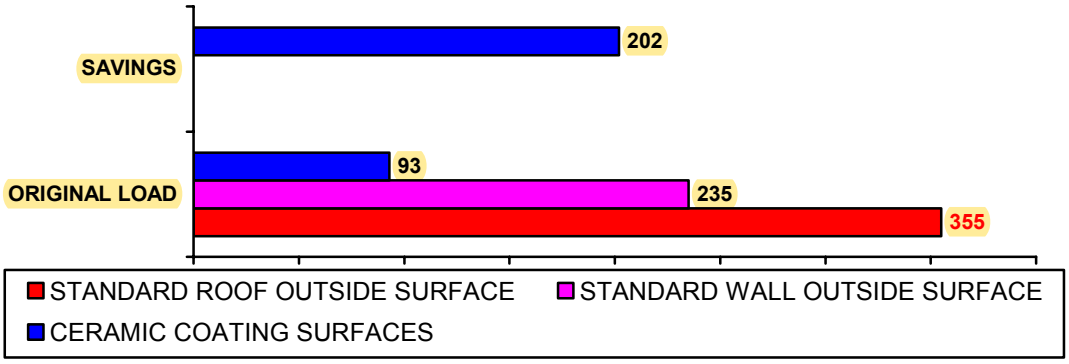
SUPERIOR PRODUCTS MOUNTAIN STATES, INC.

Superior Products Mountain States Inc.
Denver, Colorado

On July 19th & 20th 2004 at the request of Mr. Tom Higgins, a Measurement and Verification Analysis was conducted at the above facility in accordance with the **S**tate of **F**lorida **E**nergy **O**ffice / **ENERGY CONSERVATION ASSISTANCE PROGRAMS Designation: ECAP-CUL-1-03 Method for Comparing Utility Loads in Standard Constructed Buildings.** The objective of this analysis is to determine the impact of the ***"As Built Conditions and As Installed Components / Equipment"*** on the utility loads in occupied residential, commercial and government buildings. The focus of this procedure is to provide ***a comparison*** to known standards for all parties interested in using ***alternative energy devices*** to ***displaced conventional utility loads***. This report reflects the performance characteristics of the Ceramic Coating**,** as applied to the test facilities external surfaces, as a possible passive ***E***nergy ***C***onservation ***M***easure ***(ECM)*** to reduce internal Energy Loads and reduce the Heat Island Effects caused by roofing systems in urban areas.

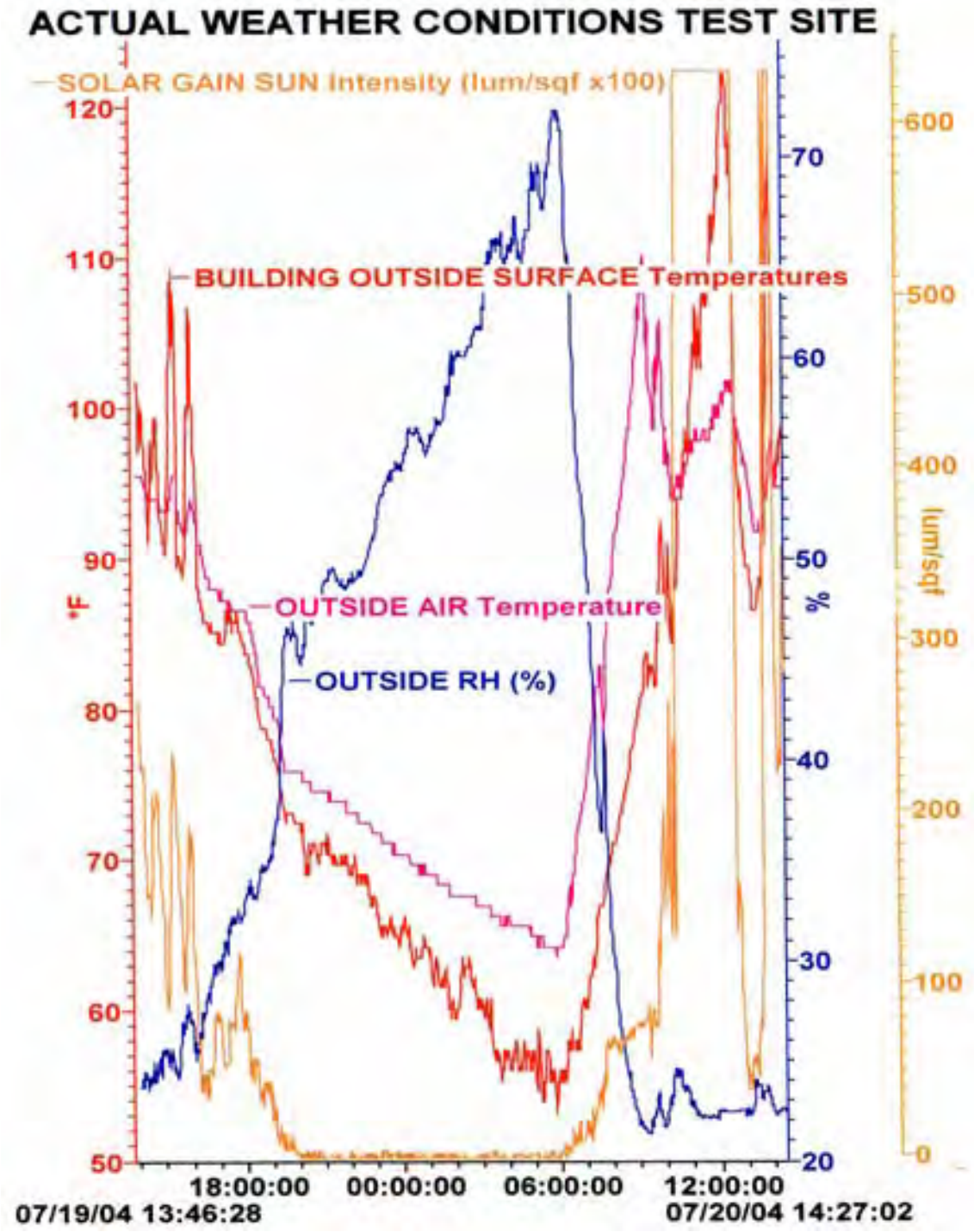
- Our survey indicated that the test specimen's building envelope related energy loads were reduced approximately **26 to 30%** by the use of this particular ***E***nergy ***C***onservation ***M***easure (***ECM ***). ***This was accomplished with no negative effect on the existing buildings Architectural Aesthetics.*** The chart below shows a synopsis of our findings**.**

AVERAGE THERMAL LOADS OF OUTSIDE BUILDING ENVELOPE SURFACES / BTU PER SQUARE FOOT PER HOUR



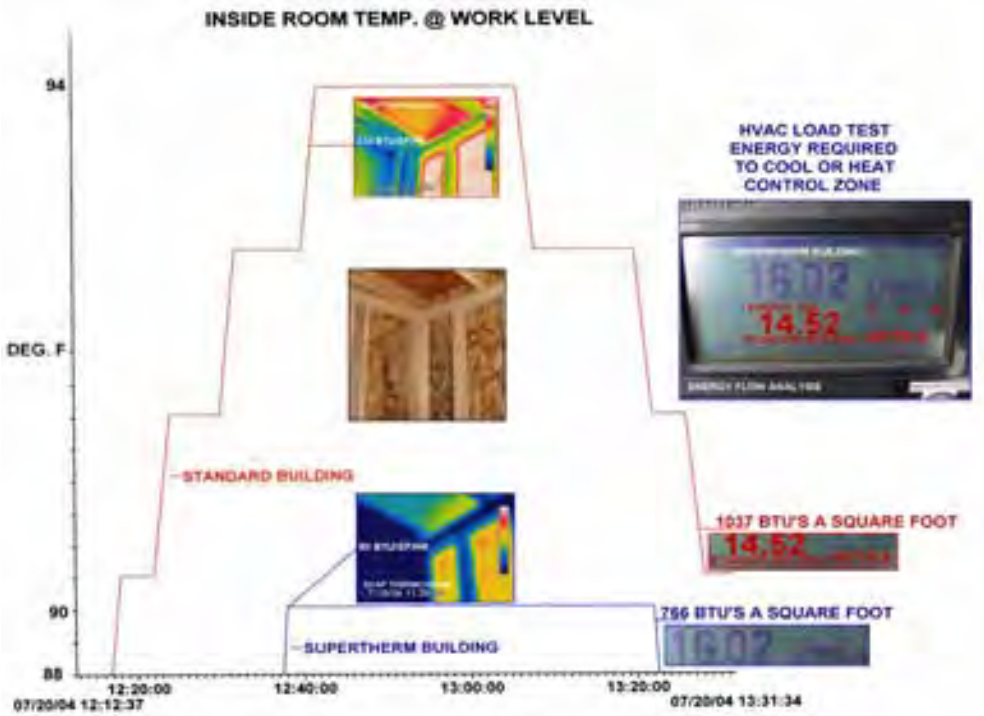
Average SITE Weather conditions during the analysis period were as follows:

High Temperature	110 Deg. F.
Low Temperature	65 Deg. F
Average Wind Speed	5.5 MPH
Average *UV* intensity	99 A+B
Average Outside Humidity	49.5%

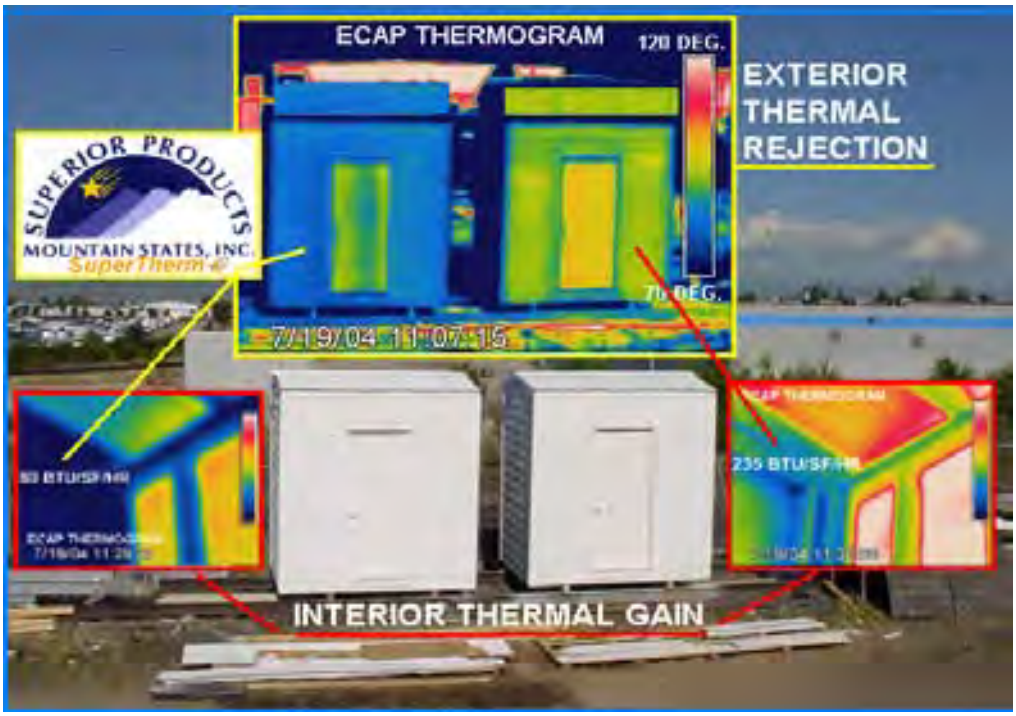


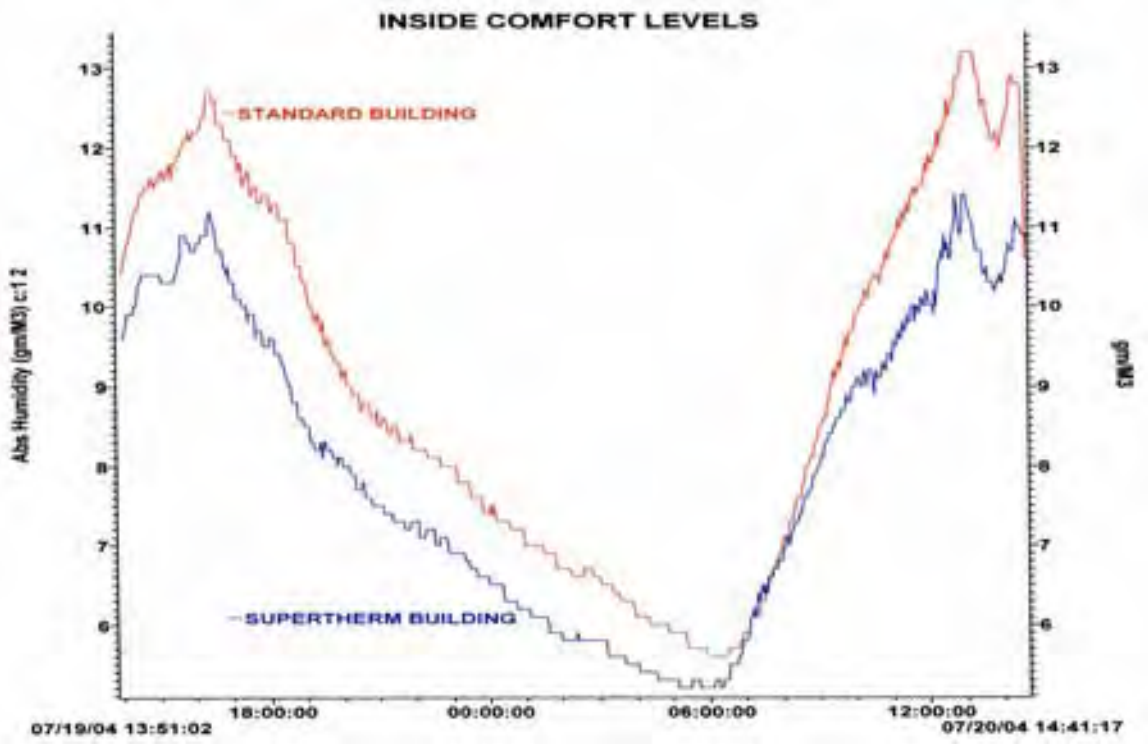
SYSTEMS TESTED

All load producing construction materials on both buildings were analyzed. 7,250 data points were recorded at 2 minute intervals for a 24 hour period with a synopsis of the findings as follows:

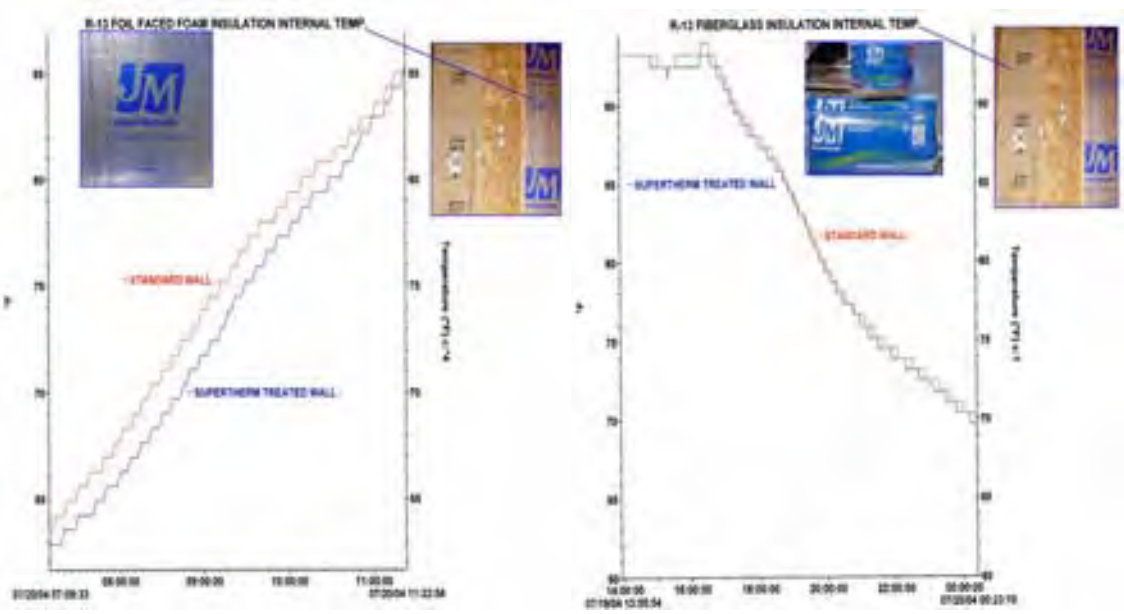


THE THERMAL ENERGY NECESSARY TO HEAT OR COOL THE BUILDING COATED WITH THE CERAMIC COATING PRODUCT REQUIRED ***26% LESS ENERGY***.

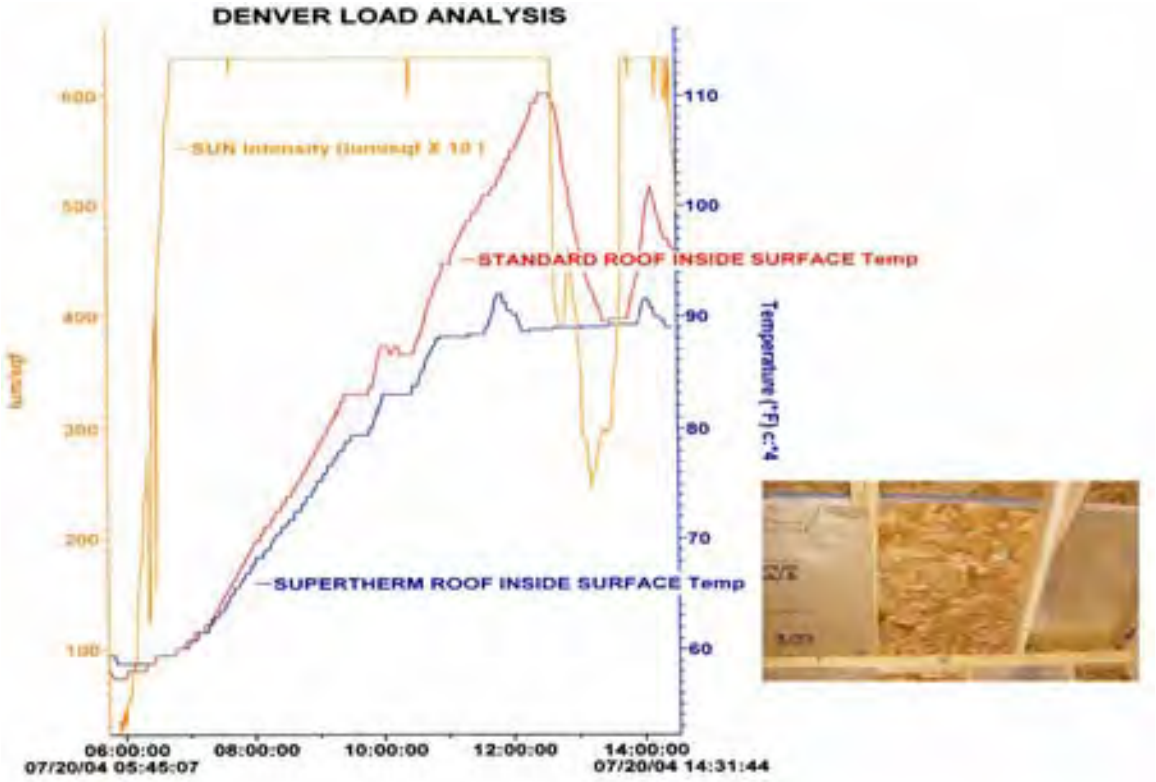




THE PERCENT OF MOISTURE INFILTRATION IN THE BUILDING COATED WITH THE CERAMIC COATING PRODUCT WOULD REQUIRE ***LESS ENERGY*** TO MAINTAIN COMFORT LEVELS.



IN EVERY INSTANCE THE BUILDING COATED WITH THE CERAMIC COATING PRODUCT ***ENHANCED THE PERFORMANCE*** OF STANDARD INSULATION PRODUCTS.



THESE PERFORMANCE ENHANCEMENT PROPERTIES WERE FOUND TO BE EQUALLY EFFECTIVE ON BOTH ROOF AND SIDE WALL APPLICATIONS.

Field Test Results

The location of the test specimens was adequate. Both buildings were of standard construction consisting of wood framing, standard OSB wall and roof sheeting's with a standard galvanized metal roof covering and James Hardey Board external wall coverings. The calculated R-Value of the uncoated existing materials was found to be approximately an R-2.45. The only difference between the two buildings consisting of approximately 48 square feet of control zone area was the external protective coatings.

One of the buildings was coated with a standard white latex paint while the other buildings roof and all external surfaces, including the front door had been coated with a white CERAMIC COATING product. As noted and some of the test results on the prior pages of this report the differences created by the CERAMIC COATING ***product*** concerning load reductions produced by thermal conduction, convection and absorption were significant. Additionally, significant reductions in moisture infiltration were also noted.

In every instance the Field test results concur with the manufacturers published data on the products anticipated performance curves obtained using in laboratory test methods.

Our Energy Flow analysis using a simulated water flow rate of approximately 6.5 gallons per minute indicated that the standard constructed building would require **a minimum of 1,037 BTU's of heating or cooling energy per square foot to maintain a minimal comfort level.**

In retrospect, the building coated with the ***CERAMIC COATING product*** **reduce these loads to 766 BTU's of heating or cooling energy per square foot to maintain the same minimal comfort level.** This relates to a **26 to 30%** overall increase in energy efficiency depending on the percentage of direct solar gain.

The aforementioned Humidity infiltration reduction factors took place regardless of the amount of direct solar gain.

CLOSING COMMENTS

On behalf of the United States Department of Energy, The State of Florida Energy Office and the United States Environmental Protection Agency, let me thank you for your efforts to conserve Energy. We hope you will continue to promote ***ENERGY STAR BUILDINGS ALLY & REBUILD AMERICA BUSINESS PARTNER products*** to assist your clients reducing energy consumption and their related negative environmental impacts.

While on that subject, our office feels that particularly when addressing external building thermal loads, your product could significantly reduce the **Heat Island Effects** taking place in most urban areas. The photo and Thermogram below clearly show the benefits provided by your product in this arena.

This report is meant to be an educational guide to familiarize you ***with the historical performance curves of your chosen*** ***E***nergy ***C***onservation ***M***easures based on your supplied data and our field test results, it ***should not be construed as an endorsement of any product or service by name or specific design.***

Once again let me ***thank you*** for giving us the opportunity to use your facilities as a field test site. The data collected is a valuable asset to our program in building a comprehensive profiling of ***actual energy related loads*** that occur in ***occupied / operational buildings***. This type of data is critical to other Engineers facing decision making tasks, where published measurement and verification data is not yet available **or inaccurate**.

This is the second time we have had the pleasure to test your product, it is rare that a single product will show such Repeatable Results in two totally different environments, South Florida and Denver Colorado, a true testimonial to your products ***ENERGY STAR*** rating.

Please feel free to contact our offices if we can be of any assistance in helping you meet your future conservation / mitigation goals.

CEA/CBA/MDEIII

Dir. Florida Energy Office's / E C A P Program
University Of South Florida / Small Business Development Center

Florida Energy Conservation Assistance Program

Florida ECAP

ENERGY MEASUREMENT Services

Tampa Office (813) 545-5806

www.FLORIDAECAP.ORG

ENERGY 46-52% SAVINGS INDUSTRY TESTED

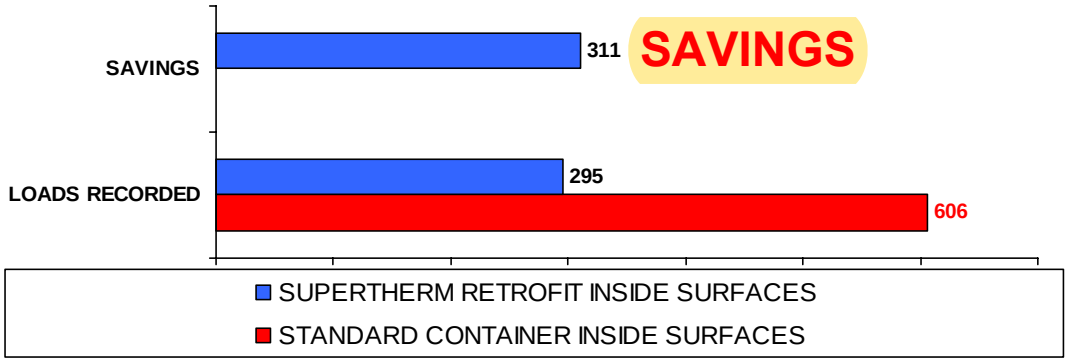
SUPERIOR PRODUCTS INTERNATIONAL SOUTHWEST

SUPER THERM FIELD TEST RESULTS RETROFITTED SHIPPING CONTAINERS AUGUST 2006

On August 23rd & 24th 2006 at the request of Mr. Bill Dwyer, in a cooperative effort instituted by Mr. Gordon Ginzel Intermodal Facility & Maintenance, Inc. a Measurement and Verification Analysis was conducted at the above facility in accordance with the **F**lorida **ENERGY CONSERVATION ASSISTANCE PROGRAMS Designation: ECAP-CUL-1-03 Method for Comparing Utility Loads in Structures and Buildings.** The objective of this analysis is to determine the impact of the ***"As Built Conditions and As Installed Components / Equipment"*** on the energy producing loads on occupied residential, commercial, government building and other structures. The focus of this procedure is to provide ***a comparison*** to known standards for all parties interested in using ***alternative and conventional conservation products and devices*** to ***displaced energy loads***. This report reflects the performance characteristics of the ***SUPER THERM COATING,*** as applied to the structures external surfaces, as a possible passive ***E***nergy ***C***onservation ***M***easure ***(ECM)*** to reduce internal Energy Loads and reduce the Heat Island Effects caused by exposed surfaces in urban areas.

- Our data indicated that at the time of this survey the test specimen container inside surface ***conduction related energy loads*** were reduced approximately ***46 to 52%*** by applying ***SUPER THERM*** as an ***E***nergy ***C***onservation ***M***easure (***ECM)*** to outside surfaces. The chart below shows a synopsis of our findings;

AVERAGE THERMAL LOADS OF INSIDE CONTAINER ENVELOPE SURFACES /
BTU PER SQUARE FOOT PER HOUR



EXECUTIVE SUMMARY

In all over 4,320 data points that were collected simultaneously over a 24 hour test period were analyzed.

TYPICAL STANDARD CONTAINER AS TESTED

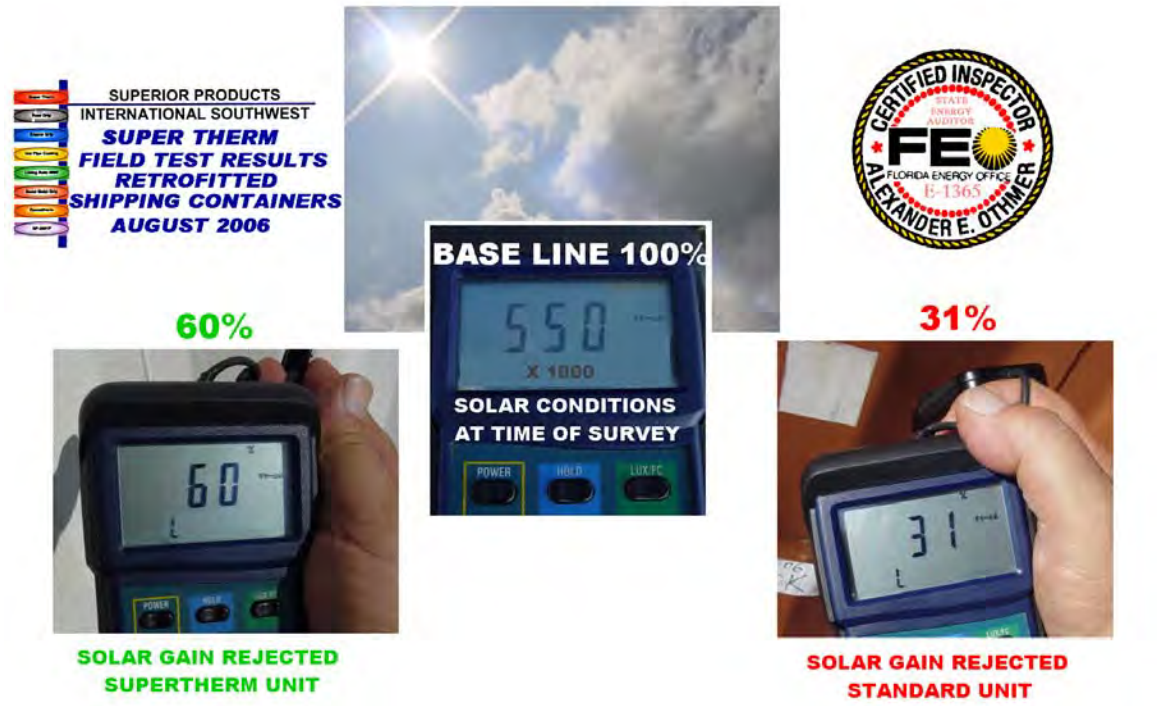
The container retrofitted with the ***SUPER THERM PRODUCT*** demonstrated reduced loads normally associated with Energy Consumption and Coating Maintenance as follows;

TYPICAL RETROFITTED *SUPER THERM* CONTAINER

- INSIDE CONTAINER AMBIENT TEMPERATURE ***22 DEGREES COOLER***
- THERMAL CONDUCTANCE TO OUTSIDE ENVIRONMENT ***50% LESS***
- EXTERNAL SURFACE TEMPERATURE ***47 DEGREES COOLER***
- INTERNAL SURFACE TEMPERATURES ***37 DEGREES COOLER***
- OUTSIDE SURFACE REFLECTIVITY ***50% HIGHER***
- ULTRAVIOLET ABSORPTION RATE ***92% LESS***
- INTERNAL MOISTURE LEVELS ***28.5% DRYER***

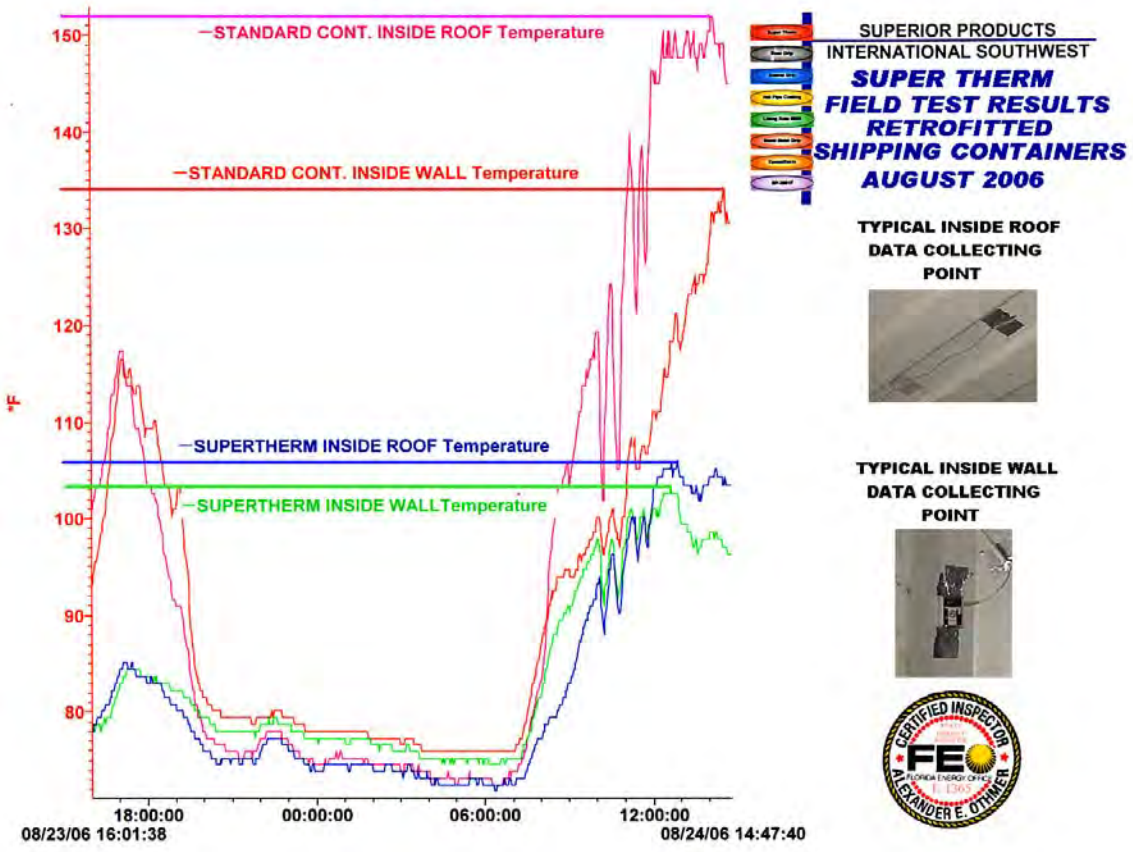
Average SITE Weather conditions during the analysis period were as follows:

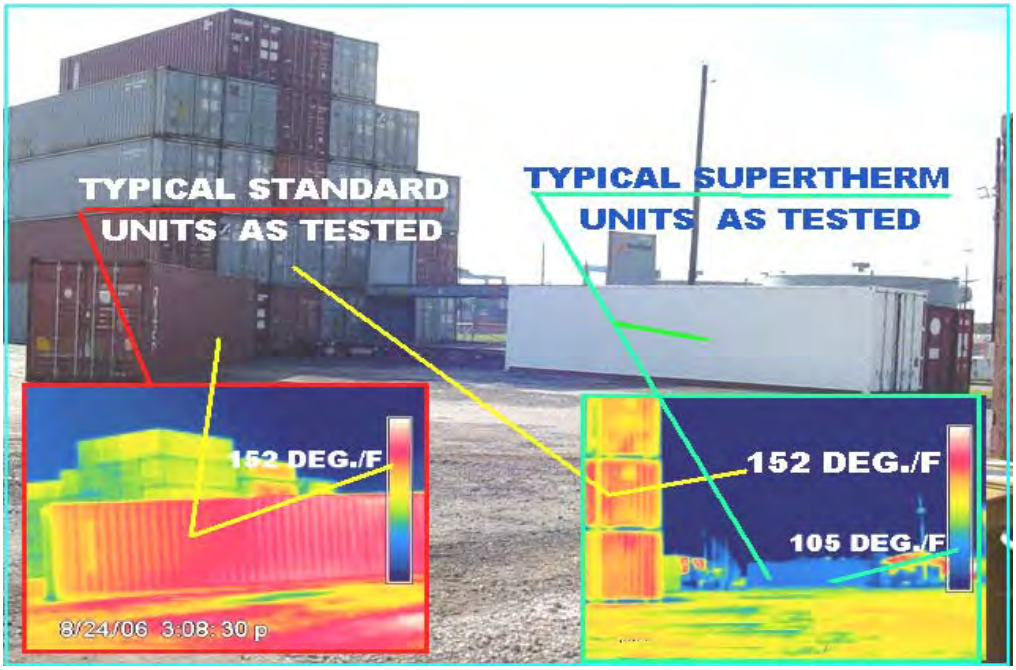
High Temperature	97 Deg. F.
Low Temperature	74 Deg. F
Average Wind Speed	3 to 5.5 MPH
Average ***UV*** intensity	99 A+B

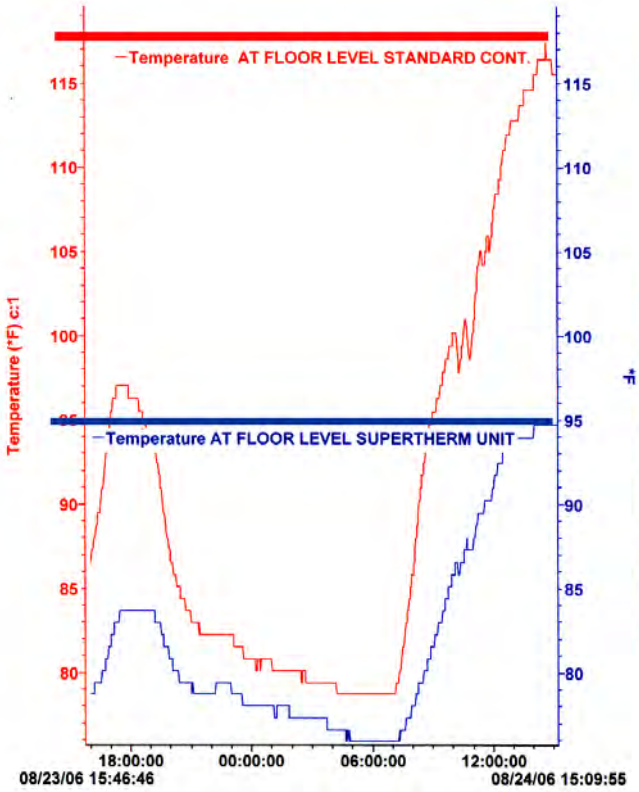


SYSTEMS TESTED

All load conducting surfaces on both containers were analyzed. 4,320 data points were recorded at 2 minute intervals for a 24 hour period with a synopsis of the findings as follows:



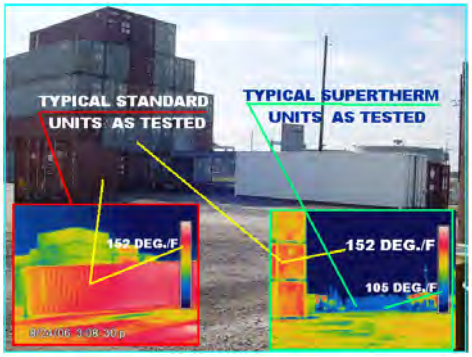


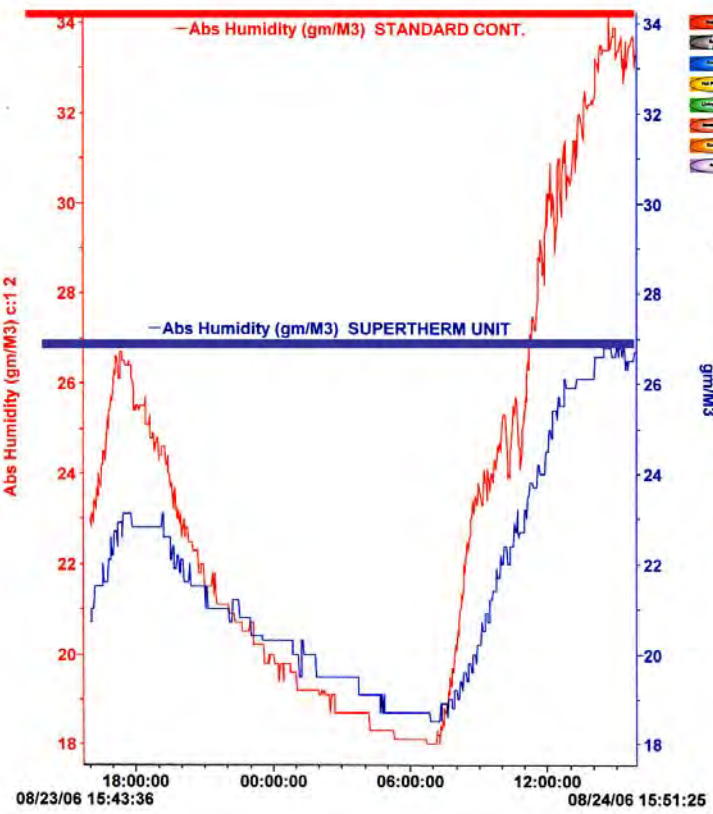


SUPERIOR PRODUCTS
INTERNATIONAL SOUTHWEST

SUPER THERM
FIELD TEST RESULTS
RETROFITTED
SHIPPING CONTAINERS
AUGUST 2006

TYPICAL
THERMOGRAPHIC
SURVEY RESULTS





SUPERIOR PRODUCTS
INTERNATIONAL SOUTHWEST

SUPER THERM
FIELD TEST RESULTS
RETROFITTED
SHIPPING CONTAINERS
AUGUST 2006

TYPICAL DATA COLLECTING POINT AND SURFACE MOISTURE TEST SUPERTHERM UNIT

33 %

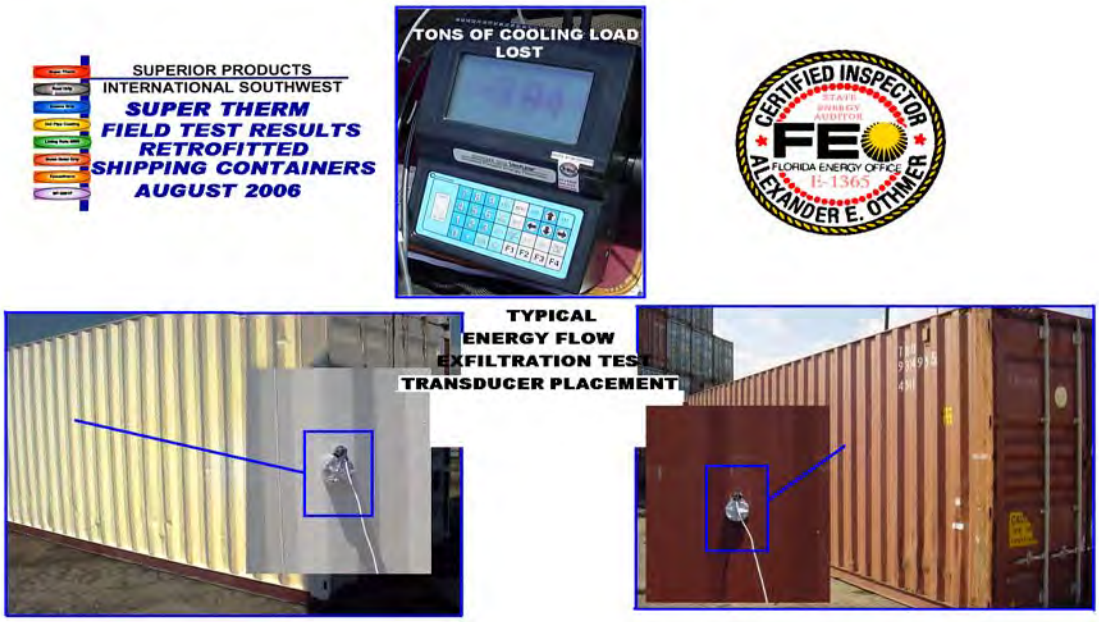
TYPICAL DATA COLLECTING POINT AND SURFACE MOISTURE TEST STANDARD CONTAINER

68 %

THE COMBINED DATA INDICATES THAT THE THERMAL ENERGY NECESSARY TO COOL THE CONTAINER COATED WITH THE SUPER THERM PRODUCT WOULD REQUIRE 46 to 52% LESS ENERGY at the time of this survey.

PRECISION & BIAS

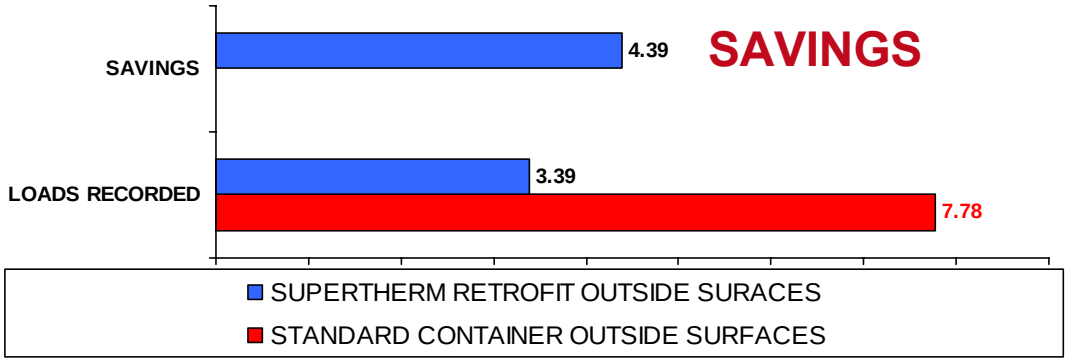
In an effort to insure repeatable results additional test were conducted as follows;



Infiltration factors around all door seals were equal (0 CFM & 0 PA) and had no adverse effect on the recorded data.

The ***EXTERNAL SURFACE Energy Flow Analysis*** also parallel the Internal Surface data as seen in the chart below;

TONS (12,000 BTU) OF COOLING LOAD*
BEING LOST THROUGH EXTERNAL SURFACES
FROM INSIDE THE CONTAINER



* Cooling source 43 Degree/F water at a 6.5 GPM flow rate supplied by a calibration flow tube.

Field Test Results

The location of the test specimens was adequate. Both containers were of standard construction consisting of Carbon Steel side wall, roof and deck sheeting's with a standard wood flooring overlay. The calculated R-Value of the existing Steel parent materials was found to be approximately an R-1.70. The only difference between the two containers consisting of approximately 2,690 Cubic Feet of ***Control Zone Area*** was the external ***SUPER THERM COATING.***

As noted in the test results on the prior pages of this report the differences created by the ***SUPER THERM PRODUCT concerning load reductions produced by thermal conduction, convection and absorption WERE SIGNIFICANT.***

Additionally, ***significant reductions in internal moisture levels were also noted.*** In every instance the ***Field Test results concur with the manufacturers published data on the products anticipated performance curves*** obtained using in laboratory test methods. Our Energy Flow, Heat Flux and Thermographic analysis indicated that the ***standard container*** would require **a minimum of 46% more BTU's of cooling energy** to maintain a comfort level **below 70 Degrees/ F** with the conditions present at the time of this survey.

In retrospect, the container coated with the ***SUPER THERM PRODUCT*** **reduce these loads to manageable levels to maintain the same comfort level.** The ***Ultraviolet absorption test*** also showed a possible reduction in ***SURFACE MAINTENANCE*** as the majority of the ***Harmful UV*** that normally reduces coatings service life ***is not being absorbed by the SUPER THERM COATING*** itself. The aforementioned internal Humidity reduction factors took place ***regardless of the amount of direct solar gain***.

CLOSING COMMENTS

Let me ***thank*** Intermodal Facility & Maintenance, Inc. for giving us the opportunity to use their facility as a field test site. The data collected is a valuable asset to our ***ECAP*** program in building a comprehensive profiling of ***actual energy related loads*** that occur in ***real life applications***. This type of data is critical to other Engineers facing decision making tasks, where published measurement and verification data is not yet available **or inaccurate**.

This report is meant to be an educational guide to familiarize you ***with the actual performance curves of your chosen*** ***E***nergy ***C***onservation ***M***easures based on your supplied data and our field test results.

ASK ABOUT ENERGY STAR

SUPERIOR PRODUCTS
INTERNATIONAL SOUTHWEST
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Office 713-960-0400 • Fax 713-960-8649 •
bdwyer@dwyerco.com

This is the third time we have had the pleasure to test ***SUPER THERM PRODUCTS***, it is rare that a single product will show such ***Repeatable Results*** in three totally different environments, South Florida, Denver Colorado and LaPorte Texas a true testimonial to your products ***ENERGY STAR*** rating. Please feel free to contact our offices if we can be of any assistance in helping you meet your future conservation goals.

Alexander E. Othmer CEA / CBA / NDE III
Dir. Florida Energy Conservation Assistance Program

ENERGY 46-52% SAVINGS INDUSTRY TESTED

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

ENERGY REPORT - USING OMEGA OS-652 ENERGY METER (BTU GUN)

Date: June 30, 1998 Time/Location: Pelham, Alabama - 12 noon; Homewood, Alabama - 1 pm

The measurements taken make a comparison of the amount of heat transfer (BTU) that is taking place in the roof area (attic), walls and coolers that face the outside sun all day or are located under the roof.

The following study was based upon two (2) different roof systems:

(A) Jacks Family Restaurant - Homewood
Roof - 3,000 sq.ft.
Black rubber membrane
Cooler Roof Area - 162 sq.ft.
Cooler Wall Area - 360 sq.ft.

(B) Jacks Family Restaurant - Pelham
Roof - 3,000 sq.ft.
Super Base, Super Therm & Enamo Grip
Cooler Roof Area - 162 sq.ft.
Cooler Wall Area - 360 sq.ft.

BTU DATA

(A) Jacks Family Restaurant - Homewood
Ambient Temperature - 95F
Outside Air Temperature on Roof - 120F
Surface Temperature of Roof - 152F
Attic Temperature - 102F
Inside Kitchen Area Temperature - 85F

(B) Jacks Family Restaurant - Pelham
Ambient Temperature - 95F
Outside Air Temperature on Roof - 105F
Surface Temperature of Roof - 101F
Attic Temperature - 80F
Inside Kitchen Area Temperature - 75F

BTUs per square foot / per hour

attic - 174
wall - 148
cooler exposed to ouside wall - 123
cooler exposed to roof - 121

attic - 159
wall - 137
cooler exposed to outside wall - 94
cooler exposed to roof - 84

CALCULATIONS - ROOF*

Difference: 174-159 = 15 BTU/sq.ft./hour x 3,000 sq.ft. = 45,000 BTU/sq.ft./hour
Convert to Kilowatts: 45,000 x 0.000293 = 13.2 kilowatts
Electricity cost: $0.06798/KW/HR (Alabama Power); $0.0637 (B.C. Hydro)
Roofs estimated to exposed to heat by radiation for 6 hours each day and HVAC is approximately 30% efficient (MAX.) at reducing temperature
Calculation: (13.2KW) x ($0.06798) x (6 hrs/day) / 30% = $17.95USD per day x 30 days = **$538.50USD PER MONTH SAVINGS**

CALCULATIONS - COOLERS*

Difference Roof: 121-84 = 37 BTU/sq.ft./hour x 162 sq.ft. = 5,994 BTU/sq.ft./hour
Difference Wall: 123-94 = 29 BTU/sq.ft./hour x 360 sq.ft. = 10,440 BTU/sq.ft./hour
Total Difference: 5,994 + 10,440 = 16,434 BTU/sq.ft./hour x 0.000293 = 4.82KW
Calculation: (4.82KW) x ($0.06798) x (6 hrs./day) / 30% = $6.55 USD per day x 30 days = **$196.59** **USD PER MONTH SAVINGS**

R-VALUE USING BTU GUN

(A) Temperature difference inside & out + 30F
Net heat flow (BTU/sq.ft./hour) = 6 Pt. Diff.
Reading Difference = 10
Result: Less than R5

(B) Temperature difference inside & out + 30F
Net heat flow (BTU/sq.ft./hour) = 3 Pt. Diff.
Reading Difference = 44
Result: R17 - R18

*NOTE: Calculations given are based on lab studies by Purdue University and V-Tech Labs

10835 W. 78th Street ● Shawnee, Kansas 66214 ● Phone: 913-962-4848; Fax: 913-962-6767

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

SUPER THERM®
BTU HEAT LOAD CALCULATION

Project: 800,000 sq.ft (74,320 sq.m) roof for American Snuff, Memphis, Tn.

Another way of finding the results of applying SUPER THERM® over the roof of the tanks or any facility would be to use loading of heat per BTU/HR/sqft from the ASHRAE (**American Society of Heating, Refrigerating and Air Conditioning Engineers)** HANDBOOK OF FUNDAMENTALS 2009 STANDARDS.
For example: A roof deck with current 2" (50mm) of fiberglass for insulation.
From the handbook, the following values are given:
R1 =0.17 Top of roof air film
R2 =0.33 Black or weathered aluminum alkyd paints
R3 =10.00 2" fiberglass
R4 =0.00 Metal roof deck
R5 =0.68 Bottom of Roof Deck Air Film
The formula for the Thermal Resistance of the roof is (T1-T2) / (R1+R2+R3+R4+R5)= BUT/HR/sq.ft. Resistances (R) for the roof assembly are as indicated above.

Actual test assembly:

Assembly No.1: Black EPDM Roof Membrane, 2" fiberglass insulation and Metal Roof Deck

Assembly 1 roof temperature reading was taken from the top surface of the black EPDM roof. A temperature reading of 190.8F was recorded. A second temperature reading was taken from inside the building directly below the roof where the 190.8F temperature was taken. The temperature reading taken below the roof was 103.0F, resulting in a temperature difference of 87.8F.

Assembly No.2: Black EPDM Roof membrane painted with SUPER THERM®, 2" fiberglass insulation and metal roof deck.

Assembly 2 roof temperature reading was taken from the top surface of the black EPDM roof which had been coated with SUPER THERM®. A temperature reading of 121.0F was recorded. A second temperature reading was taken from inside the building directly below the roof where the 121.0F temperature was taken. The temperature reading taken below the roof was 95.0F, resulting in a temperature difference of 26.0F
The roof "U" factor is equal to the inverse of the "R" factor of 11.18 or 0.0894 (1/11.18).
The thermal resistance of the two roof assemblies are:
Assembly 1: (190.8°-103.0°) / (R1+R2+R3+R4+R5) = 87.8 / 11.18 - 7.85 BTU/HR/SQ.FT
Assembly2: (121.0°-95.0°) / (R1+R2+R3+R4+R5)= 26.0 / 11.18 = 2.33 BTU/HR/sqft
Difference between roof assemblies is 5.52 BTU/HR/sq.ft.

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Website: www.spicoatings.com Email: sales@spicoatings.com

SUPERIOR PRODUCTS INTERNATIONAL II INC USA

The 5.52 BTU/HR/sq/ft difference for the 800,000 sqft = 4,416,000 BTU/HR/sq.ft. The 4,416,000 BTU/hr/sq.ft / 12,000 BTU/HR/TON = 368 Tons of equipment savings.
Using a Standard HVAC calculation program was used to show the difference in A/C tons needed to cool this size facility.

To verify the findings, a standard calculation from the CHVAC-FULL COMMERCIAL HVAC LOADS CALCULATION PROGRAM was used from the book to show the difference between a "Dark Colored Roof" and a "Cool Roof". The following are slightly different from the actual readings but verifies the findings from the actual readings on the test roof.
Using a Standard HVAC calculation program was used to show the difference in A/C tons needed to cool this size facility.
Exhibit 1: A dark colored (low reflectance) roof will require 626.22 tons of equipment to cool the roof.
Exhibit 2: The roof coated under the cool roof program® requires 326.68 tons of equipment to cool the roof.
Tons of equipment difference is 299.54.
There is 3,600,000 BTU/HR (300 Tons) to be saved by coating under the cool roof program.

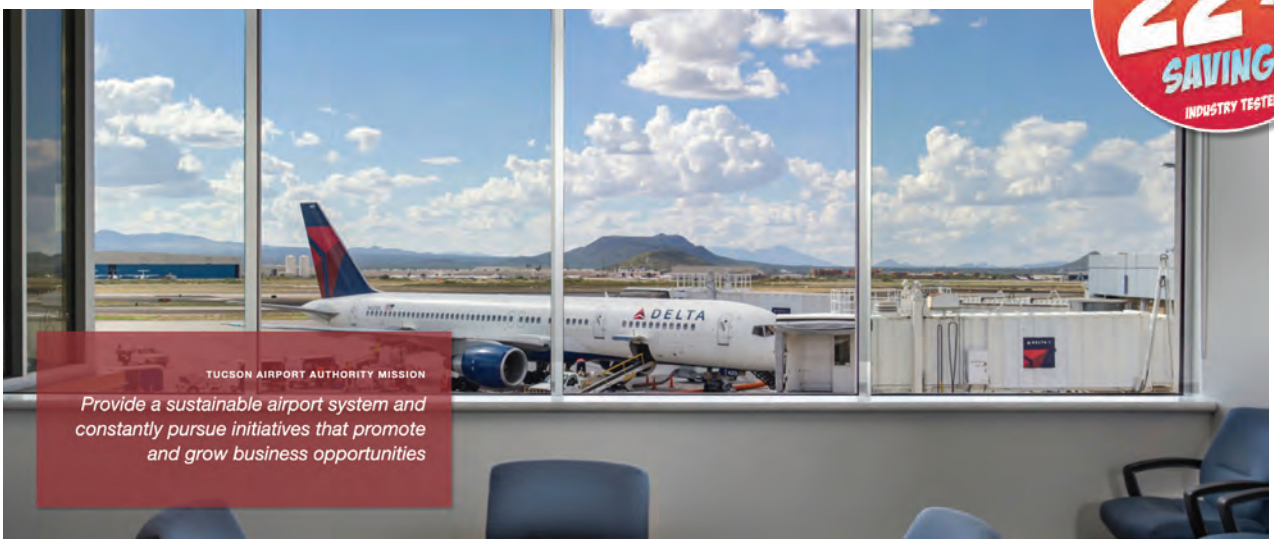
Additional information from a HVAC group looking over these figures and analyzing the numbers as related to HVAC.
With the reduction of the equipment load by 300 tons, and with annual cooling hours of a standard 4000 hours per year, using an average efficiency of 1.25 KW/Ton for their cooling equipment and an average cost of $.10 per KW for energy, their annual energy savings would be at least $150,000 per year for consumption cost. If they pay peak demand charges, these would also be reduced by approximately 47%. Then there is the issue of capital cost avoidance. The average cost of commercial HVAC systems is $1,200 per ton, so we are looking at a savings of $360,000 on equipment cost. There is also the consideration of reduced maintenance cost due to fewer units running with less stress or full load conditions.
There is no way to put a finite number on the total savings, that will be generated by this report, but when we consider energy consumption, peak demand charges, equipment cost, equipment maintenance and life extension of the roof, we are well over $500,000 annually in savings. **For a 800,000 sq.ft. (74,320 sq.m) roof, this is $0.625 cents per sq.ft. per year or $6.25 per sq.m reduced cost per year in energy and equipment savings.**

Given this savings per sq.ft., the rubber company that claims a cancelation in warranty if you coat over their rubber and they charge $0.05 per sq.ft per year for the warranty or $40,000 per year, the savings of $500,000 per year from coating with SUPER THERM®-- versus-- paying them $40,000 per year for no energy savings, no equipment savings and no extended life of the roof and in consideration that the cost of any fix is only a fraction of the $40,000, this is definitely a no brainer.
Net savings to this customer per year w/o any repairs = approximately $540,000.

TUCSON AIRPORT AUTHORITY

TUSCON AIRPORT: SUPER THERM APPLICATION

374,804 sq.ft. / 114,240 m² of roofing coated with the SUPER BASE(HS) / SUPER THERM® SYSTEM



ENERGY AUDIT AND REPORT

Attached are comparisons of our terminal electric bills for August and September 2008/2009. I was trying to get a feel for the potential gains made by the application of the Super Therm® roof coating product that was completed in early August 2009. I calculated the Cooling Degree Days (CCD) for each month and compared the kWh used per CDD for each month. There was a 22% savings in August 2009, and a 8% savings in September 2009.

The temperature change was +3.3°F over 2008 in August and +1.4°F over 2008 in September. According to ConEdison Energy, a 6°F change can relate to a 40% change in A/C cost. With the ambient temperature in 2009 being 3.3°F hotter, this could push the A/C cost up another 20% before SUPER THERM® was applied. Therefore, the savings reported could be 20% to the benefit more than reported

Chris Wilt
Airport Facilities Manager
Chris Wilt [cwilt@tucsonairport.org]

Additional notes below placed by J.E. Pritchett (SPI) concerning the resulting:

A very important point is that the 22% savings for the airport was on the TOTAL energy bill (lighting, elevators, food facilities, etc).

This simply means that the SUPER THERM® made a 40% reduction in the A/C costs. From the ENERGY UTILITIES companies, the A/C portion of a total energy bill is 55% which when calculated on the 22% savings of the total relates to the 40% savings in pure A/C costs.

This is very substantial savings in the A/C cost savings.

It also means that the A/C tonnage can be reduced to save more money. Equipment savings.

Run time on the units is reduced which extends their life cycle and saves a tremendous amount of money on replacement or repair of equipment. Maintenance and repair savings.

Therefore, the cost savings is much more than just the 40% savings for A/C.

TUCSON AIRPORT
SUPER THERM APPLICATION

Tucson International Airport Terminal Electric Usuage
To assess potential gains made by Super Therm Roof Coating
11/2/2009

Terminal Area	kWh August 2008	kWh August 2009	kWh August 2009 (+/-)	2009 %	$$$ August 2008	$$$ August 2009
Central Plant	533,200	375,200	(158,000)	-30%	$42,612	$32,257
East Concourse	620,400	503,700	(116,700)	-19%	$51,184	$44,480
West Concourse	449,400	357,000	(92,400)	-21%	$35,738	$30,653
					$129,534	$107,390
Totals:	1,603,000	1,235,900	-367,100	-23%	**August 2009 kWh Used Versus August 2008**	
Cooling Degree Days (CDD):	690	684				
KWh/CDD:	2,323	1,807		-22%	**August 2009 kWh/CCD Savings Versus August 2008**	

August 2008 was the 30th warmest August on record. 85.4 average temperature
TEP August 2008 Invoice is from 8/1/08 - 9/3/08, 34 days

August 2009 was the 2nd warmest August on record. 88.7 average temperature
TEP August 2009 Invoice is from 8/4/09 - 9/1/09, 29 days

Terminal Area	kWh September 2008	kWh September 2009	kWh September 2009 (+/-)	2009 %	$$$ September 2008	$$$ September 2009
Central Plant	331,600	338,000	6,400	2%	$27,987	$29,284
East Concourse	487,800	527,400	39,600	8%	$41,557	$45,950
West Concourse	355,500	379,200	23,700	7%	$29,580	$31,771
					$99,124	$107,005
Totals:	1,174,900	1,244,600	69,700	6%	**September 2009 kWh Used Versus September 2008**	
Cooling Degree Days (CDD):	492	568				
KWh/CDD:	2,388	2,191		-8%	**September 2009 kWh/CCD Savings Versus September 2008**	

September 2008: 82.4 average temperature
TEP September 2008 Invoice is from 9/4/08 - 10/1/08, 28 days

September 2009: 83.8 average temperature
TEP September 2009 Invoice is from 9/2/09 - 10/2/09, 31 days

Notes: East and West Concourse Remodel Completed 5/31/08. August/September 2008 kWh usuage reflects these improvements. (Included new lighting, HVAC with VAV's, EMCS, 2nd new chiller)

Super Therm was Substantially Complete on 8/11/09 but was at least 99% complete as of 8/4/09.

TUSCON AIRPORT: SUPER THERM APPLICATION

SAVINGS:

With the total utility savings of $22,144 (22%) in August for the total facility and the A/C portion of the total utility being 55%, this relates to a 40% savings in A/C operational cost. The savings are beyond the A/C running cost, the units cycle more giving long life, less maintenance work and less tonnage to take care of the main terminal and wings.

ROI: The total roof area of the terminal is 374,804 sq.ft. applied at $2.10+/ sq.ft. is $787,088. With a cost reduction of $22,144 / month, this results in a 35.54 months return. This average can be a little less and could be much more when taking in the summer months. Point is that after 35 months, this savings amount is now available to offset budget needs without the need to find new funding

RENTAL CAR WASH BAYS:

The car wash bays were done first, and we had to remove the existing elastomeric coating which was not adhering, was not water proofing and was not insulating

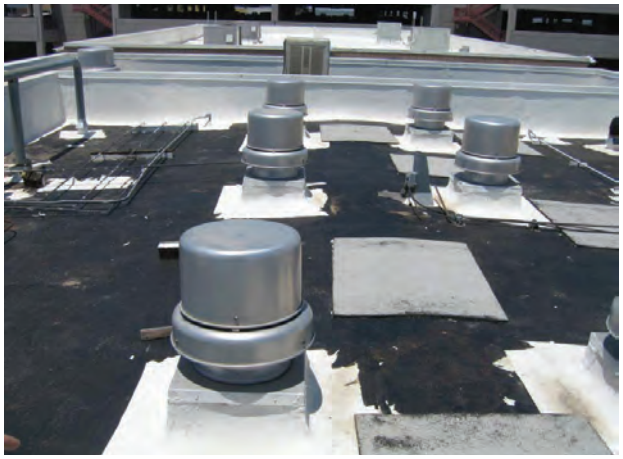
Rental Car Wash roof Before Pressure Wash

Roof Before Pressure Wash

Pressure Washer Removing Elastic Coating

Elastic Coating removed by pressure washing

TUSCON AIRPORT: SUPER THERM APPLICATION



Rental Car Roof During Pressure Wash

Roof During Pressure Wash

Roof After Super Base

Roof After Super Therm®

MAIN TERMINAL ROOF COMPLEX: 374,804 sq.ft. / 114,240 m²

We coated the entire Tucson Airport complex of roofing in Tucson, Arizona.

The attached pictures show the beginning with the center roof coated and the remaining roofing sections

There are also additional buildings off site that are scheduled to be coating also.

The roofing is “cap sheet” which is tar paper and this requires SUPER BASE (HS) at 9 sq.m (100 sq.ft.) per gallon and then overcoated with SUPER THERM® at 9 sq.m (100 sq.ft.) per gallon.

Other parts of the roofing is PVC or a plastic type material which is weathered but is in good condition and provides good adhesion to accept SUPER THERM® easily at the 9 sq.m (100 sq.ft.) per gallon.

Preparation was the use of “Simple Green” concentrate cleaner and power wash.

The roof was power washed to wet down, the simple green cleaner was sprayed over the roof and large hard bristled push brooms were used to clean the surface and then the power washer was used to rinse this all off before it dried. The power washer was working behind the push brooms to assure nothing dried before it could be washed off. When the roof surface dried, the SUPER BASE (HS) adhered very strong and tight to the surface.

Figure 1: Finished Super Therm insulation coating on airport roof

Figure 2: Tuscon Airport with solar produce renewable energy offsetting more than two-thirds of the airport terminal's use of energy and saving the TAA $35,000 per month in power costs. With the insulation coating of Super Therm this increases the savings for the Airport Authority.

COOL THERM

COOL THERM

(Private label for Super Therm@ in Japan)

PROJECTS IN JAPAN

～ 2014.12

DAIKO SHOKAI CO., LTD.

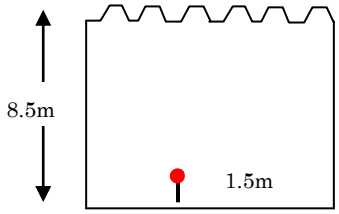
3-11-23 Nagai-higashi, Sumiyoshiku, Osaka, Japan

Room Temperature Data after 16 years

TOSHIBA Logistics Corp

Application Date：August, 1996　Area：16,500sq.m.　(Metal Roof)
Measurement Date：24 July, 2012　(13：00　Ambient temp: 35.6℃)

It still maintains the same room temperature and effect after 16 years.
Only top coat has been applied after 12 years, and room temperature has dropped in addition.　Surface temperature was measured 37℃～38℃.



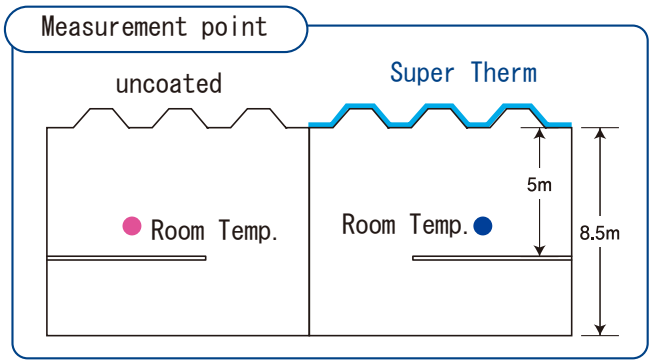
＜Surface Temperature＞

	Outside Temperature	Room Temperature
BEFORE (1994)	35.5℃	39.2℃
AFTER (1994)	35.5℃	32.9℃
After 10 years (2006)	35℃	33℃
Top Coat was applied in 2008		
After 16 years (2012)	35.6℃	31℃

Daiko Shokai. Co., Ltd

LIXIL CORPORATION Chita Plant (Aichi)

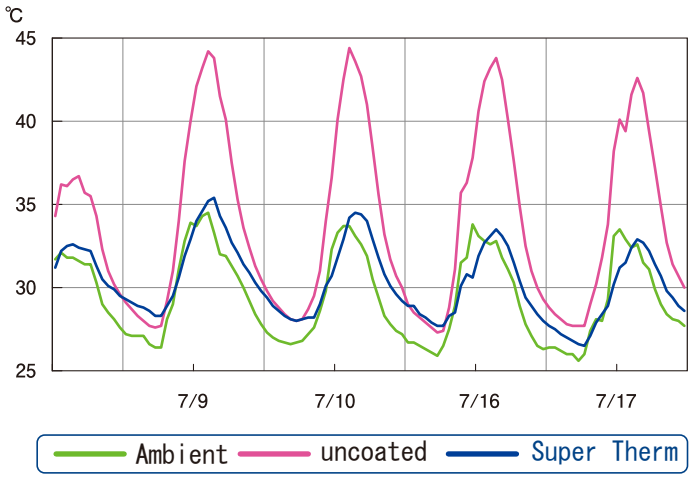
Metal Roof 9,000m² April 2011



When the outside temp. was almost the same, the scond flour's room temperature was reduced by almost 10 C (43.8-34.1C).

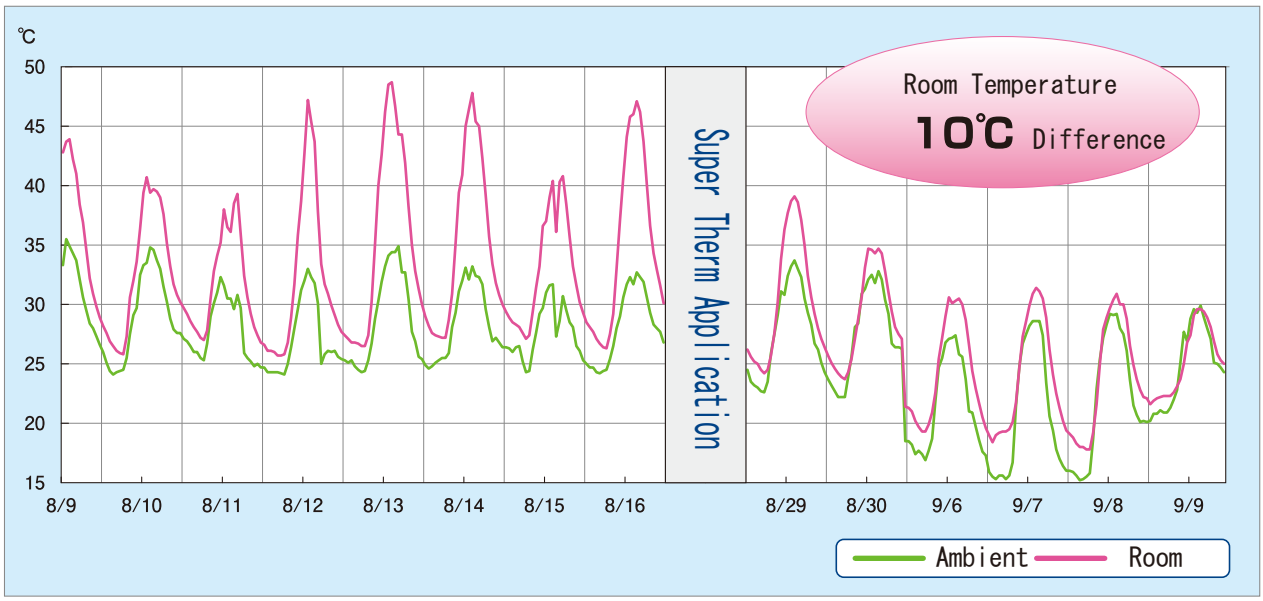
Room Temperature
Max. **10.3 C** Difference

	9 July	10 July	16 July	17 July
Weather	☀	☁/☀	☀	☁/☀
Ambient	34.5	33.7	33.8	33.5
Uncoated	44.2	44.4	43.8	42.6
Super Therm	35.4	34.5	33.5	32.9
Difference	-8.8	-9.9	-10.3	-9.7



Company M Sanyo Plant (Hyogo, Food plant)

Metal Roof 3,000㎡ August 2011

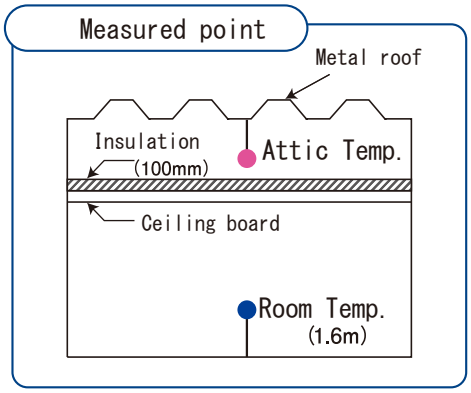


Where the room has low traffic, the room temperature was reduced by more than 10C which makes the cutomer satisfied with.

Cut 40% of Air-conditioning electricity consumption

JFE Chemical Fukuyama Plant (Hiroshima)

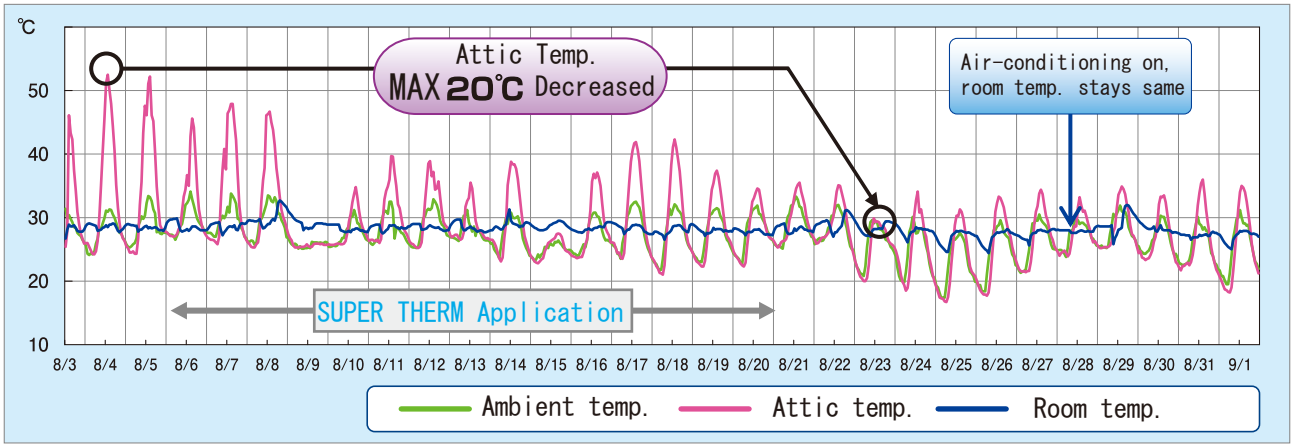
Metal Roof 660㎡ August 2009



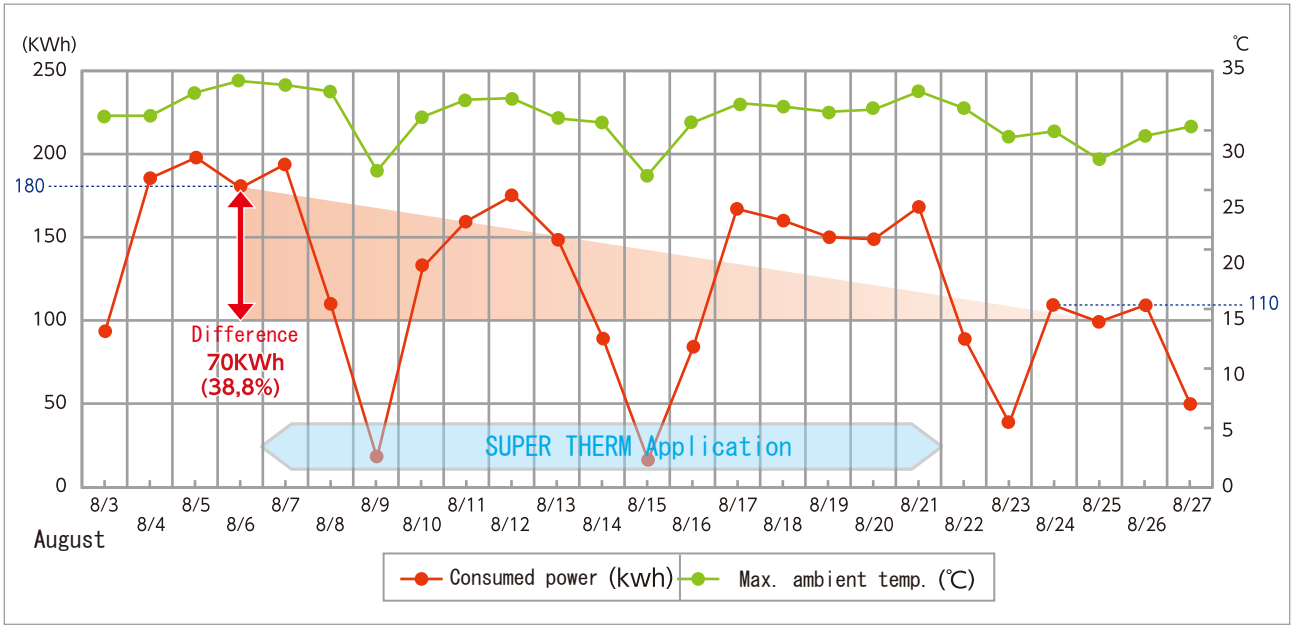
Measured in a building which has ceiling board and 100mm insulation.

Insulation board hold heat in nature, it becomes big air-conditioning load.

SUPER THERM can come to a settlement of the problem.



Variation of consumed power in a day by Chudenko (before and after of SUPER THERM application)



Energy Saving

Consumed Power Before 180～200KWh/day
After 100～110KWh/day

Consumed power reduced by 38.8%

Comparition with domestic paint

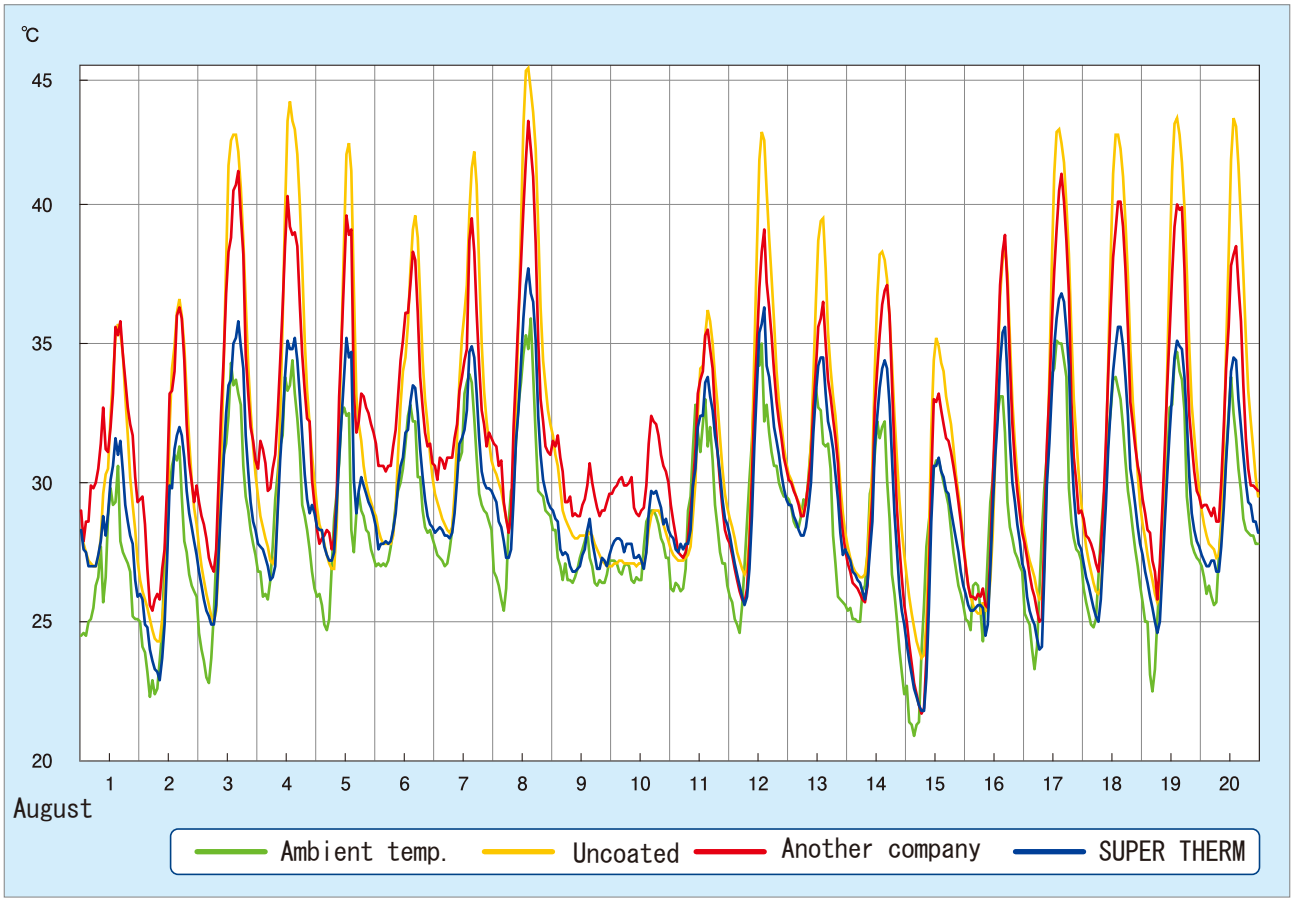
Company S (Hyogo)

Slate roof 3,600㎡ May 2009

Coat SUPER THERM and competition paint in a same building roof. 3 months later, in August measure the room temperature.

Room temp. difference with domestic paint

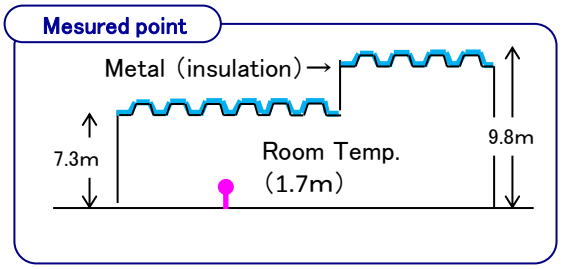
MAX. 5.4℃



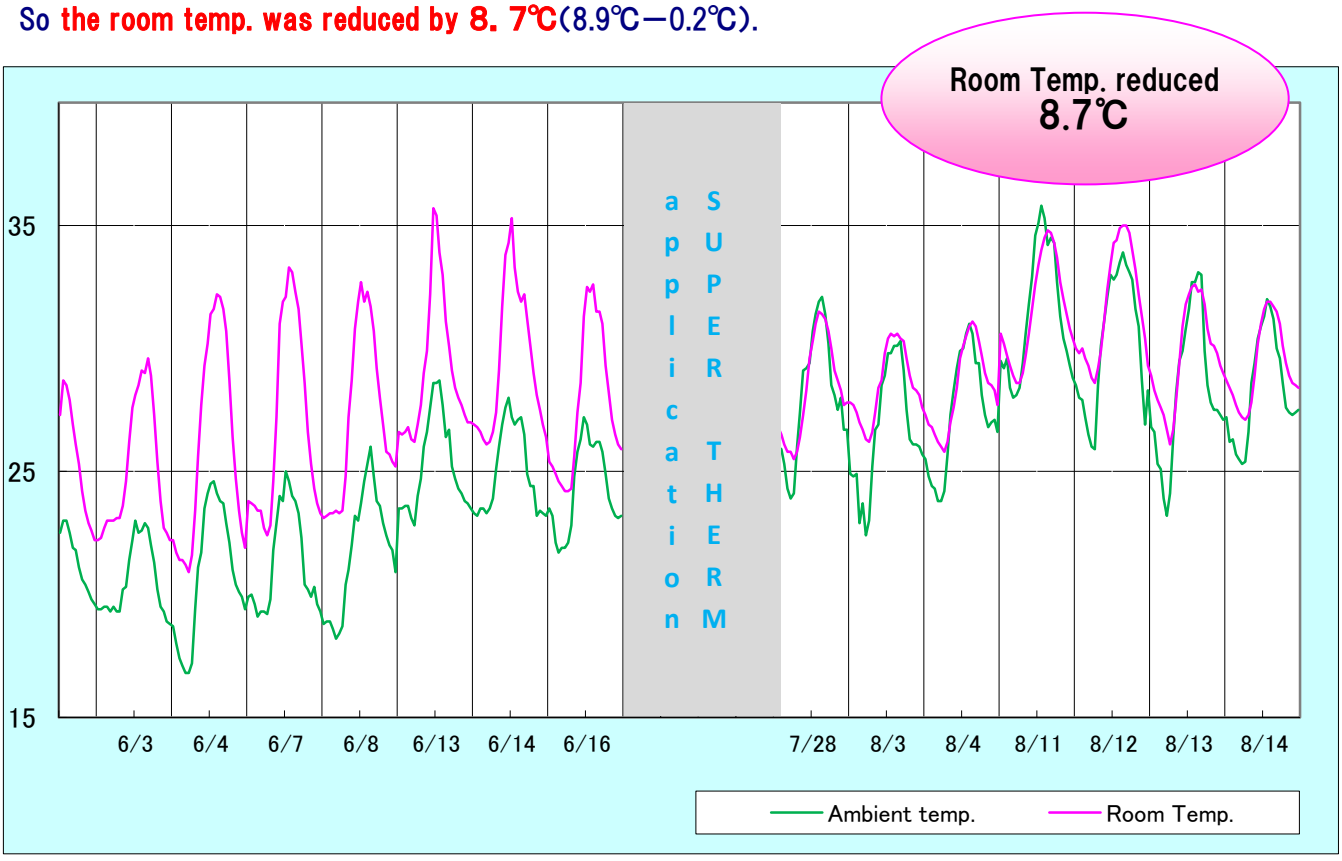
August	8/1	8/2	8/3	8/4	8/5	8/6	8/7	8/8	8/9	8/10	8/11	8/12	8/13	8/14	8/15	8/16	8/17	8/18	8/19	8/20
Weather	☀/☁	☂/☀	☀	☀	☀/☁	☁	☁/☀	☀/☁	☂/☁	☂	☁	☁	☁	☁/☀	☀/☂	☂/☀	☀	☀	☀/☁	☀/☁
Ambient temp.	30.6	31.3	34.3	34.4	32.7	32.8	33.9	35.9	28.3	29.0	33.0	35.0	33.4	32.2	30.8	33.1	35.1	33.8	34.7	33.8
Uncoated	35.7	36.6	42.5	43.7	42.2	39.6	41.9	44.9	31.7	29.0	36.2	42.6	39.5	38.3	35.2	38.5	42.7	42.5	43.1	43.1
Another company	35.8	36.3	41.2	40.3	39.6	38.3	39.5	43.0	31.7	32.4	35.5	39.1	36.5	37.1	33.2	38.9	41.1	40.1	40.0	38.5
SUPER THERM	31.6	32.0	35.8	35.2	35.2	33.5	34.9	37.7	29.0	29.7	33.8	36.3	34.5	34.4	30.9	35.6	36.8	35.6	35.1	34.5
Difference	-4.2	-4.3	-5.4	-5.1	-4.4	-4.8	-4.6	-5.3	-2.7	-2.7	-1.7	-2.8	-2.0	-2.7	-2.3	-3.3	-4.3	-4.5	-4.9	-4.0

■ Rengo Co., Ltd.　Toyohashi（Aichi）

Metal roof 12,454㎡　July 2013



Compare before and after the application,
it was 8.9℃ difference between room temp. - ambient temp. ,
it became 0.2℃ only after the application.
So **the room temp. was reduced by 8. 7℃**(8.9℃−0.2℃).

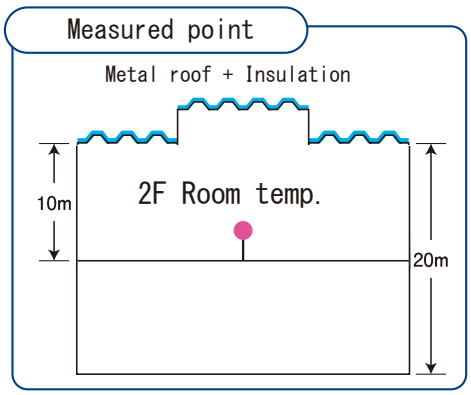


	Before the application						
June	6/3	6/4	6/7	6/8	6/13	6/14	6/16
Weather	☁/☀	☀	☀/☁	☀	☀/☁	☁	☀
Ambient temp.	23.0	24.6	25.0	26.0	28.7	28.0	27.2
Room Temp.	30.9	34.4	34.9	34.0	37.2	37.4	34.3
Difference	7.9	9.8	9.9	8	8.5	9.4	7.1

	SUPER THERM application						
July - August	7/28	8/3	8/4	8/11	8/12	8/13	8/14
Weather	☀	☀	☀	☀	☀	☀	☀
Ambient temp.	32.1	30.3	31.0	35.8	33.9	33.1	32.0
Room Temp.	31.5	30.6	31.1	34.8	35.0	32.6	31.9
Difference	−0.6	0.3	0.1	−1	1.1	−0.5	−0.1

PanaHome Corporation Head office (Shiga)

Metal roof 22,700㎡ December 2010



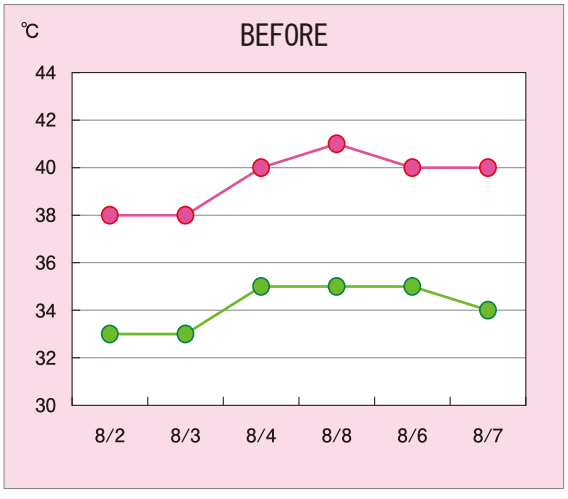
Before the application, the room temperature exceeded above 5-6℃ of ambient temp., but after SUPER THERM application it reduced by the same aound the ambient.

After the application, room temp. of first and second floor are kept the same and we feel its effect.

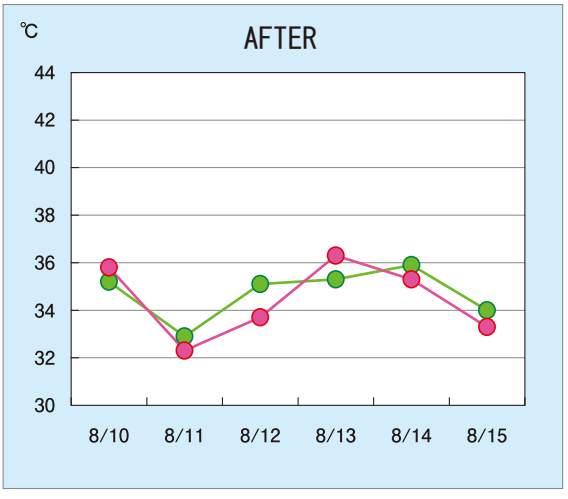
Room Temp.

Reduced by MAX. 7.3℃

2010 Summer



2011 Summer

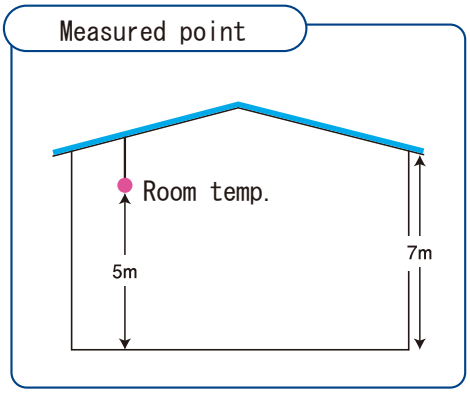


August	8/2	8/3	8/4	8/5	8/6	8/7
Weather	☀	🌤/☀	🌤/☀	🌤/☀	☀	☀/🌤
Ambient temp.	33.0	33.0	35.0	35.0	35.0	34.0
2F room temp.	38	38	40	41	40	40
Difference	5.0	5.0	5.0	6.0	5.0	6.0

8/10	8/11	8/12	8/13	8/14	8/15
☀	🌤/☂	☀	☀/🌤	☀	☂/🌤
35.2	32.9	35.1	35.3	35.9	34.0
35.8	32.3	33.7	36.3	35.3	33.3
0.6	-0.6	-1.4	1.0	-0.6	-0.7

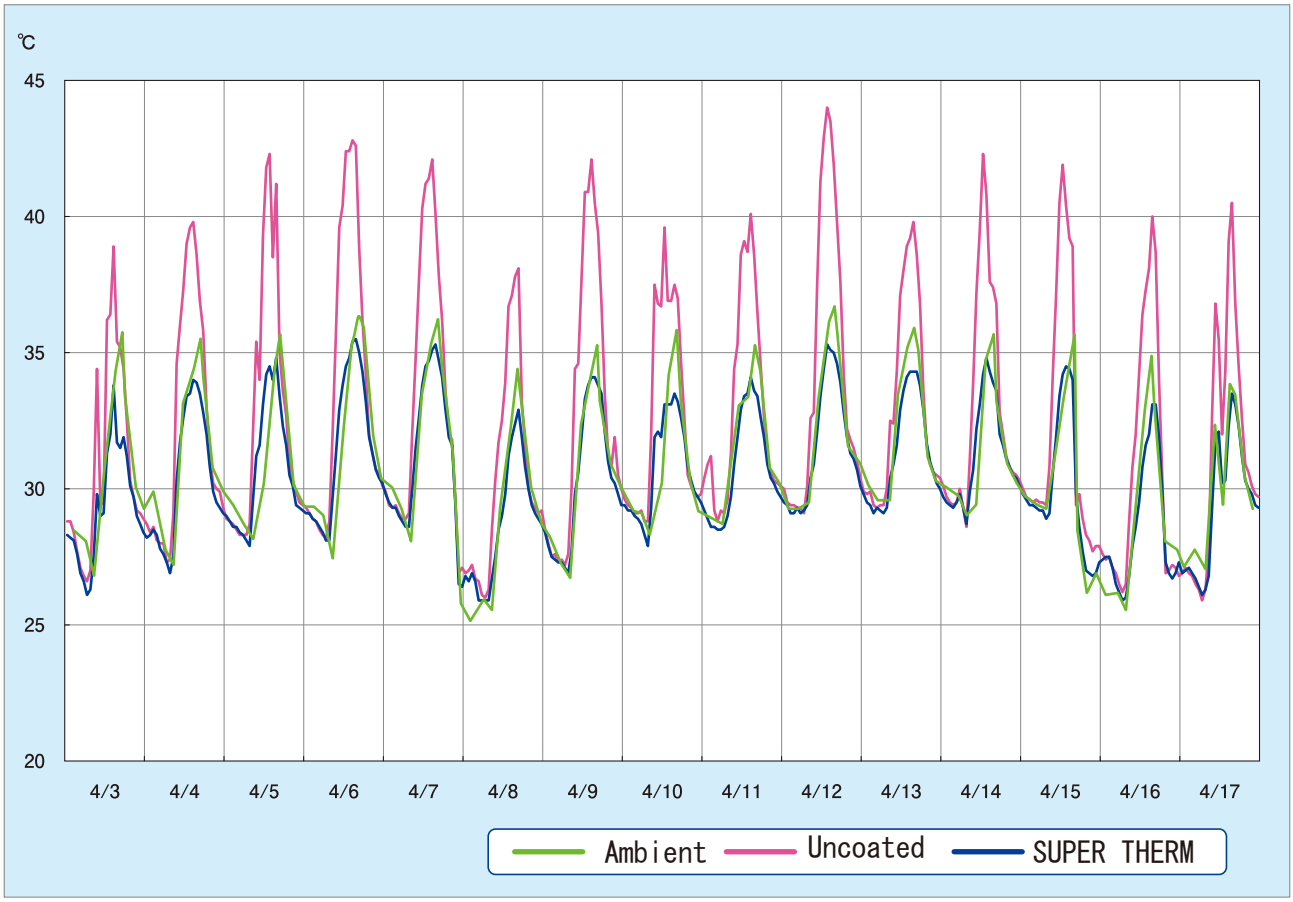
Nissan Motor Thailand Ltd. NMT (Thailand)

Metal roof 20,000㎡ February - April 2006



Room temp.
MAX. **8.7℃** reduced

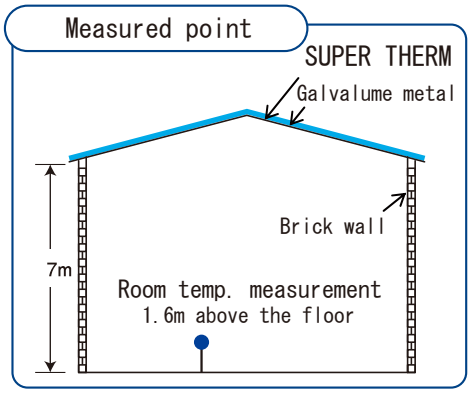
The room temp. was reduced by 6.8℃, MAX. 8.7℃ after SUPERT THERM application, comparing uncoated with a same structure of the plant.



April	4/3	4/4	4/5	4/6	4/7	4/8	4/9	4/10	4/11	4/12	4/13	4/14	4/15	4/16	4/17	Average
Ambient temp.	35.4	35.2	35.3	36.0	35.9	34.2	34.9	35.6	34.8	36.4	35.7	35.3	35.3	34.4	33.5	35.2
①Uncoated	38.9	39.8	42.3	42.8	42.1	38.1	42.1	39.6	40.1	44.0	39.8	42.3	41.9	40.0	40.5	41.0
②SUPER THERM	33.8	34.0	34.8	35.5	35.3	32.9	34.1	33.5	34.1	35.3	34.3	34.8	34.5	33.1	33.5	34.2
Difference (①-②)	5.1	5.8	7.5	7.3	6.8	5.2	8.0	6.1	6.0	**8.7**	5.5	7.5	7.4	6.9	7.0	**6.8**

ProLogis, NYSE: PLD Warehouse for Beijing Olympics (Beijing, China)

Galvalume metal roof 14,300㎡ April 2008



In middle of May
Room Temp. **6℃** Difference

Date: May 14 2008
Observer: Mr. OH, ProLogis
Ambient temp.: 22℃
Results:

Roof surface temp.	Uncoated	61.2℃	**31.7℃** Difference
	SUPER THERM	29.5℃	

Room temp. (1.6m above the floor)	Uncoated	22.6℃	**6.0℃** Difference
	SUPER THERM	16.6℃	

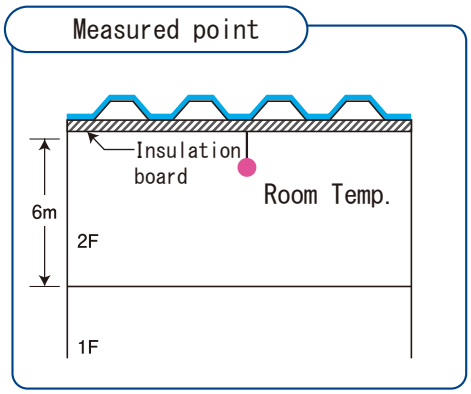
We expect more cooling effect in summer time.

Uncoated

SUPER THERM

YAMAHA Corporation Toyooka Plant (Shizuoka)

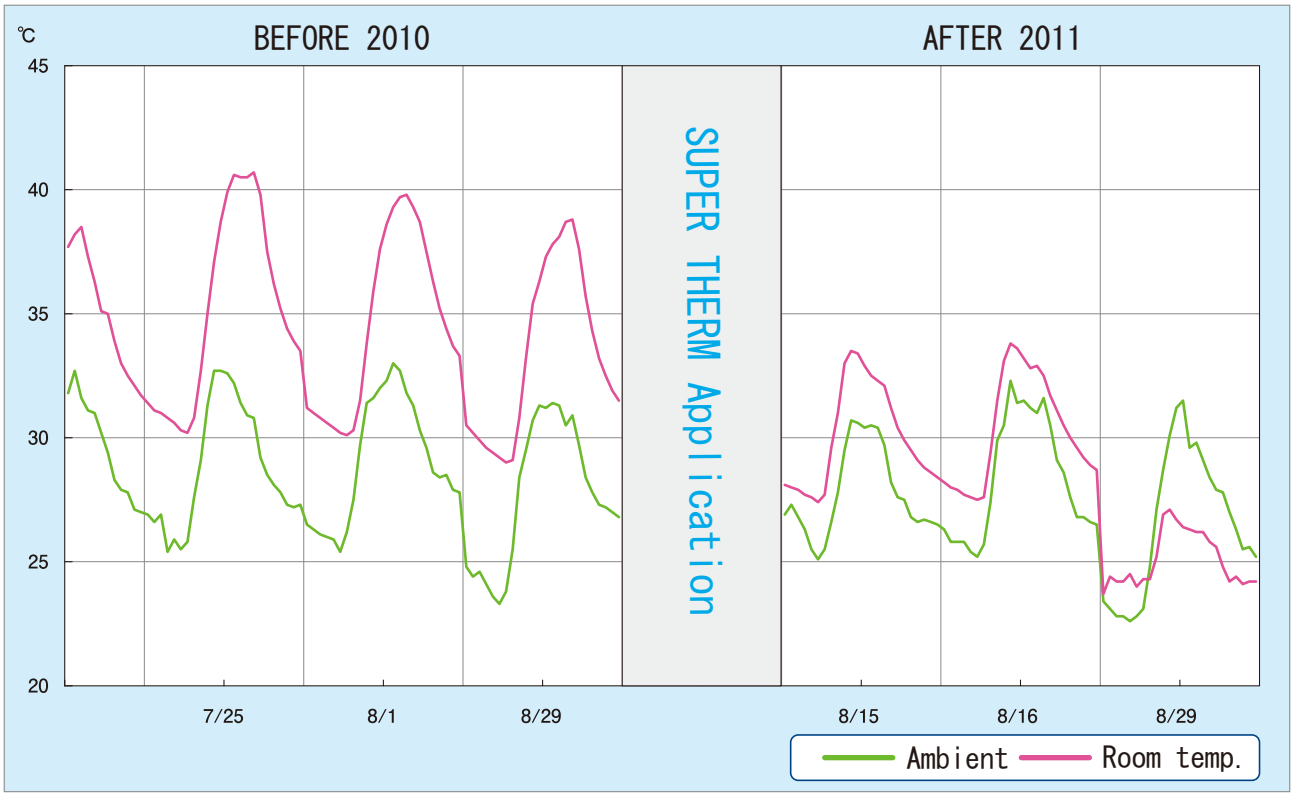
Metal roof 10,000㎡ July 2011



Comparing Room temp. of Uncoated in 2010 and SUPER THERM application in 2011.

Room temp.
11.7℃ Reduced

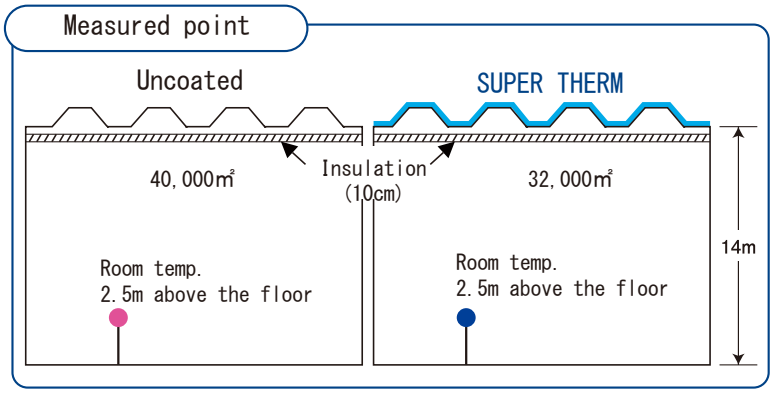
Holidays of no air-conditioning

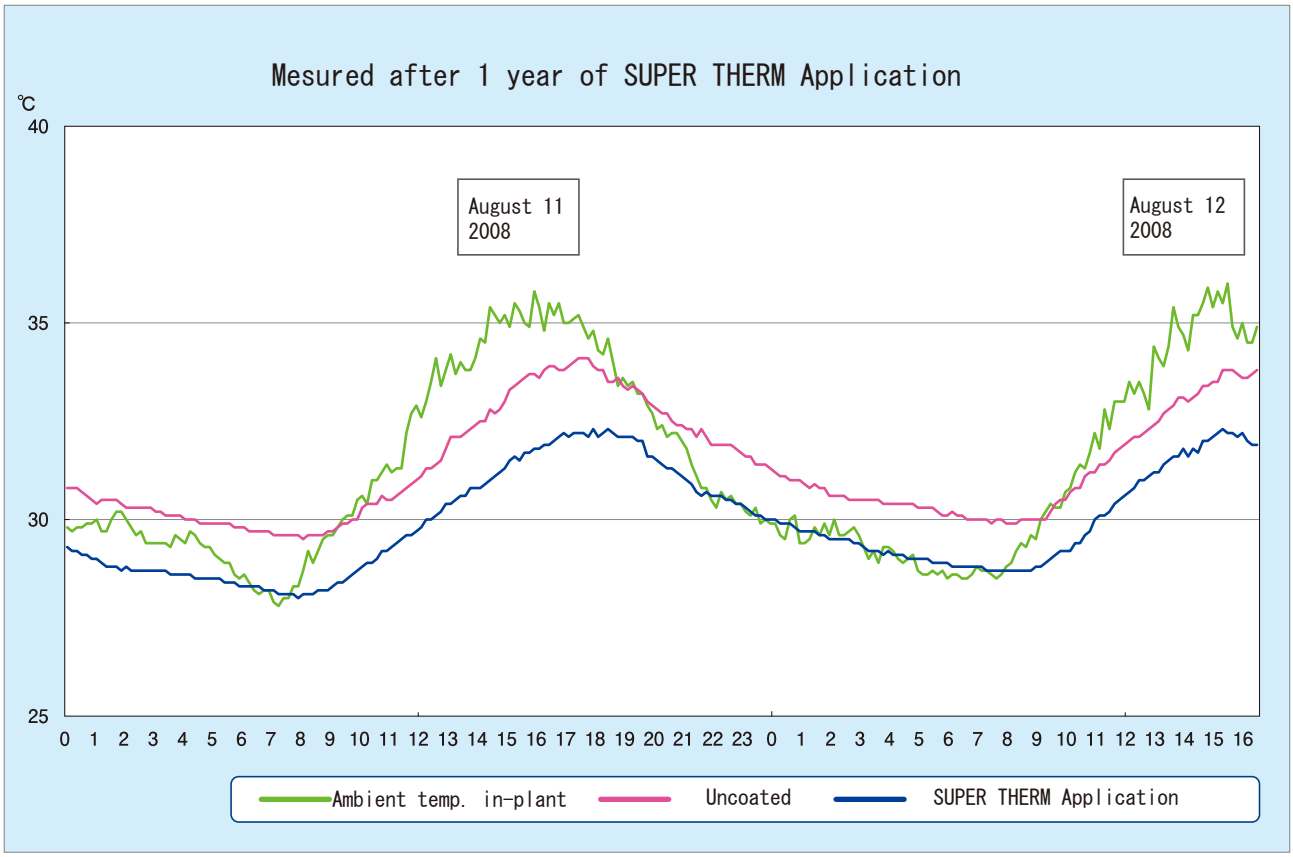


July/August	7/25	8/1	8/29		8/15	8/16	8/29
Weather	☀	☁	☀/☁		☀	☀	☀
Ambient temp.	32.7	33.0	31.4	Application	30.7	32.3	31.5
Room temp.	40.7	39.8	38.8		33.5	33.8	27.1
Difference	8.0	6.8	7.4		2.8	1.5	-4.4

Dongfeng HONDA Automobile Co., Ltd. (China)

Metal roof 32,000㎡ September 2006





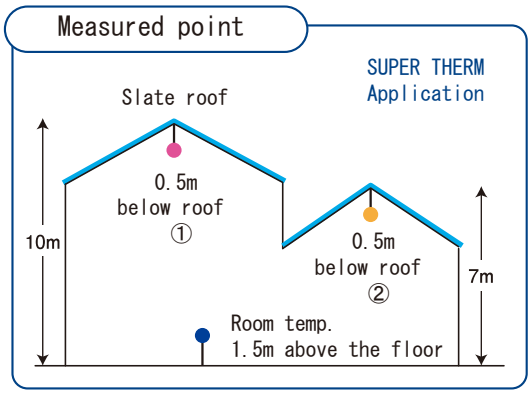
	August 11 2008																							
Time	1時	2時	3時	4時	5時	6時	7時	8時	9時	10時	11時	12時	13時	14時	15時	16時	17時	18時	19時	20時	21時	22時	23時	24時
Ambient	30.2	30.0	29.6	29.7	29.1	28.6	28.3	29.6	30.5	31.4	32.9	34.1	34.2	35.4	35.8	35.5	35.2	34.6	33.5	32.4	31.8	30.7	30.3	30.1
Uncoated	30.5	30.3	30.2	30.0	29.9	29.8	29.6	29.7	30.0	30.6	31.0	31.8	32.4	33.0	33.7	33.9	34.1	33.8	33.4	32.8	32.3	31.9	31.6	31.2
SUPER THERM	29.0	28.8	28.7	28.6	28.5	28.3	28.2	28.2	28.7	29.2	29.7	30.4	30.8	31.3	31.8	32.2	32.3	32.3	32.1	31.5	31.0	30.6	30.3	30.0
Difference	-1.5	-1.5	-1.5	-1.4	-1.4	-1.5	-1.4	-1.5	-1.3	-1.4	-1.3	-1.4	-1.6	-1.7	-1.9	-1.7	-1.8	-1.5	-1.3	-1.3	-1.3	-1.3	-1.3	-1.2

	August 12 2008															
Time	1時	2時	3時	4時	5時	6時	7時	8時	9時	10時	11時	12時	13時	14時	15時	16時
Ambient	29.9	30.0	29.3	29.2	28.7	28.8	28.8	29.6	30.7	32.2	33.0	34.4	35.4	35.9	36.0	34.9
Uncoated	30.9	30.6	30.5	30.4	30.3	30.2	30.0	30.0	30.5	31.2	31.9	32.4	33.1	33.5	33.8	33.8
SUPER THERM	29.7	29.5	29.3	29.1	29.0	28.8	28.8	28.8	29.2	30.0	30.6	31.2	31.8	32.1	32.3	32.0
Difference	-1.2	-1.1	-1.2	-1.3	-1.3	-1.4	-1.2	-1.2	-1.3	-1.2	-1.3	-1.2	-1.3	-1.4	-1.5	-1.8

High roof (14m) and opening doors it always maintains 1-2℃ low room temp.

Panasonic Electric Works Co., Ltd. (Tsu)

Slate Roof & Metal roof 4,000㎡ May 2011



Around roof temp.
Reduced **12.9℃**

Roof temp.
Reduced **5.3℃**

Temperature of 0.5m below roof①

August	Ambient	Room temp.	Difference	Result
2009 Uncoated	29.6℃	44.3℃	14.7℃	**12.9℃** Reduced
2011 SUPER THERM	30.8℃	32.6℃	1.8℃	

September	Ambient	Room temp.	Difference	Result
2009 Uncoated	27.0℃	39.4℃	12.4℃	**11.3℃** Reduced
2011 SUPER THERM	27.4℃	28.5℃	1.1℃	

Temperature of 0.5m below roof②

August	Ambient	Room temp.	Difference	Result
2009 Uncoated	29.6℃	42.4℃	12.8℃	**12.1℃** Reduced
2011 SUPER THERM	30.8℃	31.5℃	0.7℃	

September	Ambient	Room temp.	Difference	Result
2009 Uncoated	27.0℃	38.1℃	11.1℃	**10.5℃** Reduced
2011 SUPER THERM	27.4℃	28.0℃	0.6℃	

Room Temperature

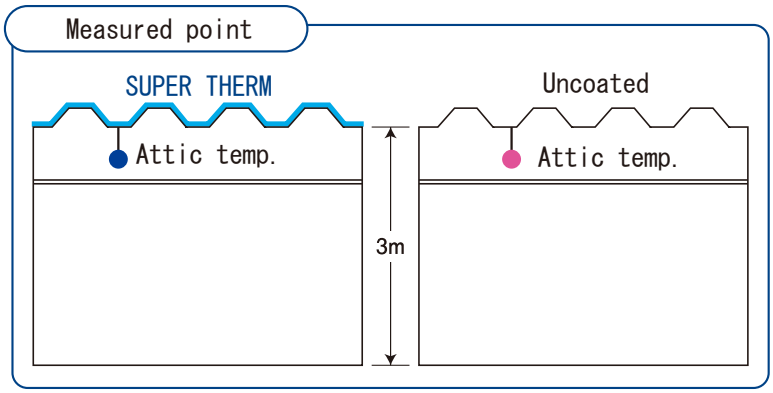
August	Ambient	Room temp.	Difference	Result
2009 Uncoated	30.0℃	34.2℃	4.2℃	**5.3℃** Reduced
2011 SUPER THERM	31.1℃	30.0℃	-1.1℃	

September	Ambient	Room temp.	Difference	Result
2009 Uncoated	27.0℃	30.3℃	3.3℃	**4.3℃** Reduced
2011 SUPER THERM	27.4℃	26.4℃	-1.0℃	

※Average temp. through 1 month including rainy days

Reconstruction support of
The 2011 the Pacific coast of Tohok Earthquake

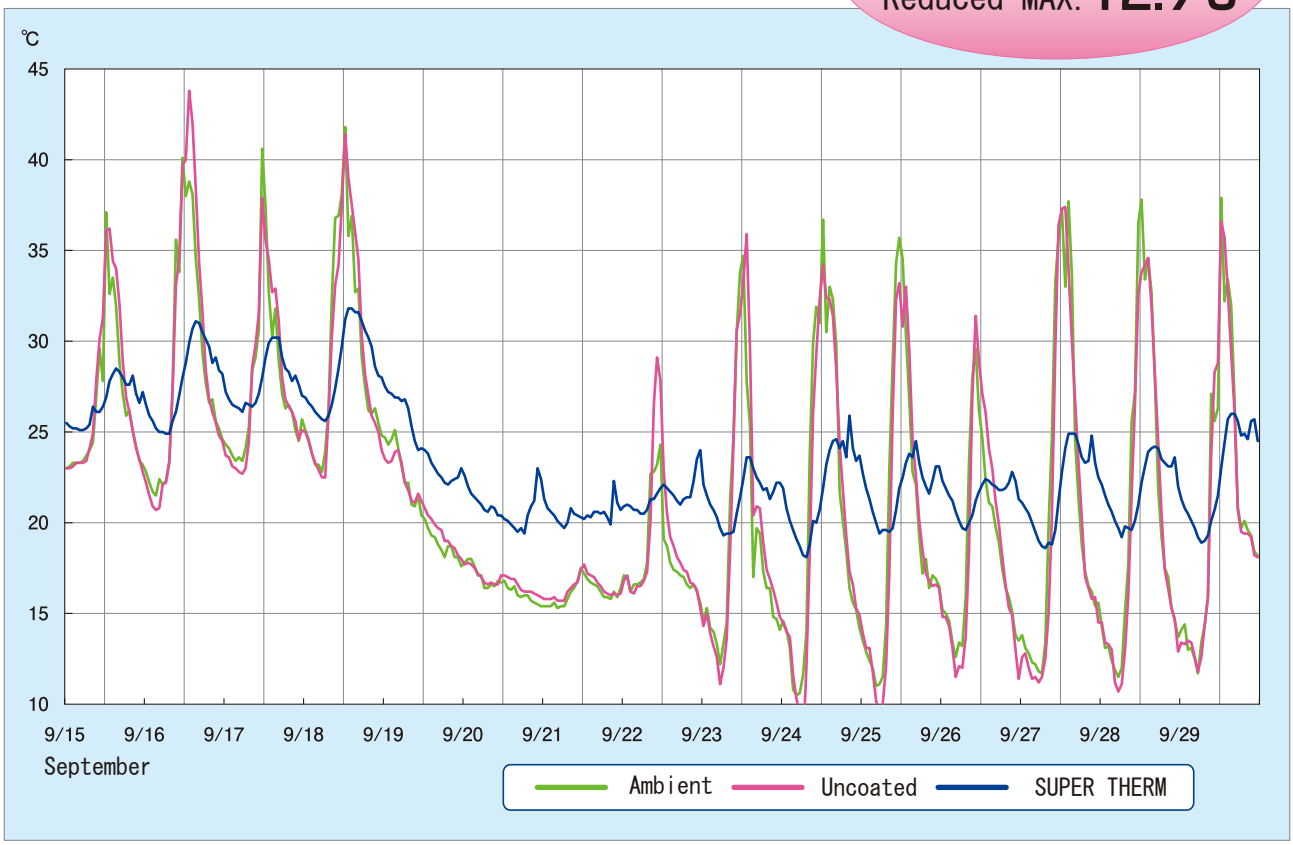
Temporary house (Miyagi) 18,000㎡ August 2011



SUPER THERM was provided for volunteer to all the temporary houses in Iwanuma, Miyagi as a government-financed aid project for the summer heat in temporary houses.

Hope the life will be comfortable for next years.

Attic temperature
Reduced MAX. **12.7℃**



September	9/15	9/16	9/17	9/18	9/19	9/20	9/21	9/22	9/23	9/24	9/25	9/26	9/27	9/28	9/29
Weather	☂/☁	☁	☁	☀	☂	☂	☂	☂	☀/☂	☀	☁/☀	☁	☁/☀	☀	☀
Ambient temp.	37.1	40.1	40.6	41.8	25.1	18.0	17.5	24.3	34.7	36.7	35.7	29.6	37.7	37.8	37.9
Uncoated	36.2	43.8	37.9	41.4	24	17.8	17.7	29.1	35.9	34.2	33.2	31.4	37.4	34.6	36.6
SUPER THERM	28.5	31.1	30.2	31.8	27.5	23.0	22.3	24.0	23.6	25.9	24.5	22.8	24.9	24.2	26.0
Difference	-7.7	-12.7	-7.7	-9.6	3.5	5.2	4.6	-5.1	-12.3	-8.3	-8.7	-8.6	-12.5	-10.4	-10.6

Panasonic Electric Works Co., Ltd.

Mie 6,000㎡
July 2014

Panasonic Appliances Co., Ltd.

Shiga 8,600㎡
March 2012

Shiga 4,500㎡
August 2013

Panahome Corporation

Shiga 1,900㎡
July 2012

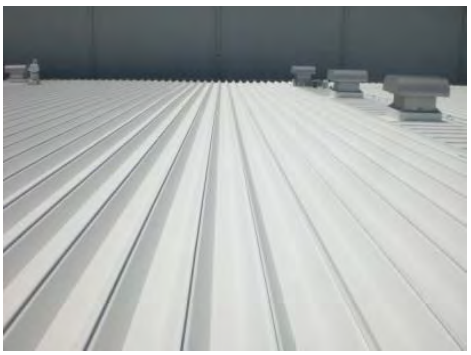
Panasonic Logistics Co., Ltd.

Osaka 2,000㎡
March 2009

Center office 1,200㎡
March 2009

Irisohyama Inc. Saitama

Saitama 4,300㎡
AUgust 2012



Irisohyama Inc. Kadota

Miyagi 10,200㎡
August 2011

Coca-Cola Central Japan Co., Ltd.

Tokaikita Aichi 640㎡
May 2013

Akindo Sushiro Co., Ltd.
Hyogo 640㎡
July 2013

Starbucks Coffee Japan
Toyama 250㎡
June 2014

Sunny Mart Co., Ltd.
Kochi 4,000㎡
May 2014

Life Corporation
Kyoto 1,550㎡
August 2012

Life Corporation
Osaka 1,500㎡
July 2011

SATAKE Kyuhoji
Osaka 2,130㎡
August 2012

Super Mino
Osaka 2,000㎡
March 2014

James Toyokawa
Aichi 1,670㎡
March 2012

Bears – mall
Osaka 7,700㎡
2007–2009

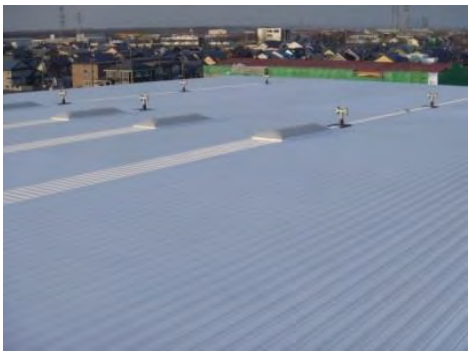
JTEKT Corporation
Osaka

4,000㎡
August 2006

5,500㎡
December 2013

Toyota Fukushima Parts Distributor Co., Ltd.
Fukushima 5,500㎡
August 2012

Toyota Hokkaido Parts Distributor Co., Ltd.
Logistic center 8,500㎡
May 2012



Toyota Mie Parts Distributor Co., Ltd. Ise
Mie 800㎡
February 2013

Toyota Mie Parts Distributor Co., Ltd. Yokkaichi
Mie 2,000㎡
February 2013

Isuzu Motors Limited Kyusyu
Fukuoka 5,600㎡
May 2012

Daihatsu Motor Co., Ltd.
Shiga 850㎡
December 2013

Hitachi Construction Machinery Tierra Co., Ltd.
Shiga Roof 3,700㎡ Wall480㎡
March 2014

ATLAS AIR & HEAT INC.

5415 Memphis Street Cumming Ga 30040
Office 770-887-2440 Fax 770-887-249

Project Cumming New Life Church

Date 10/5/2008

Cumming New Life had called for help with high electric bills coupled units running all the time and temperature inside would not go below 78 degrees.

Atlas Air and Heat Inc. preformed a CHVAC load calculation. Full report enclosed. Findings as follows **22.8 Tons** of air conditioning needed. **Existing systems were a total of 15 Tons**. At this point we suggested a ceramic roof coating by the trade name **Super Therm** which could be Installed on existing metal roof. Sprayed on 16 mils wet and dries to 10 mils, about the thickness of a business card and blocks 95% of the heat.

You will notice on the 2nd pie chart that the roof energy gain was 7.22% post Super Therm and the first pie chart 25.69% pre Super Therm...that s a 326% efficiency increase

If Cumming New Life added another air conditioning system they would lower there inside temperature yet increasing their KWh usage .

Super Therm was sprayed on their roof the first of July 2008.

The results were amazing as shown in the power bills. Notice the KWh for September 2008 KWh 5200 compared to September 2007 KWh 11320. The proof is in the power bill.

The great aspect here, they did not add another air conditioning system to control inside temperature, which is now 70 degrees and running on the original equipment.

We preformed a new CHVAC calculation with the coating on the roof. **The new tonnage is 16.97 Tons**.

Existing Tonnage needed	22.8
Roof Coated Tonnage	16.97
Saved Tonnage Per Annum	**5.83**

Lower electric KWh, lower inside temperature, and did not have to install a new system. This is a win for Cumming New Life Church.

Feel free to contact us for phone numbers for Cumming New Life.

Doug Anderson 770-861-8191
Greg Hamby 678-232-5442

Please return this portion with payment.

GEORGIA POWER
A SOUTHERN COMPANY

BIN #10102
241 Ralph McGill Blvd.
Atlanta, GA 30308-3374

PLEASE PAY BY 10/06/2008

02066656300630000019903100001121890000000000000000000

CUMMING NEW LIFE CHURCH
P O B 1654
CUMMING GA 30028

Mail To:
96 ANNEX
ATLANTA GA
30396-0001

74.93	Lighting
776.66	Electric Svc
1121.89	Prev Svc
16.83	LPC 97094672

ACCOUNT NUMBER 06665-63006 14

TOTAL DUE $1,990.31

www.georgiapower.com
ACCOUNT ACCESS CODE: 161990
ACCOUNT NUMBER 06665-63006
CUSTOMER NAME CUMMING NEW LIFE CHURCH
SERVICE ADDRESS 1645 DAHLONEGA HWY BLDG

GEORGIA POWER COMPANY
114 N. Main St.
Cumming, GA 30040
For Customer Service, Please Call
1-888-655-5888

RATE CODE	SERVICE PERIOD END	SERVICE PERIOD TO	METER NUMBER	READING TYPE	PRESENT READING	PREVIOUS READING	MULTIPLIER	BILLING DEMAND
PLM-C	08-21-08	09-20-08	BE7748	Tot kWh	17669	17739	40	5,200
				Pk kW		0.87	40	34.8

EXPLANATION OF CHARGES

OLUNR - Outdoor Lighting Unregulated	**08/21-09/22**
2-400 HPS Flood OH	
Current Service	68.72
Environmental Compliance Cost	0.87
Franchise Fee	0.44
Sales Tax	4.90
PLM-C - Power and Light Med-COM	**08/21-09/20**
Current Service	684.80
Environmental Compliance Cost	29.76
Franchise Fee	11.29
Sales Tax	50.81
Previous Service	1121.89
Late Payment Charge - Electric	16.83

PAYMENTS SINCE LAST BILLING

HISTORICAL DATA

	Days	KWH	Cost	Billed Demand
This Mth	30	5200	776.66	46
Last Mth	31	7120	1046.96	46
1 Yr Ago	31	11320	1324.85	46

$776.66 total

T.Y 5200 Kwh After Coating S.T.
L.Y. 11,320 Kwh Before Coating S.T.

PLEASE PAY BY 10/06/2008

TOTAL DUE $1,990.31

Balances unpaid 7 days after this date are subject to a late charge of 1.5% of the amount due or $2.00, whichever is greater.

CLEAN HEAT EXCHANGERS AND PERFORM ROUTINE MAINTENANCE ON REFRIGERATING EQUIPMENT.
These simple measures will ensure the most efficient operation of heat exchanges needed for cooling or refrigerating equipment. To learn ways to save energy, call Georgia Power - The Energy Expert at 1-888-655-5888 or visit georgiapower.com/business.
ACCOUNT NUMBER 06665-63006

This bill includes a previous balance. If this amount has been paid, please accept our thanks and pay only the current charge.

Sept 2008 (Bill)

Building Summary Loads

Building peaks in July at 3pm.

Bldg Load Descriptions	Area Quan	Sen Loss	%Tot Loss	Lat Gain	Sen Gain	Net Gain	%Net Gain
Roof	7,000	95,126	36.56	0	68,064	68,064	25.69
Wall	3,760	48,386	18.59	0	33,227	33,227	12.54
Glass	0	0	0.00	0	0	0	0.00
Floor Slab	400	12,760	4.90	0	0	0	0.00
Skin Loads		156,272	60.05	0	101,291	101,291	38.23
Lighting	1,300	0	0.00	0	4,879	4,879	1.84
Equipment	900	0	0.00	0	3,378	3,378	1.27
People	206	0	0.00	36,326	45,295	81,622	30.80
Partition	0	0	0.00	0	0	0	0.00
Cool. Pret.	0	0	0.00	0	0	0	0.00
Heat. Pret.	0	0	0.00	0	0	0	0.00
Cool. Vent.	898	0	0.00	17,822	19,053	36,875	13.92
Heat. Vent.	1,290	77,900	29.94	0	0	0	0.00
Cool. Infil.	0	0	0.00	0	0	0	0.00
Heat. Infil.	0	0	0.00	0	0	0	0.00
Draw-Thru Fan	0	0	0.00	0	11,493	11,493	4.34
Blow-Thru Fan	0	0	0.00	0	0	0	0.00
Reserve Cap.	0	0	0.00	0	11,404	11,404	4.30
Reheat Cap.	0	0	0.00	0	0	0	0.00
Supply Duct	0	17,364	6.67	0	9,355	9,355	3.53
Return Duct	0	8,682	3.34	0	4,677	4,677	1.77
Misc. Supply	0	0	0.00	0	0	0	0.00
Misc. Return	0	0	0.00	0	0	0	0.00
Building Totals		260,217	100.00	54,148	210,826	264,974	100.00

Building Summary	Sen Loss	%Tot Loss	Lat Gain	Sen Gain	Net Gain	%Net Gain
Ventilation	77,900	29.94	17,822	19,053	36,875	13.92
Infiltration	0	0.00	0	0	0	0.00
Pretreated Air	0	0.00	0	0	0	0.00
Zone Loads	156,272	60.05	36,326	166,247	202,574	76.45
Plenum Loads	0	0.00	0	0	0	0.00
Fan & Duct Loads	26,045	10.01	0	25,526	25,526	9.63
Building Totals	260,217	100.00	54,148	210,826	264,974	100.00

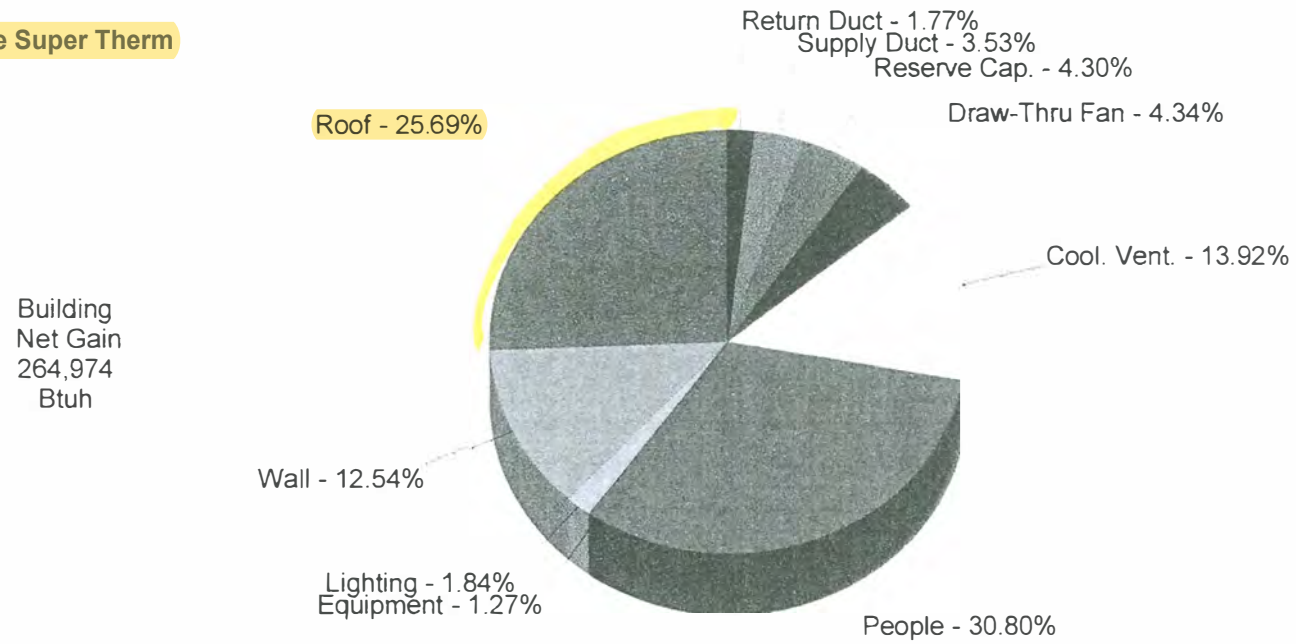
Check Figures

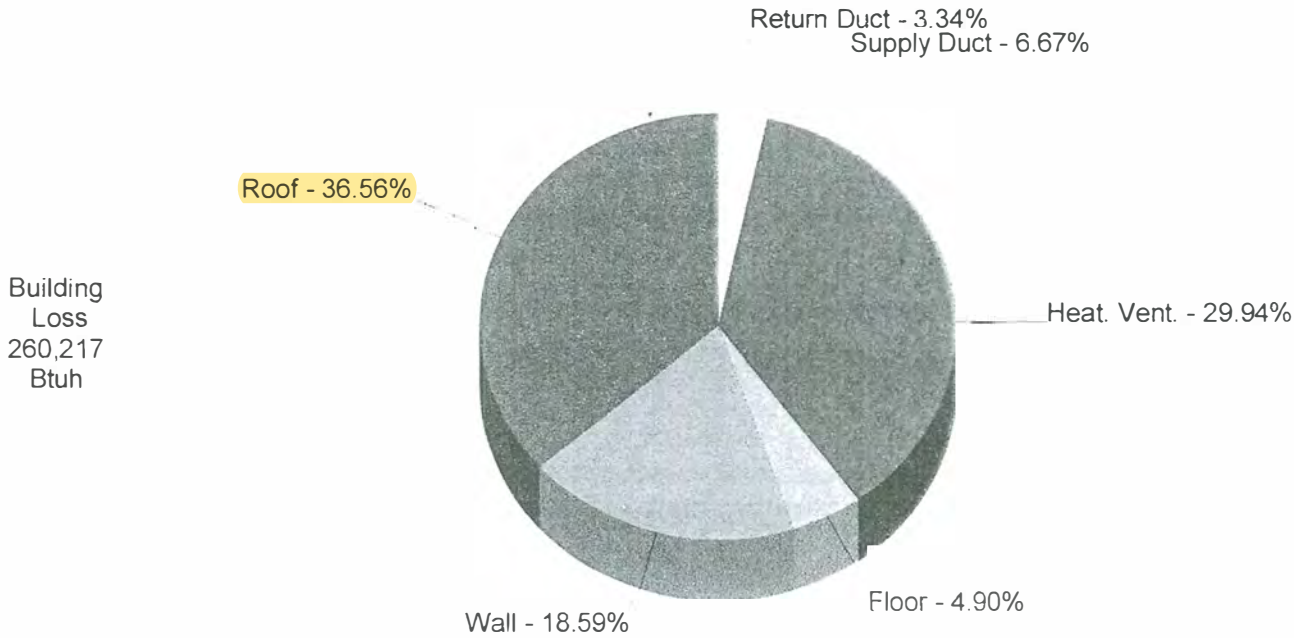
Total Building Supply Air (based on a 20° TD):	8,822	CFM
Total Building Vent. Air (10.18% of Supply):	898	CFM
Total Conditioned Air Space:	7,000	Sq.ft
Supply Air Per Unit Area:	1.2602	CFM/Sq.ft
Area Per Cooling Capacity:	317.0	Sq.ft/Ton
Cooling Capacity Per Area:	0.0032	Tons/Sq.ft
Heating Capacity Per Area:	37.17	Btuh/Sq.ft
Total Heating Required With Outside Air:	260,217	Btuh
Total Cooling Required With Outside Air:	22.08	Tons

Building Pie Charts (G)

Building peaks in July at 3pm.

Pre Super Therm

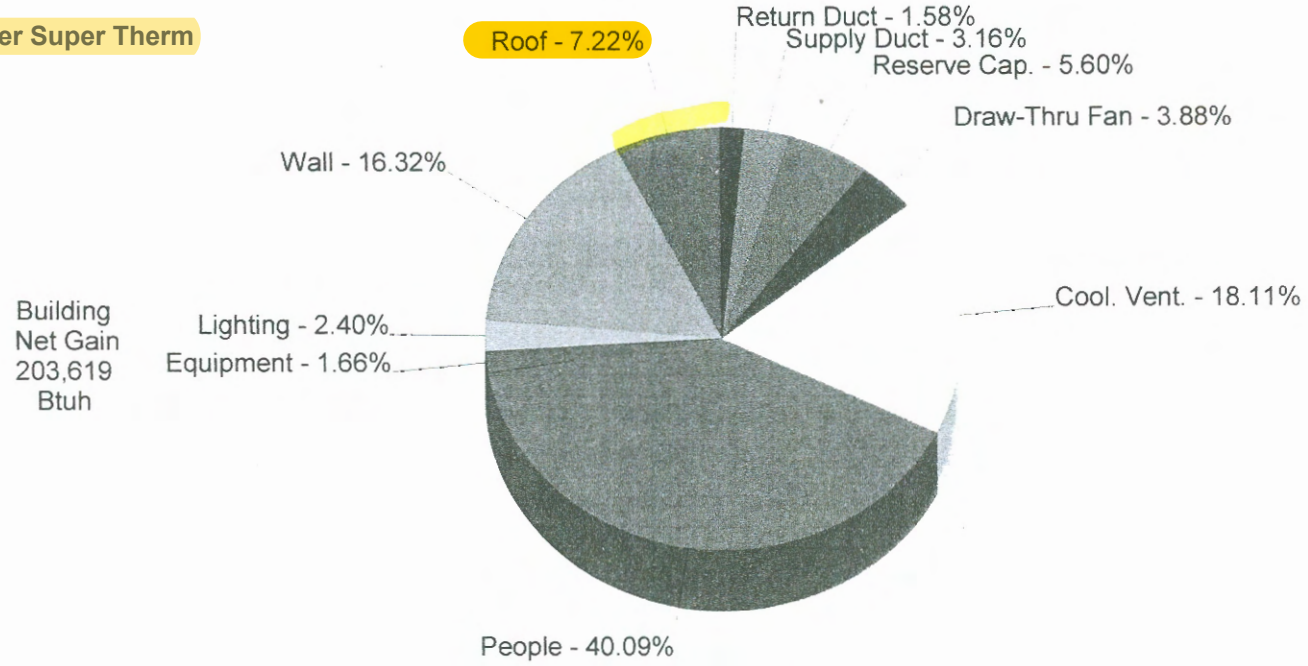


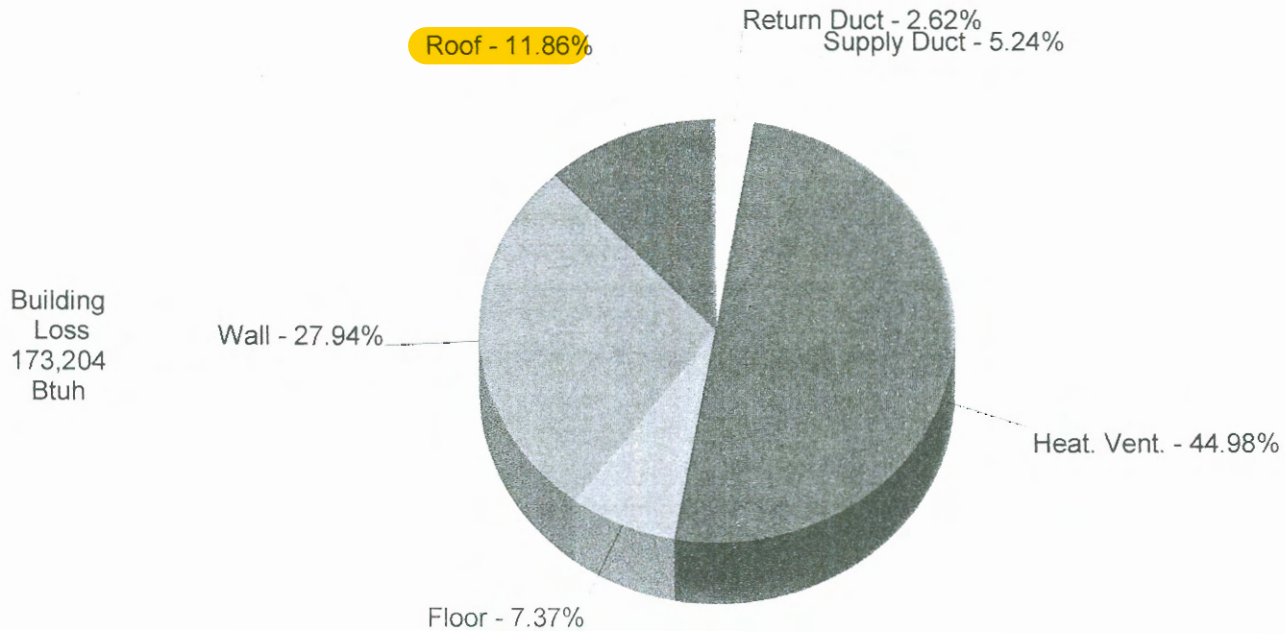


Building Pie Charts (G)

Building peaks in July at 3pm.

After Super Therm





Building Summary Loads

Building peaks in July at 3pm.

Bldg Load Descriptions	Area Quan	Sen Loss	%Tot Loss	Lat Gain	Sen Gain	Net Gain	%Net Gain
Roof	7,000	20,544	11.86	0	14,699	14,699	7.22
Wall	3,760	48,386	27.94	0	33,227	33,227	16.32
Glass	0	0	0.00	0	0	0	0.00
Floor Slab	400	12,760	7.37	0	0	0	0.00
Skin Loads		81,690	47.16	0	47,926	47,926	23.54
Lighting	1,300	0	0.00	0	4,879	4,879	2.40
Equipment	900	0	0.00	0	3,378	3,378	1.66
People	206	0	0.00	36,326	45,295	81,622	40.09
Partition	0	0	0.00	0	0	0	0.00
Cool. Pret.	0	0	0.00	0	0	0	0.00
Heat. Pret.	0	0	0.00	0	0	0	0.00
Cool. Vent.	898	0	0.00	17,822	19,053	36,875	18.11
Heat. Vent.	1,290	77,900	44.98	0	0	0	0.00
Cool. Infil.	0	0	0.00	0	0	0	0.00
Heat. Infil.	0	0	0.00	0	0	0	0.00
Draw-Thru Fan	0	0	0.00	0	7,897	7,897	3.88
Blow-Thru Fan	0	0	0.00	0	0	0	0.00
Reserve Cap.	0	0	0.00	0	11,401	11,401	5.60
Reheat Cap.	0	0	0.00	0	0	0	0.00
Supply Duct	0	9,077	5.24	0	6,428	6,428	3.16
Return Duct	0	4,538	2.62	0	3,214	3,214	1.58
Misc. Supply	0	0	0.00	0	0	0	0.00
Misc. Return	0	0	0.00	0	0	0	0.00
Building Totals		173,204	100.00	54,148	149,471	203,619	100.00

Building Summary	Sen Loss	%Tot Loss	Lat Gain	Sen Gain	Net Gain	%Net Gain
Ventilation	77,900	44.98	17,822	19,053	36,875	18.11
Infiltration	0	0.00	0	0	0	0.00
Pretreated Air	0	0.00	0	0	0	0.00
Zone Loads	81,690	47.16	36,326	112,880	149,206	73.28
Plenum Loads	0	0.00	0	0	0	0.00
Fan & Duct Loads	13,615	7.86	0	17,538	17,538	8.61
Building Totals	173,204	100.00	54,148	149,471	203,619	100.00

Check Figures

Total Building Supply Air (based on a 20° TD):	6,061	CFM
Total Building Vent. Air (14.82% of Supply):	898	CFM
Total Conditioned Air Space:	7,000	Sq.ft
Supply Air Per Unit Area:	0.8659	CFM/Sq.ft
Area Per Cooling Capacity:	412.5	Sq.ft/Ton
Cooling Capacity Per Area:	0.0024	Tons/Sq.ft
Heating Capacity Per Area:	24.74	Btuh/Sq.ft
Total Heating Required With Outside Air:	173,204	Btuh
Total Cooling Required With Outside Air:	16.97	Tons

Super Therm® Test Study
Passenger Bus Roof Application
City of Hermosillo, Sonora, México.
June 2005

Written by: Bladimir Barrios, Architect
Translated by: Damian Barrios

G b m e x

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SUPERIOR PERFORMANCE COATINGS

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Test Study: Results of the Application of Super Therm® on Passenger Bus.
Company : Econotours, Hermosillo, Sonora, México.

Record of temperatures on the roof's surface and in the bus interior BEFORE Super Therm®.

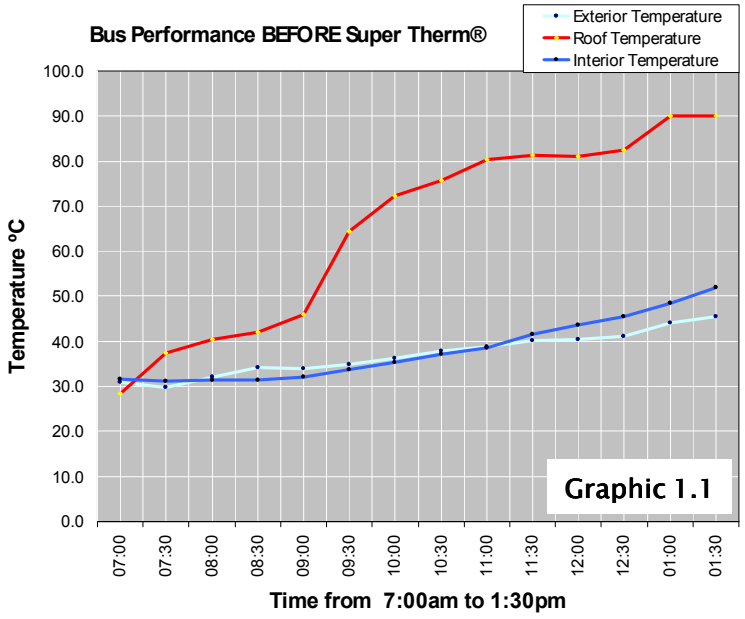
Friday, June 24, the bus remained completely closed from 7:00am until 1:30pm, this with the intention of registering the inside and roof temperatures every 30 minutes, Table 1.1 and Graphic 1.1.

Bus temperature readings BEFORE Super Therm®
from 7:00am to 1:30pm
Date 06/24/2005

Hour	Exterior. Temp.	Interior Temp .	Roof Temperature
07:00	30.9	31.7	28.4
07:30	29.8	31.1	37.4
08:00	32.0	31.4	40.4
08:30	34.1	31.4	42.0
09:00	34.0	32.2	45.9
09:30	34.9	33.7	64.4
10:00	36.3	35.3	72.4
10:30	37.8	37.2	75.7
11:00	38.9	38.6	80.4
11:30	40.1	41.5	81.4
12:00	40.4	43.6	81.0
12:30	41.1	45.6	82.5
01:00	44.2	48.5	90.1
01:30	45.6	52.0	90.1

Highest Temperatures
* All temperatures ºC

Table 1.1



Graphic 1.1

Record of Temperatures on the Bus Roof's Surface and Interior <u>AFTER</u> Super Therm®.

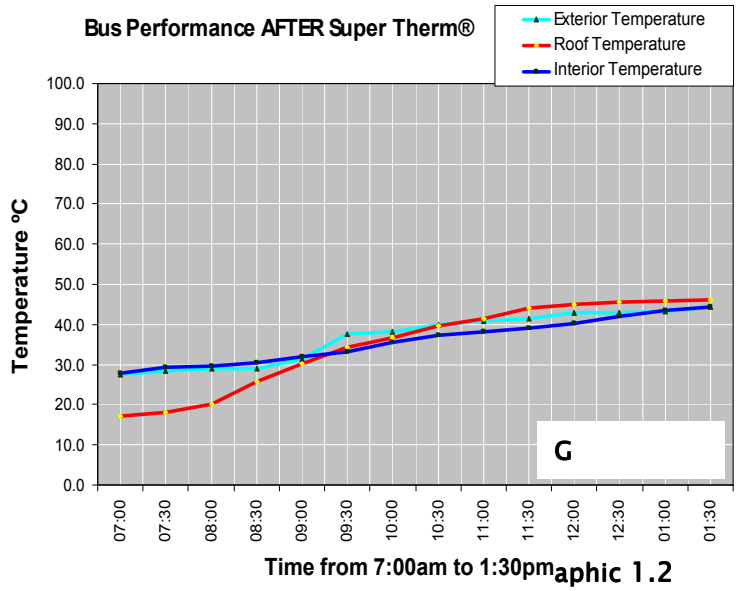
Saturday, June 25, 2005. Table 1.2 and Graphic 1.2

Bus temperature readings AFTER Super Therm®
from 7:00am to 1:30pm
Date 06/25/2005

Hour	Exterior. Temp.	Interior Temp .	Roof Temperature
07:00	27.4	27.9	17.2
07:30	28.3	29.4	18.0
08:00	28.9	29.7	20.0
08:30	29.1	30.5	25.7
09:00	31.3	32.0	30.1
09:30	37.5	33.0	34.4
10:00	38.3	35.4	36.8
10:30	39.9	37.2	39.7
11:00	40.7	38.1	41.5
11:30	41.5	39.0	44.1
12:00	42.8	40.1	44.9
12:30	43.0	41.9	45.6
01:00	43.3	43.4	46.0
01:30	44.3	44.5	46.2

Highest Temperatures
* All temperatures ºC

Table 1.2



aphic 1.2

Conclusions

From the observations and remarks we can conclude the following:

1. Before coating with SUPER THERM®, the roof's temperature and the interior temperature were much higher.

2. After application of Super Therm the roof's temperature was significantly lower than before application. Without Super Therm the roof's temperature rose to **90.1 ºC**, after SUPER THERM the temperature only reached **46.2 ºC**. This proves SUPER THERM's strength in reducing heat transfer (Refer to Graphic 2.4).

3. As a direct result of application of SUPER THERM®, the temperature inside the bus **decreased 8ºC**, always tending to equalize itself with the outside temperature during the test (from 7 a.m. to 1:30 p.m.) (Refer to Graphic 2.5).

4. The Super Therm coated roof absorbed **46.27% less heat** than the non-coated roof (Refer to Graphic 2.4).

5. With Super Therm®, the Thermo King unit only needed 33.4 minutes to reach 29 º C, **45 % less running** time than without using Super Therm®. (Refer to graphic 2.6).

6. Given the need to put the bus back onto its route, the testing and temperature results taken from the SUPER THERM® bus were done within one day of application. Super Therm typically takes 7-10 days to fully cure and thus even more favorable results might be seen after full cure.

7. The Thermo King unit coated with SUPER THERM® became **30.5% more efficient.**

This project demonstrates that using Super Therm® results in a significantly cooler bus/building. This will lead to fuel savings, maintenance savings, a more efficient and comfortable unit, and most importantly, better service and a more comfortable environment for customers.

With Super Therm®
42.8°C External
44.9°C Roof

The Business Magazine for Professional Truckers
LAND LINE MAGAZIN
The Official Publication of the Owner-Operator Independent Drivers Association

Super Therm insulates reefers

Industrial Coatings Alliance Group Inc. is an international consultant, distributor, application and maintenance company of roof coatings and roofing systems. Headquartered in Roswell, GA, ICAG is a charter member of the EPA's Energy Star Roof Coatings Program and is a leader in researching and implementing energy conservation roofing programs for various prominent business owners. With more than 5 million square feet of roofing surface coated, as well as more than 30,000 over-the-road trucking trailers, ICAG is recognized as a leader in roofing solutions.

While most roofing systems are merely a means of keeping the weather out, ICAG's coating and roofing systems will provide superior insulating qualities, structural protection and aesthetics that will significantly lower utility cost, provide maintenance savings and enhance the aesthetics of the facilities and/or vehicle. Our research indicates that energy savings alone provide an extremely favorable payback period making the application a viable financial option.

Industrial Coatings Alliance Group has recently tested its proprietary insulation coating with one of the nations largest private refrigerated carriers. ICAG is pleased to announce that Super Therm, its proprietary coating, when applied to the top of a refrigerated trailer, can reduce the units fuel consumption approximately 30 percent versus a multi-temp refrigerated unit with traditional aluminum roofs.

Super Therm is a roof coating that contains four unique ceramics. The ceramic makeup of Super Therm gives it an insulation equivalent to R-19 (6-8 inches of fiberglass batt insulation). Super Therm is a non-conductive ceramic coating that repels 99.5 percent of long-wave energy, 92.5 percent of short-wave energy and 99.9 percent infrared heat energy.

The test began in July 2002. Super Therm roof coating was applied to five multi-temp reefers in Tolleson, AZ. This facility was chosen due to the extreme amount of radiant heat that refrigerated units were exposed to daily, on mostly a year-round basis.

The "Control Group" consisted of five multi-temp trailers with traditional aluminum roofs. A third group of trailers, five multi-temp trailers coated with the trailer manufacturer's proprietary heat-resistant composite roof, was included in the test as well. All 15 units were 2001 model year and manufactured to identical build specifications, with the exception of the addition of the heat-resistant composite roof by the manufacturer.

The primary area of focus for this test was on fuel economy; would the Super Therm coated reefers burn less fuel than the control group and even the group with the heat-resistant composite roofing system. In addition, would the difference in fuel consumed justify the cost of the product?

After gathering and analyzing test results for the months of July and October, ICAG is pleased to announce that Super Therm not only met, but also exceeded the expectations of the private refrigerated carrier.

In July, the Super Therm coated units burned 30 percent less fuel than the "control" units and 20 percent less than the manufacturers heat-resistant composite units. On an annual basis, this

resulted in decreased fuel consumption of 1,039 gallons and 463 gallons respectively. At $1.10 per gallon, the cost savings were $1,143 and $509 per unit.

In October, the Super Therm units burned 27 percent less fuel than the "control" units and 22 percent less fuel than the manufacturers' heat-resistant composite roofing system units. On an annualized basis, this resulted in decreased fuel consumption of 599 gallons and 435 gallons respectively. At $1.10 per gallon, the cost savings were $659 and $479 per unit. Per our test, we can expect that savings would be highest in the summer months, lowest in the winter months and average in fall and spring months.

With product cost and installation cost considered, a payback could be expected of less than one year. These savings estimates do not include maintenance savings which would likely result from the refrigeration unit running less hours, or running a higher percent of hours in low speed versus high. This would, in theory, also extend the life of the refrigeration unit. In addition, savings associated with a decrease in labor that would result from fueling the reefers less often is not included in the cost savings.

Industrial Coatings Alliance Group Inc. believes that this coating system is consistent with private and for-hire refrigerated unit carriers' goal to provide superior service to their customers and staff while improving the bottom line of that company through significant cost reductions.

For information, contact Industrial Coatings Alliance Group Inc. at (770) 313-3735.

Publisher's Note: These announcements are written and provided by the manufacturers of the products and are offered here as a service to our readers. Product announcements are the opinion of the manufacturer or marketing company and do not reflect the opinions or beliefs of *Land Line Magazine* and its publisher.

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29 January 2013

RHQ

REPORT – JDF AW TECHNICAL STORES
ENERGY CONSERVATION

GENERAL

The Jamaica Defense Force (JDF) is an entity that depends largely on electrical energy. For 2013 the JDF's average monthly energy bill (electricity) was approximately twenty million dollars (J$20,000,000.00). This is due to the numerous amounts of air conditioning units, incandescent lamps and other electrical equipment that are old and inefficient. In recent years the JDF has embarked on a number of initiatives to incorporate more energy saving and energy efficient systems. These include the installation of renewable energy systems such as solar water heaters and the incorporation of energy efficient devices such as LED lamps and inverter type air condition systems. These however, are difficult to implement due to high costs outlays.

One such initiative is the testing of the application of a material called Super Therm® in conjunction with the Jamaica Ministry of Science, Technology, Energy and Mining (MSTEM). According to the Manufacturer, Super Therm® is a water – borne combination of specific unique ceramics, high-performance aliphatic urethanes, elastomeric acrylics and resins additives, which produces a tough, yet flexible insulation coating. Super Therm® contains no co-solvents and will dry by evaporation. Super Therm® has four very unique ceramics that collectively block 95% of the solar heat entering a structure. Super Therm can also greatly reduce expansion and contraction on surfaces, corrosion and surface deterioration while also providing a moisture barrier
(See Annex 'A' for more Super Therm® specifications).

Testing Procedure

The research into the use of Super Therm® was conducted firstly, by identifying an appropriate building that was already in use that had a high consumption rate for electricity. The building selected was the JDF Air Wing technical store because it was an unpainted pre-cast reinforced concrete stand alone structure that uses two (02) air conditioning units and internal lighting. All air conditioning units are kept running on a 24 hour basis to keep the aircraft parts and supplies maintained at relatively cool temperatures. The building itself had bare concrete walls and has no windows (see pictures of the building at Annex 'E'). The research was conducted in three phases as follows:

> **Phase one:** This phase consisted of collecting temperature readings using an infrared surface thermometer and electrical readings using an OWL® wireless energy monitor (see Annex 'B') for a specified period of time (approximately 2 months).
>
> **Phase two:** Consisted of the application of the Super Therm® solution, 20 – 22 November 2013.
>
> **Phase three:** Consisted of collecting temperature and electrical readings after the application of the Super Therm® solution for the same amount of time. After this a comparison of the readings and corresponding cost savings were calculated.

Findings

Table 1 (see Annex 'C') depicts the temperature readings before the application of the Super Therm® solution and table 2 (see Annex 'D') depicts the temperature readings gathered after the application. The readings were only taken on days when the weather condition was sunny to get measurements as consistent as possible.

Temperature

Before the application of the Super Therm® solution, the external walls were plain pre-fabricated bare concrete which absorbed a significant amount of heat (see Annex 'E'). Over the two month period before the Super Therm® application, and while the AC was running, the average internal surface temperature of the walls was found to be 88 °F, the average external surface temperature of the walls was found to be 95 °F. The internal atmospheric temperature was observed to fluctuate between 75.2 °F and 82.4 °F throughout phase 1.

Additionally, before the Super Therm® application, on 08 Oct 13, a day that had a full day of sun, the AC units in the building were all turned off from 0600 hrs. It was observed at 1213 hrs that the average surface temperature of the internal walls reached 103 °F. The average external surface temperature of the walls was found to be 100 °F. The internal atmospheric temperature of the building at that time registered 95 °F.

Over the two month period after the Super Therm® application and with the AC running, the average internal surface temperature of the walls was found to be 70 °F, while the average surface temperature of the external walls was found to be 81 °F. The average internal atmospheric temperature was 71.6 °F.

On 03 Jan 14 (in phase 3) after the Super Therm® application, all the AC units were again turned off from 0600 hrs. The average internal surface temperature of the walls was found to be 81.3 °F and the average surface temperature of the external walls was found to be 88.4 °F. The internal atmospheric temperature of the building was recorded to be between 71.6 °F and 87.8 °F throughout that day.

It can be observed in the tables that the surface temperatures for the respective walls both internally and externally were generally higher prior to the application of the Super Therm® than they were after. **This was so evident by the users of the building that after the application of the Super Therm® to the building that they turned off all but one (01) AC unit because it became uncomfortably cold inside the building with all the ACs on.**

Electricity

A device used to measure the consumption of electricity commonly known as the OWL was connected to the electrical supply at the JDF AW technical store on 16 Aug 13 at 1026 hrs and has remained in place throughout all the phases. Over the two month period prior to the application of the Super Therm® (it was actually exactly 65 days) a total consumption of 18,661 KWH was recorded for that building. Using an average rate of J$ 40.00 per KWH, the total cost of electricity to the JDF over the 65 days for the JDF AW technical store was calculated to be J$746,440.00.

After the application of the Super Therm® the readings recorded indicated that the total electricity consumption over the two month period (65 days) for the same building was 11,005 KWH. Using the same average rate of J$ 40.00 per KWH, the total cost of electricity to the JDF over the second 65 days after the application of Super Therm® was worked out to be J$440,200.00. **This represents a cost saving of J$306,240.00 or forty one percent (41%)** for the same time period.

Conclusions

Prior to the application of the Super Therm® two (02) AC units had to be kept running to keep the contents of the store at the appropriate temperature. However, after the Super Therm® application the technicians at the store found it necessary to run only one AC unit at any given time to maintain the same temperature. Thus, the significant reduction in the overall electricity consumption which in turn could be converted to cost savings

The application of the Super Therm® to the JDF AW technical stores building works by blocking solar heat loading which causes the building to absorb less heat from the sun. This is shown in the fact that since the application of the Super Therm® material, the JDF AW technical stores' energy usage and internal temperature has dropped significantly

The Application of the Super Therm ® solution has positively affected the JDF AW technical stores in that it was able to reduce the temperature of the building significantly and has helped to reduce the energy consumption of the building (see Annex 'E" to 'G' for pictures of the building).

Taking into consideration the fact that the time of year that the test was conducted the weather conditions may vary and may have influenced the overall results of the temperature and electrical readings obtained. However, should the test be conducted in the same time period in 2014 the results may vary slightly.

This test conducted by the JDF Engineer Regiment of the Super Therm ® material has shown from the results obtained, that it does live up to the manufacturers claims of reducing the overall temperature of the building and thus resulting in overall cost savings. Their further claims of the Super Therm ® material having a life span of at least fifteen years seems likely but only time will confirm this. **However, it is noted that given the existing cost of the product, the payback on the expenditure will be regained in cost savings within a four month period for similar building applications.**

Recommendations

Due to its flexibility which enables it to be applied to any type of surface, it is recommended that in the future Super Therm ® be considered to be used on other buildings of similar characteristics and needs.

Super Therm ® does not have to be used only on buildings that require the use of air conditioning units. It can simply be applied to a building in order to keep it cool internally.

There are a number of buildings owned by the JDF where Super Therm ® can be employed to reduce overall costs and provide a cooler working environment. These include the JDF Ration Stores, the containerized buildings at HQ JDF, The JMML, The JDF AW Hangers, JIOC and the Company Administrative offices in Moneague Training Camp. 1 Engineer Regiment will continue to pursue the use of this and other energy efficient programs in our future endeavors.

C O WHILBY
Lieutenant

Super Therm Ceramic Insulation Coating manufactured by Superior Products International

US Air Force Super Therm energy efficiency compliance lette

Super Therm is a ceramic heat reflective coating utilizing four shaped ceramic components. These components are critical to its ability to meet the following energy efficiency characteristics. It is designed to efficiently reflect heat, act as a water barri , block mold & mildew, remain permanently flexible, block sound wave transmission, and block the spread fire or flame The result of the four shaped ceramic design prevents heat from loading on the surface, causing surface temperature to remain within 3 degrees of ambient temperature, resulting in thermal emittance of .91.

The specification of its thermal energy efficiency is as follows: it blocks 95% of Heat Load (block absorption and transfer of heat), it blocks 99% Ultra Violet Radiation (3% heat load), it blocks 92% Visual Light/ Short Wave Radiation (40% heat load), and blocks 99.5% Infra Red/ Long Wave Radiation (57% heat load). It blocks 68% of all sound wave transmission, and has a Class “A” and Class 1 Fire Rating. Super Therm ASTM Certifications are as follows: B 17 450 Hour Salt Water Spray, C177 Thermal Conductivity, C236-89/93 Thermal Transmittance-.21K/Conductance, C411 High Temperature Surface, C1371 Emittance of Materials, C1549 Solar Reflectance Near Ambient Temperature, D412 Tensile Properties-.041 thickness= 13,248 psi, D522 Mandrel Bend on metal or rubber-1” (25mm) bend and ¼” (6mm) bend, D1653 Water Vapor Permeability, D3273—82T Fungal Resistance, D3274 Fungal Resistance, D4060 Abrasion Resistance, E108 Test Method for Fire Test of Roof Covering, E84 Flame Spread/Smoke Developed –Class A and Class 1 Fire Rating, E84-89A Flame Spread Index “0”/Smoke Developed Index “0”, E96 Water Vapor Transmission, E108 Flame Spread on Pitched Roof, E903-96 Spectral Reflectance and 4 year retest reflectivity 80%, E1269 Heat Capacity by D ferential Scanning Calorimeter, E1461(92) Thermal Diffusivity/Conductivity by Flash Method-Blocked 91% of Heat BTU Conduction, G53 1000 Hours UV exposure, D7088 Superseded Federal Specification TT-P-1411A Hydrostatic Pressure Resistance, D6904 TT-C-555B Water Barrier Certification, E90 & E413 Airborne Sound Transmission Loss.

Super Therm is certified by American Bureau of Shipping (ABS), Energy Star Program - .6% drop in reflectivity over 3 years, International Code Council (ICC), Building Officials Cod Administration (BOCA), International Conference of Building Materials (ICBO), Southern Building Code Congress International (SBCCI), U.S. Department of Agriculture (USDA), Canadian Food Inspection Agency (CFIA), Det Norske Veritas –World Wide Maritime Use(DNV), International Maritime Organization (IMO), Marine Safety Counsel (MSC), National Aeronautics and Space Administration (NASA), and Japanese Institute of Standards (JIS).

Due to the unique design and characteristics of this ceramic coating, it is extremely energy efficient beyond capabilities and efficiencies of any other ceramic coating available. The energ efficiency of Super Therm is required to achieve compliance to Air Force Energy Plan “Energy Efficiency and echnology Objectives” including the Energy Intensity Reduction Annual Goal of 3%, Air Force Infrastructure Energy Strategic Plan goal of utilizing new technologies to achieve strategic energy goals including reduction of facility energy intensity, the Air Force Energy Program vision “Make Energy a Consideration in All We Do”, Presidential Executive Order 13423, section 2(a)(f)(i), and Presidential Executive Order 13514, section 1, section 2(i)(ii), section 3(e).

There are no hazardous material issues concerning its storage, use, or waste disposal.

Andy Middione, Major, USAF
Deputy Director, 309 SPTS

SPI Super Therm®, Rust Grip®, and Enamo Grip Coatings Selected for SSPC E. Crone Knoy Award

Recognized for Innovative Coating Performance at Hoover Dam Bypass Bridge – Colorado River Bridge

KANSAS CITY, Feb. 1, 2011 – Superior Products International II, Inc. was recognized as the recipient of The Society for Protective Coatings (SSPC) 2011 E. Crone Knoy Award.

SPI earned the recognition for the performance of SUPER THERM®, RUST GRIP®, and ENAMO GRIP coatings at the Hoover Dam Bypass Bridge, also known as the Colorado River Bridge. Pacific United/Anco Services, Joliet, Ill., was also honored for its work as the applicator on the project.

After extensive testing, the SPI Coatings were selected for the railings surrounding the observation deck on the Bridge, which expects 3 to 5 million visitors each year. No other coatings could produce the level of corrosion protection, ease of application, and radiant heat reduction on the railings demonstrated by the SPI Coatings.

In submitting this project for recognition, Pacific United/Anco Services, a member of The Brock Group, said, "A very unique coating system was used on the project call Super Therm®. This product reflects 95% of radiation from the sun. That is why the Federal Highway Department chose this product. The extreme temperatures of the Arizona/Nevada desert averages 95 to 110 on most days, with UV exposure from the sun."

SSPC gives the E. Crone Knoy Award annually for outstanding achievement in commercial or industrial coatings work that demonstrates innovation, durability or utility. Qualities considered include use of state-of-the-art techniques or products to creatively solve problems.

"We are thrilled to recognize these exceptional projects," said JPCL editor-in-chief Karen Kapsanis, who presented the awards at SSPC's first annual meeting and awards program at SSPC2011 in Las Vegas. "The range of craftsmanship, commitment and ingenuity displayed in these projects reflects the best of the best in our industry."

SPI is a leader in corrosion protection and insulation coatings. Its coatings are used by companies and individuals throughout the world to reduce costs, save energy, and protect the environment in some of the most demanding applications and conditions.

Super Therm® and *Rust Grip*® are registered trademarks of Superior Products International II, Inc. SUPER THERM's ability to block the surface heat load into the metal railing is unique to the ceramic make up of this coating technology and why the award was issued to Superior Products International II, Inc.

For more information, contact
Superior Products International II, Inc.
Email: sales@spicoatings.com

Website: www.spicoatings.com

E. Crone Knoy Award

for a single, recent, outstanding achievement in industrial or commercial coatings work that demonstrates innovation

Hoover Dam Bypass Bridge - Colorado River Bridge

Spans between Nevada and Arizona

Structure Owner: Federal Highway Administration
Contractor/Applicator: United/Anco Services - A Member of The Brock Group
Coating Material Suppliers: PPG Marine and Protective Coatings, and Superior Products International (SPI)

January 31, 2011
Las Vegas, NV

President

Executive Director

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

INSULATION COA
CORROSION PROTECTIO

May 4, 1995

RE: NASA Space Flight Center Testing of SUPER THERM

This is the first test report of a series of tests being performed by NASA on SUPER THERM.

In this report they tested and classified SUPER THERM as a Class "A" rated coating having -0- flame spread in the burn test. Flame spread is rated from "0" being the best to over "100" as being the worst as to contributing to flame or fire. SUPER THERM rated excellent in absolutely no contribution to flame or fire. This is an unusual rating for any paint product as most will score from a low of 15 up to 88. The "A" classification is the highest classification that can be achieved. This result definitely shows the quality of SUPER THERM.

NASA is currently so impressed with SUPER THERM that they are now establishing testing in additional areas of need for the space center. These needs involve not only their facilities but other classified areas.

As seen from the attached test memo from NASA, SUPER THERM was applied at 8 thousandths, 7.6 thousandths and 7.9 thousandths thickness for testing. This is our dry thickness as specified in our application instructions. All three samples were tested and received the same "0" result and "A" classification.

Regards,

J.E. Pritchett
President

6459 Universal Avenue • Kansas City, MO 64120 • Phone: 816-241-1976; Fax: 816-241-1772

National Aeronautics and
Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812

Reply to Attn of. LA20

JUN 28 1995

Mr. J. E. Pritchett
Superior Products Int'l II, Inc.
6459 Universal Avenue
Kansas, MO 64120

Dear Mr. Pritchett:

Thank you for submitting the Technology Transfer Agreement entitled "Insulation and Corrosion" which was given the reference number 2617. As discussed in your recent phone conversation with our representative, this response will close our action on this inquiry.

In response to your inquiry, enclosed are test results on your product for flammability, outgassing, and liquid oxygen compatibility. Super Therm water-based paint passed the toxic outgassing test and received a K rating, which is the highest rating possible. A K rating means that over 100 lbs. of the material could be present in a man-rated situation without exceeding allowable values established by NASA. The chemicals outgassed, and their amounts are provided on page 2 of the Toxic Offgassing test result. For more information on maximum allowable concentrations of these compounds, consult the OSHA handbooks in your local library.

Your product failed the liquid oxygen compatibility test, which means that it should not come in contact with liquid oxygen. According to Marshall Center Materials and Processes Laboratory personnel, a failure of this test occurs when a flash and/or subsequent explosion occurs when the test specimen is impacted while in contact with liquid oxygen.

Super Therm water-based Paint received an A rating, the highest possible rating in the flammability tests. In fact, the samples did not burn under any of the test conditions. A copy of NHB 8060.1C is enclosed, which describes NASA flammability, odor, offgassing, and compatibility requirements.

Regarding your inquiry about the use of your product on the external tank, discussions have been held with the Marshall Center's Materials and Processes Laboratory. Your sales literature has been forwarded to them for review. You will be contacted for additional samples of your product if the laboratory determines that they are interested in pursuing the use of Super Therm on the external tank.

If you need any other information, please call Dinah Higgins at (205) 544-2632. Please let us know if we can be of additional assistance. We will contact you at a later time to determine if this information has solved your problem and benefited your company.

Sincerely,

Kenneth R. Fernandez
Manager
Technology Utilization Office

Enclosures

cc:
LA20/Dinah Higgins
MCTTC/Bret Cornwell
ASTA/Jim Benham
Superior Products/David Williams (w/enclosures)

United States Department of Agriculture

Food Safety and Inspection Service

Regulatory Programs
Building 306, BARC-East
Beltsville, MD 20705

June 01, 1990

Mr. J. E. Pritchett
Superior Products of Kan-Tex, Inc.
2361 Saxwood
Salina, KS 67401

Dear Mr. Pritchett:

This is in reply to your request for compound authorization received on April 19, 1990 for your product Super Therm.

This product is chemically acceptable as a coating for application to structural surfaces or surfaces where there is a possibility of incidental food contact in official establishments operating under the Federal meat and poultry products inspection program. This letter does not authorize use of the coating on any surface where there is direct or prolonged contact with food. Before food product may be placed in the area where the material is being used, the area should be sufficiently free of odor to prevent product contamination. As a safety precaution, smooth coatings should not be applied to walking or standing surfaces in processing areas.

The final granting of authorization to use coatings on structural surfaces such as walls or ceilings, or on equipment surfaces below the product zone, is the responsibility of the inspector in charge of the official plant. Before applying the coating to equipment which will subsequently be installed in an official plant, you must obtain clearance from the Equipment Standards and Review Branch, Meat and Poultry Inspection Technical Services in Washington, DC 20250. Technical advice will be provided by the Product Safety Branch upon request.

The above acceptance of this compound will not be indicated in the publication, "List of Proprietary Substances and Nonfood Compounds." This letter acts as continuing authorization for its use under the conditions stated above.

Acceptance of compounds by this Department is in no way to be construed as an endorsement of the compounds or of any claims made for them.

If any change is made in the labeling information or formulation, the authorization for use in official plants becomes void immediately.

Sincerely,

Charles R. Edwards/ACH

Charles R. Edwards, Chief
Product Safety Branch
Food Ingredient Assessment Division

MAR 20 1995

SUPER THERM®

Cool Energy Savings Ceramic Coating

Registration and Certifications

PASSED

1 **Energy Star Program:** Approved Partner
Approved and accepted as an energy partner for saving energy.
- Passed ASTM E903-96 Reflectivity = 80%
- Only 1% Reduction in Reflectivity over 3 Years (3% over 10 years)

2 **BOCA (Building Officials Code Administrators):** Approved
- ICC Approval (International Code Council): Pending
- Passed ASTM E 84 for Flame Spread
- Passed ASTM C 411 for High Temperature for Surface Performance
- Passed ASTM C 177 for Thermal Conductivity (*SUPER THERM Specific)

3 **USDA (United States Department of Agriculture):** USDA Approved
- Letter of Authorization from USDA Product Safety Branch
- Letter of Written Certification as Accepted by USDA from Manufacturer

4 **Marine Approvals for World-wide Salt Water and Maritime Use**

DNV (Det Norske Veritas)	DNV Certified
ABS (American Bureau of Shipping)	ABS Certified
IMO (International Marine Organization)	IMO Certified
US Coast Guard	Certified

5 **Factory Mutual Approval**
- Tested and Approved for Roofing and All Other Applications

6 **GSA Approval for Federal US Government**
- SUPER THERM Product ID# 6311

7 **Underwriters Laboratories Approval (UL)**
Tested and Approved for Roofing (Metal and Foam Flat roof systems)

8 **California Cool Roof Program**
Approved and listed

Continued next page

KAPOW HEAT!™

Visit Supertherm.net.au or NEOtechCoatings.com for more information

SPICoatings.com USA Manufacturer. NEOtech Coatings - sole Australian Distributor
*Approved Applicator ^Results may vary

SUPER THERM®

Cool Energy Savings Ceramic Coating

Registration and Certifications cont.

9 State of California Bureau of Home Furnishings and Thermal Insulation
License Number TE 1392

10 State of Florida Energy Rebate Program
Percentage reduction from cost of coating

11 Florida ECAP (Energy Conservation Assistance Program)
ECAP-CUL-1-99 Field Test Results
Test Method for Comparing Utility Loads in Standard Constructed Buildings

12 IMO (International Maritime Organization)
IMO A. 653 (16) Flame spread for bulkhead, wall and ceiling linings

13 MSC (Marine Safety Counsel)
MSC.41 (64) Toxic Gas generation using Colorimetric Gas Detector

14 NASA (National Aeronautics and Space Administration)
NASA 8060.1B/C, Test 1 Flammability Test "0" Flame Spread
NASA 8060.1C, Test 7 Toxic Off-gassing "K" rating (no off gassing)

15 JIS (Japanese Institute of Standards)
JIS A 5759 Reflectivity Light and Radiation
Light Reflectivity Ratio 92.2% blocking light spectrum (Short wave)
Long Wave Radiation Ratio 99.5% blocking Infrared (Long wave)

16 China Center for Technical Testing

GB/T 1771-91	Resistance to Salt Fog (2000 hours)
GB/T 1866-88	Manual Aging (2000 hours)
GB/T 10834-88	Resistance to Salt Water (1000 hours)
GB/T 5219-85	Adhesion (pulling apart method) 4.07 pa
GB/T 1733-93	Boiling Water Immersion 8 hours

PASSED

*Superior Products International II, Inc. (Super Therm Manufacturer) is an active member of the NRCA. National Roofing Contractors Association.

KAPOW HEAT!™

Visit Supertherm.net.au or NEOtechCoatings.com for more information

SPICoatings.com USA Manufacturer. NEOtech Coatings - sole Australian Distributor
*Approved Applicator ^Results may vary

SUPER THERM®

Cool Energy Savings Ceramic Coating

Super Therm Insulation Qualifications

California's Title 24

Florida State Building Code 2007

International Energy Conservation Code (IECC)

ASHRAE Standards 90.1 and 90.2 To qualify:
Must have a minimum of 65% Reflectance (Super Therm 83%),
Emissivity of 75 (Super Therm 91) and SRI of 78 (Super Therm 103).

FTC (Federal Trade Commission) - requires a product is tested under and passes the ASTM C236 "Guarded Hot Box under Steady State Conditions" test to be considered an "insulation material". SUPER THERM tested and outperformed fiberglass in the entire scope of test.

Green Building Programs:

- ASHRAE Advanced Energy Design Guides
- USGBC's LEED 2009
- Green Globes
- Built It Green's Greenpoint Rated
- Collaborative For High Performance Schools

PASSED

Rebate Programs: Florida: Florida Light and Power, Progress Energy, Gainsville Regional Utilities. Super Therm listed as rebate product.

ROI Results (specific testing by corporations and laboratories):

- **Sony/Japanese Government** testing on 40,000m^2 - Result: 1.5 year ROI.
- **Saudi Aramco Oil** testing result: 1.5 year ROI.
- **Russian Academy of Sciences testing result**
  Super Therm outperformed polished aluminum mirrors (90% reflectivity across the spectrum) and Super Therm at 96%.
- **Mechanical engineer, construction physics, Belgium** - testing in winter months with Super Therm applied on walls - result 76% savings in heat loss.
- **Jamaica Defense Force, Engineer Regiment** - with use of Super Therm on roof, able to eliminate 50% of air conditioning units operating to cool roof.

KAPOW HEAT!™

Visit Supertherm.net.au or NEOtechCoatings.com for more information

SPICoatings.com USA Manufacturer. NEOtech Coatings - sole Australian Distributor
*Approved Applicator ^Results may vary

MBDC

CRADLE TO CRADLE™
PRODUCT CERTIFICATION
GOLD

IS HEREBY GRANTED TO

ENERGY BARRIERS, INC.
SUPER THERM®

JANUARY 10, 2006

Jay Bolus

JAY BOLUS
VP BENCHMARKING & CERTIFICATION

U.S. Green Building Council

Superior Products International II, Inc.

MEMBER SINCE 2006

THE U.S. GREEN BUILDING COUNCIL IS THE NATION'S FOREMOST COALITION OF LEADERS WORKING TO TRANSFORM THE WAY BUILDINGS AND COMMUNITIES ARE DESIGNED, BUILT AND OPERATED, ENABLING AN ENVIRONMENTALLY AND SOCIALLY RESPONSIBLE, HEALTHY, AND PROSPEROUS ENVIRONMENT THAT IMPROVES THE QUALITY OF LIFE.

Kevin Hydes, Chairman

S. Richard Fedrizzi, President, CEO and Founding Chairman

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

SUPER THERM® IS CERTIFIED
ENVIRONMENTALLY FRIENDLY AND ENERGY EFFICIENT

U.S. GREEN BUILDING COUNCIL

LEED PROGRAM (Leadership in Environmental and Energy Design)
Green Building Rating System

Points offered for the use of SUPER THERM® in each of the following categories:

1. LEED for New Construction - Possible 16 points
2. LEED for Commercial Interiors Possible 16 points
3. LEED for Homes Possible 20 points
4. LEED for Neighborhood Development Possible 16 points

Points come from the following criteria:

a. Temperature Reduction
b. Containment of biohazards- Lead-based paints and asbestos.
c. Environment improvements for humans and animals.
d. Reduction of harmful environmental properties

MBDC CRADLE TO CRADLE CERTIFICATION

"Gold Certificate" awarded to SUPER THERM®

Certifies the following: (i) product is environmentally safe and contains healthy materials; (ii) product is design for material reutilization, such as recycling or composting; (iii) product promotes renewable energy and energy efficiency; (iv) product production employs efficient use of water, and maximum water quality; and (v) company has instituted strategies for social responsibility.

MBDC is a product and process design firm dedicated to transforming the design of products, processes, and services worldwide and to promote and power "the Next Industrial Revolution" through intelligent design. Employs Cradle to Cradle Design using strategies called "eco-effective" (rather than the widely promoted "eco-efficiency") to create products and systems that contribute to economic, social, and environmental prosperity.

U.S. DEPARTMENT OF AGRICULTURE

SUPER THERM® has been tested and approved for use inside food facilities.

JAPANESE TESTING OF PERFORMANCE AND DURABILITY

SUPER THERM® performance and durability has been proven over fifteen (15) years with a reduction in total reflectance of 19.4% and in visible light reflectance of 15.9%. Twenty-one other high reflectance coatings lost 30% of total reflectance after 571 days (1½ years).

10835 W. 78th Street • Shawnee, Kansas 66214 • Phone: 913-962-4848; Fax: 913-962-6767
Website: www.spicoatings.com Email: sales@spicoatings.com

U.S. GREEN BUILDING COUNCIL

LEED PROGRAM

(Leadership in Environmental and Energy Design)

Green Building Rating System

SUPER THERM® qualification for LEED points as set forward by the LEED program is as follows:

SUPER THERM® is compliant with the "LEED-NC and LEED-EB, Green Building Rating System for New Construction and Existing Construction and Major Renovation" Version 2.2, Sustainable Sites

Credit 7.1 Heat Island Effect: Non Roof and 7.2 Heat Island Effect: Roof.

Coatings under VOC of 250 grams/litre for pitched and flat roofing. Under architectural interior wall paint (1 point) as well as roofing (1 point). SUPER THERM® is 25 grams/litre.

SUPER THERM® falls under the criteria of meeting the test requirements of ASTM E 903 reflectance and ASTM C 1371 emittance. SRI (Solar Reflectance Index) required minimum percentage of 0.75 (SUPER THERM® - 0.85 which far exceeds the LEED requirement).

SUPER THERM® passes and easily complies with the LEED standards for achieving energy points. There is no assigned number to products. The customer applies for points when building a new construction or dong major renovations under version 2.2. The line of SPI Coating Products will add points to the building owner in achieving the highest point system under LEED.

Point System:

Certified	32-39 points
Silver	40-47 points
Gold	48-63 points
Platinum	64-85 points

Standards for construction and site protection as well as building and site operation

Checklist of credits that SUPER THERM® promotes:

Credit 6.1 "Heat Island Reduction" Possible points 1

Thermal gradient differences between developed and undeveloped area to minimize impact on microclimate and human and wildlife habitat.

Option B – Use/maintain light-colored/high albedo materials (reflectance of at least 0.3) for 30% of the site's non-roof impervious surfaces on the site, including parking lots, walkways, plazas, etc. Provide 3rd party reflectance documentation.

Credit 6.2 "Heat Island Reduction" Possible points 1

Thermal gradient differences between developed and undeveloped area to minimize impact on microclimate and human and wildlife habitat.

Option A Have in place over the performance period ENERGY STAR compliant, high-reflectance and high emissivity roofing material that has a minimum emissivity of 0.9 when tested in accordance with ASTM 408 for a minimum of 75% of the roof surface.

Energy and Atmosphere

Credit 2.1-2.4 - On site renewable energy 12% Possible points 4

Over the performance period, meet some or all of the building's total energy use through the use of on-site or off-site renewable energy systems.

MR Credit 3.1 and 3.2

Optimize Use of the IAQ Compliant Products Possible points 2

Replace the indoor air quality (IAQ) impacts of the materials acquired for use in the operations, maintenance and upgrade of buildings. Must include the following product groups: paints and coatings……etc.

IEQ Credit 6.2 - Controllability of Systems

Temperature & Ventilation Possible points 1

Provide individual temperature and ventilation controls for at least 50% of the building occupants, enabling adjustments to suit individual needs and preferences, or those of a group having a multi-occupant space or workgroup area.

IEQ Credit 7.1 - Thermal Comfort: Compliance Possible points 1

Provide a comfortable thermal environment that supports the productivity and well-being of building occupants. Comply with ASHRAE standard 55-2004, Thermal Comfort Conditions for Human Occupancy.

IEQ Credit 10.4 & 10.5 - Green Cleaning:

Low Environmental Impact Pest Management Policy Possible points 2

Develop, implement and maintain a low environmental impact integrated indoor pest management policy. OMEGACIDE™

IUOM Credit 1 - Innovation in Upgrades

Operations and Maintenance Possible points 4

Credit 1.1, 1.2, 1.3 and 1.4. Provide documentation of each proposed innovation credit, including a description of the achievement, the additional environmental benefits delivered over the performance period.

Possible points to achieve using SUPER THERM® and OMEGACIDE™ on only the **LEED-EB (Existing Buildings) is** **TOTAL 16**

If the entire line of SPI Coating Products is used on the other LEED categories:

a.	LEED for New Construction	Possible 16
b.	LEED for Commercial Interiors	Possible 16
c.	LEED for Homes	Possible 20
d.	LEED for Neighborhood Development	Possible 16

Possible total of 68 different points could be achieved from entire line of SPI Coating Products for:

a. Temperature reduction.
b. Containment of biohazards - Lead-based paints and asbestos encapsulation.
c. Environment improvements for humans and animals.
d. Reduction of harmful environmental properties.

This would help qualify the owner for the Platinum Rating on the LEED program.

Superior Products
Attn: Ms. Juli Prichett
Japanese -> English
Transimpex Job #6861
Final copy delivered 12/12/05

[*Illegible handwritten words*]

[*Logo*] Test Report

Test request no. 57463
Application date: July 13th, 1994

Requesting party: Cosmo Trade and Service Co., Ltd.
Head of the new materials
business room Mr. Kazuo KOMATSU
6 Kojimachi 6-chome
Chiyoda-ku, Tokyo-to

Title of test: Simulation and calculation of temperature and heat penetration due to solar reflectivity and long wavelength emissivity of the reflective thermal coating "SUPERTHERM[1]"

The recorded test results are as presented in this document.
November 8th, 1994

Japan Testing Center for Construction Materials
[*Two different partially-legible stamps of the Japan Testing Center for Construction Materials*]
Yoichi SAWA, Administrative Director
1-3 Nihonbashi Kobunacho
Chuo-ku, Tokyo-to

[1] Best guess of what is probably a tradename.

1. Contents of the request

The following measurements and calculations were carried out with respect to the reflective thermal insulation coating “SUPERTHERM” from the Cosmo Trade and Service Co., Ltd.

(1) Measurement of solar reflectivity and long wavelength emissivity

(2) Calculation of heat penetration at the roof surface and roof surface temperature based on measurement results of (1) for the Tokyo region during summer (July - August) as well as the Okinawa region both during summer (July - August) and winter (January - February)

2. Measurement of solar reflectivity and long wavelength emissivity

2.1 Sample

The sample was a reflective coating which was applied as a coating to the roof surface, the exterior walls, etc. This sample was applied to an iron sheet (about 0.5 mm thick) to provide the test body.

The product name, dimensions, and quantities of the test body are indicated in Table 1.

2.2 Measurement methods

(1) Solar reflectivity

Testing was carried out according JIS A 5759 (film used on window glass) 5.3.4 (b).

(2) Long wavelength emissivity

Testing was carried out according to JIS A 5759 5.3.4 (c).

2.3 Measurement results

The measurement results for solar reflectivity and long wavelength emissivity are shown in Table 2.

Table 1. Test body

Product name	Measured item	Dimensions	Quantity
SUPERTHERM	solar reflectivity	50 x 50 mm	3
	long wavelength emissivity		1

Table 2. Measurement results

Test item \ Test body no.	1	2	3	Average
solar reflectivity	92.1	92.4	92.0	92.2
long wavelength emissivity	99.5			

(Note) For normally utilized white paint, solar reflectivity of about 80%, and long wavelength emissivity is about 90% (source: Architecture (handbook), compiled by the Architectural Institute of Japan, 1980).

3.2 Results of calculation

(1) Tokyo region

Results of the simulation calculations for the surface temperatures of the slate roof and the corrugated metal roof are shown in Figures 2 and 3. The surface temperatures for both of these roofs when coated with SUPERTHERM were found to be clearly lower than when uncoated. However, the difference naturally disappeared on a rainy day (August 7th) when there was little solar insolation. That is to say, it was found that SUPERTHERM was effective as a solar radiation reflection material.

Table 3 shows results of integration of the heat penetration into the room from the roof surface, according to conditions, based on the simulation calculation results for temperature. In order to examine the method of calculation, the integration of heat penetration at the time of air conditioning was done this time without integration of heat release to the exterior air. That is to say, the total heat release was taken to be 0 in order not to become negative during air conditioning. When restriction of this method to mid-summer (July and August) was attempted, the coating with SUPERTHERM appeared to have an effect on heat penetration.

(2) Okinawa region

Results of the simulation calculations for the surface temperatures of the slate roof and the corrugated metal roof are shown in Figures 4 and for summertime. The surface temperatures for both of these roofs when coated with SUPERTHERM were found to be lower than when uncoated, and these results are similar to those for the Tokyo region.

Moreover, results of the simulation calculations for the surface temperatures of the slate roof and the corrugated metal roof are shown in Figures 6 and 7 for wintertime.

Table 3 shows results of integration of heat penetration into the room from the roof surface according to conditions based on the simulation calculation results for temperature. In summer, solar insolation at Naha was high in comparison to Tokyo, and as a result, a marked difference arose in heat penetration results for SUPERTHERM. In this case, total heat release was taken to be 0 in the same manner as for the Tokyo region.

In winter, heat penetration becomes negative, and it was found that heat release from the room interior to the roof occurs. That is to say, in winter and when there is a coating of SUPERTHERM, there was a space heating load for maintenance of the room interior at 28 °C. However, there are few instances when room temperature is actually maintained at 28 °C. In other words, temperature can be said to become somewhat lower in comparison to the non-coated case.

Table 3. Heat penetration from the roof surface (results of simulation calculation), units = $Mcal/m^2$

Region	Time period of calculation	Type of roofing	SUPERTHERM Coating	Uncoated
Tokyo	July 1 - August 31	slate roof	3.8	36.9
		double corrugated roof	0.4	2.4
Naha	July 1 - August 31	slate roof	9.5	52.7
		double corrugated roof	1.1	3.7
Naha	January 1 - February 28	slate roof	-8.7	13.1
		double corrugated roof	-4.1	0.4

CERTIFICATE NUMBER: CH2635082-X

PORT OFFICE: Chicago, Illinois

Certificate of
MANUFACTURING ASSESSMENT

This is to certify that: The Undersigned did evaluate the relevant manufacturing quality procedures for the type of products of the manufacturer:

Superior Products International II, Inc. Plant at Shawnee, KS

The methods of assuring and controlling quality during production as required by the ABS Rules or Guides for the product and the associated specifications or standard were verified to reflect the specific surveys, required by the Rules and Standards for the manufacture of:

COATINGS

The manufacturer presented a sample or specimen of the product, representative of the "type" approved, to the undersigned, for the purpose of verifying that the "type" has been manufactured in conformance with the Manufacturer's Product Design Assessments.

This Certificate of Manufacturing Assessment is an evaluation of the manufacturer alone and is neither an approval nor a rejection of the product described above. Unless cancelled, expired or revoked, this certificate remains valid subject to annual audits

Consult the ABS Type Approval website to confirm the continued validity of this certificate and the status of the particular products being manufactured.

ISSUE DATE	**5 June 2014**	**EXPIRATION DATE**	**4 June 2019**

SURVEYOR	JM Kelly 5 June 2014
FIRST ANNUAL ENDORSEMENT	Anderson 19-May-2015
SECOND ANNUAL ENDORSEMENT	
THIRD ANNUAL ENDORSEMENT	
FOURTH ANNUAL ENDORSEMENT	

ABS CHICAGO

ABS CHICAGO

Note This Certificate evidences compliance with one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping and is issued solely for the use of the Bureau, its committees, its clients or other authorized entities. This Certificate is a representation only that the structure, item of material, equipment, machinery or any other item covered by this Certificate has met one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping as of the date of issue. Parties are advised to review the Rules for the scope and conditions of classification and to review the survey records for a fuller description of any restrictions or limitation on the vessel's service or surveys. The validity, applicability and interpretation of this Certificate is governed by the Rules and standards of American Bureau of Shipping who shall remain the sole judge thereof. Nothing contained in this Certificate or in any notation made in contemplation of this Certificate shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other entity of any warranty express or implied.

SPI COATINGS

PROVEN PERFORMANCE • REAL WORLD SOLUTIONS

INSULATION AND CORROSION SPECIALISTS

SUPER THERM®

Technical Data Sheet (12/18/19)

DESCRIPTION

SUPER THERM® is a water-borne combination of high-performance aliphatic acrylics, urethanes and resin additives which produces a tough, yet flexible coating film. Designed for performance and durability, SUPER THERM® contains 4 unique ceramics to block heat gain into the surface upon which the coating film is applied. SUPER THERM® resists 95% of Solar heat blocking Visual Light, Ultra Violet (UV), and Infrared (IR). SUPER THERM® is a flexible membrane with low permeability that can greatly reduce expansion and contraction of a roof, and prevents corrosion and surface deterioration.

TYPICAL USES

- As a one-coat insulation system on exteriors to block the migration of Solar Heat gain (roofs and side walls).
- Exterior application to reduce or eliminate condensation on HVAC systems, tanks, spheres, storage systems, and concrete walls.
- As a system over metal, concrete, masonry, and wood to stop moisture penetration and corrosion.
- Ability to resist dirt, mold, mildew, and pollution to increase longevity, and reduce surface maintenance.
- As a topcoat over metal roofs, or an intermediate coat on flat roofs.
- Applied over tent fabrics to provide insulation & remain flexible.

APPLICATION METHODS

SUPER THERM® can be applied to metal, concrete, masonry and wood. The application can be spray, brush or roller. For specific instructions on surface preparation, mixing and application, please refer to the SPI's application instructions for SUPER THERM®. This coating should never be applied at less than 17 mils wet (425 microns), 10.0 mils dry (250 microns), each coat.

TESTS AND CERTIFICATIONS (partial list)

1. Exterior insulation against Solar Radiation
2. Blocks 99.5% of infrared / up to 68% sound blockage
3. UL (Underwriters Laboratory) approved
4. Flame Spread Test (ASTM E84; 0 smoke, 0 flame)
5. Class "A" Flame Spread
6. Marine Approvals: - American Bureau of Shipping; USCG
7. UV & Salt Spray Resistance (ASTM 5894) 5000 hours
8. USDA Approved
9. Flexibility (ASTM E1737): 180 degree bend – passed
10. Adhesion ASTM (D4541): 265 psi (1.8Mpa) @ 10 dry mils – did not pull off plate; only intercoat failure.
11. Perm Rating (ASTM d1653-13): 10 dry mils=8perms; 12 dry mils=4perms
12. Abrasion Resistance (ASTM D4060): 3,000 cycles
13. Resistance to Salt Spray: 2,000 hours
14. Resistance to Wind Driven Rain (ASTM D6904)
15. Airforce Canopy: MIL-PRF-6799

PHYSICAL DATA

- Solids: By weight 70% / By Volume: 60% (+/-2%)
- 30-60 minutes to tack free at 70°F (21°C)
- Overcoat: 2 hours when 70°F (21°C) at 40% Relative Humidity
- Full Cure: 21 days
- Lead-, chromate-, and asbestos-free
- Cures by evaporation
- Weight: 11.72 lbs. per gallon
- Vehicle Type: Urethane/Acrylic blend
- Shelf Life: Up to 5 years if unopened under appropriate storage conditions (See MSDS).
- VOC Level: 67.2 grams/liter, 0.561 gal/lbs.
- Viscosity: 105 – 110 KU; 25,000 Centipoise
- pH: 8.5 – 9.5
- 95 sq.ft./gallon (8sqm): 17 mils (425 microns) wet / 10.0 mils (250 microns) dry
- Maximum Surface Temperature when applying: 150° F (65°C)
- Minimum Surface Temperature when applying: 40°F (5°C)
- Maximum Surface Temperature after curing: 300°F (149°C)
- Do not apply over 18 mils wet per application. Allow to dry down before adding additional thickness.

MEETS MIL SPEC: MIL-PRF-6799L

SAFETY PRECAUTIONS

Do not use this product without first taking all appropriate safety measures to prevent property damage and injuries. These measures may include, without limitation: proper ventilation, use of proper lamps, wearing of protective clothing and masks, tenting, and proper separation of application areas. For more specific safety procedures, please refer to the SUPER THERM® Safety Data Sheet. **KEEP OUT OF REACH OF CHILDREN.**

Superior Products International II, Inc. • 10835 W. 78th Street • Shawnee, KS 66214
Website: www.spicoatings.com • Email: sales@spicoatings.com

SPI COATINGS

PROVEN PERFORMANCE • REAL WORLD SOLUTIONS

INSULATION AND CORROSION SPECIALISTS

SUPER THERM®

Application Instructions (2/28/19)

SUPER THERM® is a water-borne combination of high-performance aliphatic urethanes, elastomeric acrylics, and resin additives which produces a tough, yet flexible coating film. Designed for performance and durability, SUPER THERM® contains 4 unique ceramics to block up to 95% of Solar Heat entering a structure due to Visual Light, Ultra Violet (UV), and Infrared (IR). SUPER THERM® is a flexible membrane with low permeability that can greatly reduce expansion and contraction of a roof, and prevents corrosion and surface deterioration.

SURFACE PREPARATION

Surface must be clean from oil, tar, rust, grease, salts, and films.

1) Use general degreaser if needed.
2) Clean surface using TSP (tri-sodium-phosphate) or a citrus cleaner to release dirt and degreaser residue.
3) Pressure-wash if possible @ 3500 psi.
4) Salt contamination on a surface can come as a result of salt water, fertilizers, and car exhaust. Use Chlor-Rid or equivalent to decontaminate surface if salts are present. Acceptable levels: Nitrates: 5-10 mcg/cm², Sulfates: 5-10 mcg/cm², Chlorides: 3-5 mcg/cm²

Surface must be completely dry before applying.

1) SUPER THERM must be applied during proper temperatures (below) and the prescribed overcoat window of the coating over which it will be applied.
2) Maximum Surface Temperature when applying: 150°F (65°C)
3) Minimum Surface Temperature when applying: 40°F (5°C)
4) Maximum Surface Temperature after curing: 300°F (149°C)

NOTE: Use Rust Grip® as a primer when needed. Refer to Rust Grip technical data sheet for overcoat window.

NOTE: If pack rust or mill scale exist, it must be removed by grit blast, power tool or needle gun. Once removed, begin with Step 1 (power wash).

NOTE: Harsh environments where color is desired, or where pooling may occur: SUPER THERM® should be over coated with ENAMO GRIP (solvent based) over metal or concrete, and SP SEAL COAT over flexible surfaces (foam, tar, rubber and wood).

NOTE: Modified bitumen, asphalt roofing, PVC, TPO and single-ply membranes must be primed with the appropriate primer (i.e. Super Base/HS or SP Single-Ply Primer).

MIXING

SUPER THERM® should be mechanically mixed or mixed by hand (boxing) for three minutes, then applied.

APPLICATION

SUPER THERM® can be applied by brush, roller or spray; however, the preferred method is by air or airless sprayer. It should never be applied directly over rust, nor should it ever be diluted or thinned.

1) If application is by brush, use a soft bristle brush.
2) If application is by roller, use a 3/4 inch nap roller.
3) If application is by spray, use a standard airless sprayer (2 gallons/minute at 3,300 psi.) with a .029-.033 tip according to fan width spread of application and pump pressure. To achieve proper thickness, temperature and humidity must be considered by applicator.
   - ***NOTE***: The number of applications and the thickness of each should be in accordance with the job specifications.
   - ***NOTE:*** All filters should be removed from both the gun handle and spray machine prior to application, as they will trap the ceramics.
   - ***NOTE:*** Temperatures must always be a minimum of 5 degrees above the dew point during application.
   - ***NOTE:*** If SUPER THERM® is applied during a period of extremely high humidity or if there is rain soon after the application, bubbles may appear on the surface. Do not puncture these bubbles. This is normal and the coating will continue to cure with no effect on the performance or appearance of the coating. Bubbles will dry down tight and disappear without a trace or imprint.
   - ***NOTE***: 2" corrugation = roof size x 135%; 2.5" corrugation = roof size x 145%; 3" corrugation = roof size x 160%

MINIMUM SPREAD RATES (mil thickness)

SUPER THERM® will be applied at no less than a total of 17 mils wet (425 microns)/10.1 mils dry (250 microns) for each application. Spread Rate is 95 sq ft per gallon. (8.8 sq meter per gallon)

CURE TIME

1) 30-60 minutes to tack free at 70°F (21°C)
2) Overcoat: 2 hours when 70°F (21°C) at 40% Relative Humidity
3) Full Cure: 21 days

TEMPERATURE

1) Apply between 40°F. and 150°F.
2) Store between 40°F. and 100°F.

CLEAN-UP EQUIPMENT

1) After completion, spray system should be cleaned with soap and water; cleaned brushes and rollers can be reused.

SAFETY DATA SHEET (ST/11/00)

SECTION I - IDENTIFICATION OF THE PRODUCT AND THE COMPANY:

PRODUCT NAME: Super Therm (UPC#851207002003, SKU#768399, Part#0311)
GHS PRODUCT IDENTIFIED: Global Harmonized System #3209.10.000
CHEMICAL TYPE: Waterbased coating
MANUFACTURER: Superior Products International II, Inc.
ADDRESS: 10835 W. 78th St., Shawnee, KS 66214 USA
PRODUCT USE: Insulation coating to create thermal barrier on substrates
EMERGENCY TELEPHONE NUMBER: 800/424-9300; 202/483-7616

SECTION II - HAZARD IDENTIFICATION:

This product is water-based and not classified as dangerous for supply or conveyance. The ingredients are water-reduceable. This product has been analyzed for use in and around food manufacturing and found to be safe for use on non-contact surfaces. No toxics nor toxic off-gassing are present.

SECTION III - HAZARD INGREDIENTS:

Hazardous Ingredients	%	CAS/PIN	LD-50 (species/route)	LC50 (species)
texanol	0.5	25265-77-4	3200 mg/kg (oral, rat)	NAV
mica/additives	14.0	12001-26-2	NAV	NAV
This material does not pose a potential risk of inhalation in the solution mixture contained herein.				
waterborne polyurethane	10.0	58043-05-3	NAV	NAV

SECTION IV - FIRST AID MEASURES:

EYES: Flush with water for at least 15 minutes; consult physician if irritation continues.
INGESTION: Do not induce vomiting. Drink 1-2 glasses milk/water. Seek medical attention according to amount of product ingested.
SKIN: Wash with mild soap and water.
INHALATION: Remove to fresh air.

SECTION V - FIRE FIGHTING MEASURES:

CONDITIONS OF FLAMMABILITY: Not flammable; water-based product
HAZARDOUS COMBUSTION PRODUCTS: Carbon monoxide, methacrylate and other noxious gases
AUTOIGNITION TEMP.: NAP MINIMUM IGNITION ENERGY: NAV
FLAMMABLE LIMITS: (Lower) NAP% (Upper) NAP% FIRE POINT: NAV
FLASH POINT & METHOD: NAP SENSITIVITY TO MECHANICAL IMPACT? No
SENSITIVITY TO STATIC DISCHARGE? No
SPECIAL PROCEDURES: Firefighters should wear full-body protection & SCBA
MEANS OF EXTINCTION: Water, water fog, dry chemical, foam or C02

SECTION VI - ACCIDENTAL RELEASE MEASURES:

Use kitty litter, sand or other to control spread and absorb liquid.

SECTION VII - HANDLING AND STORAGE:

STORAGE REQUIREMENTS: Keep from freezing. Store below 50C. degrees. Keep container closed tightly to prevent drying out.
HANDLING PROCEDURES/EQUIPMENT: Treat as paint product. Use ventilation and protective equipment to suit conditions of use. Use soap and water for clean-up.

NAP = Not Applicable NAV = Not Available

SECTION VIII - EXPOSURE CONTROLS AND PERSONAL PROTECTION:

PERSONAL PROTECTIVE EQUIPMENT: Avoid inhalation of liquid when applying. Use particulate respirator.

ENGINEERING CONTROLS: Use mechanical ventilation to control aerosol or mist if product is sprayed.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL STATE: Liquid SOLUBILITY IN WATER: soluble/miscible

APPEARANCE AND ODOR: white color, mild acrylic odor

FREEZING POINT: 30F. degrees BOILING POINT: 192C degrees pH: 8

SPECIFIC GRAVITY: 1.4 ODOR THRESHOLD: 0.08-25ppm

COEFF. WATER/OIL: NAV VAPOUR PRESSURE: 17 mmHg @ 20C degrees

VAPOUR DENSITY (Air=1): 2.1

EVAPORATION RATE: slow% VOLATILES:less than 5

SECTION X - STABILITY AND REACTIVITY DATA:

CONDITIONS OF REACTIVITY: stable CONDITIONS OF INSTABILITY: stable

CHEMICAL INCOMPATIBILITY: strong acids or bases CORROSIVE BEHAVIOR? no

HAZARDOUS DECOMPOSITION PRODUCTS: none known, no hazardous polymerization

SECTION XI - TOXICOLOGICAL PROPERTIES:

ROUTES OF ENTRY: SKIN CONTACT ____ SKIN ABSORPTION ____ EYE CONTACT __X__

INHALATION ____ INGESTION __X__ SYNERGISTIC PRODUCTS None Known

EXPOSURE LIMITS: mica 3 mg/m3 (ACGIH)

EFFECTS OF ACUTE EXPOSURE: liquid splash could result in eye or nose irritations and/or headache

EFFECTS OF CHRONIC EXPOSURE: excessive exposure to liquid product may result in minor irritations

MUTAGENICITY: NAP TERATOGENICITY: NAP

REPRODUCTIVE TOXICITY: NAP CARCINOGENICITY: ingredients not listed

SENSITIZATION: not expected

IRRITANCY: possible skin or eye irritation if not washed off

SECTION XII - ENVIRONMENTAL INFORMATION:

Air -this product is environmentally-friendly and poses no threat to the air.

Water -the resins will be diluted and dissipate when flushed with water.

Soil -the resin contents are biogradeable in ground acids over a period of time. No ecological hazards are known to exist.

SECTION XIII - WASTE DISPOSAL:

Product spill should be contained by previously described absorption methods, and dried product disposed of as normal industrial waste according to all federal, state or governmental regulations.

SECTION XIV - TRANSPORT INFORMATION:

The only restriction to carriage is for protection against freezing. Contents are water-based.

SECTION XV - REGULATORY INFORMATION:

Regulatory agency controls and restrictions are minimal regarding conveyance or use of water-based products other than what has been specifically addressed.

SECTION XVI - OTHER INFORMATION: