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 18 years

KOKUYO Co., Ltd.

Application Date：July, 1994　Area：6,000sq.m.（Batten Seam Metal Roof）
Measurement Date：30 July, 2012（13：00　Ambient temp: 33.5℃）

18 years has passed since COOL THERM was applied in 1994, the surface stained badly.（Top Coat has never been applied since then.）

The room temperature was still reduced and maintained by 3.5℃ from 39℃ (39℃-35.5℃) when the ambient temp was measured the same (30 July・33.5℃).

After 10 years（1994）

After 18 years（2012）

	Outside Temperature	Room Temperature
BEFORE（1994）	33.5℃	39℃
AFTER（1994）	32.5℃	32℃
After 10 years(2004)	34.3℃	33.5℃
After 18 years(2012)	33.5℃	35.5℃

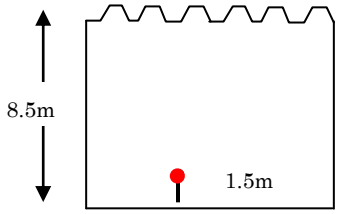
Daiko Shokai. Co., Ltd

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℃.



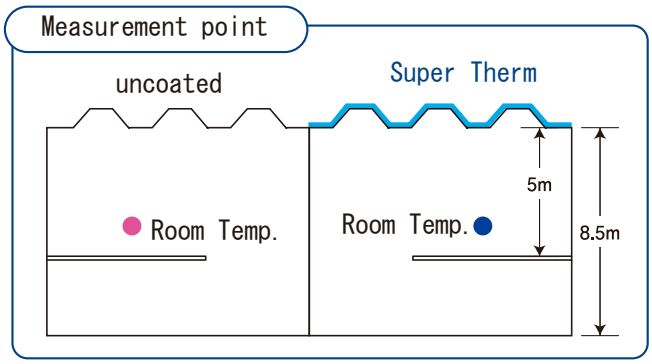
＜Surface Temperature＞

	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)

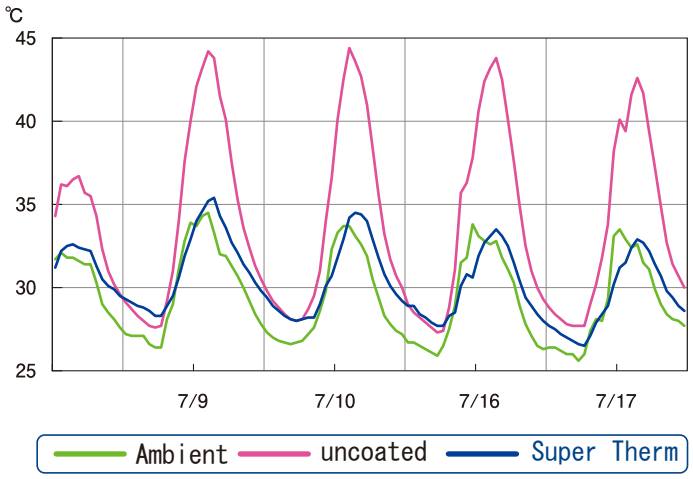
Metal Roof 9,000m² April 2011



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

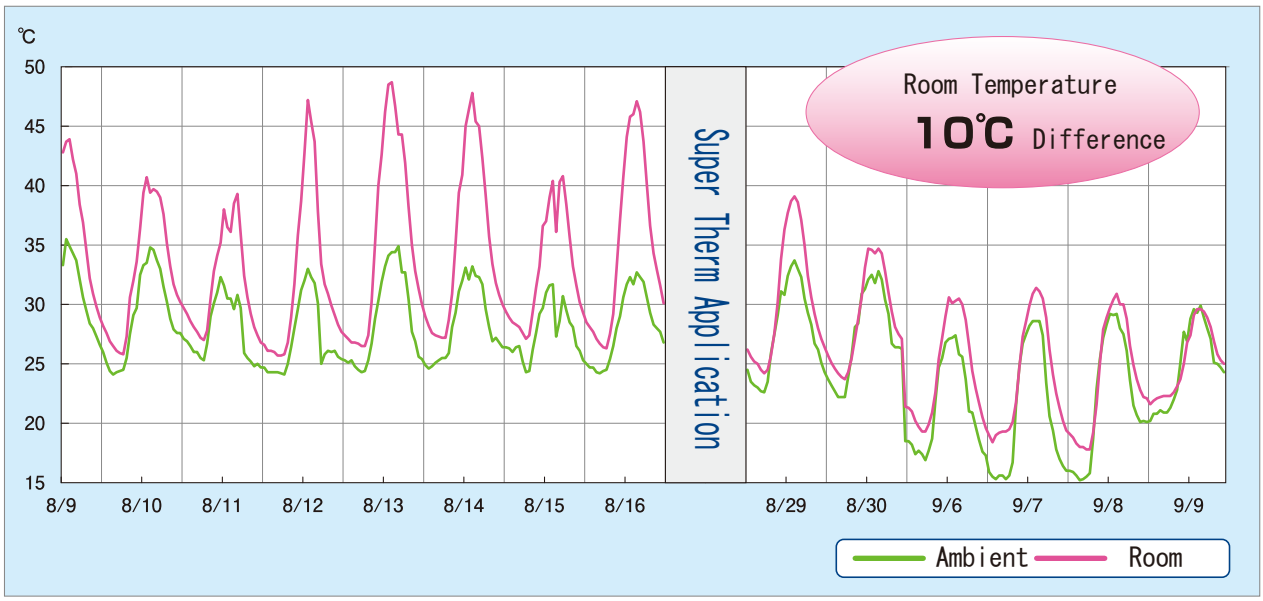
Room Temperature
Max. **10.3 C** Difference

	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

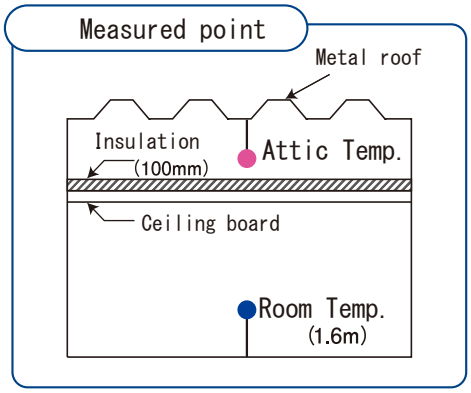


Where the room has low traffic, the room temperature was reduced by more than 10C which makes the cutomer satisfied with.

Cut 40% of Air-conditioning electricity consumption

JFE Chemical Fukuyama Plant (Hiroshima)

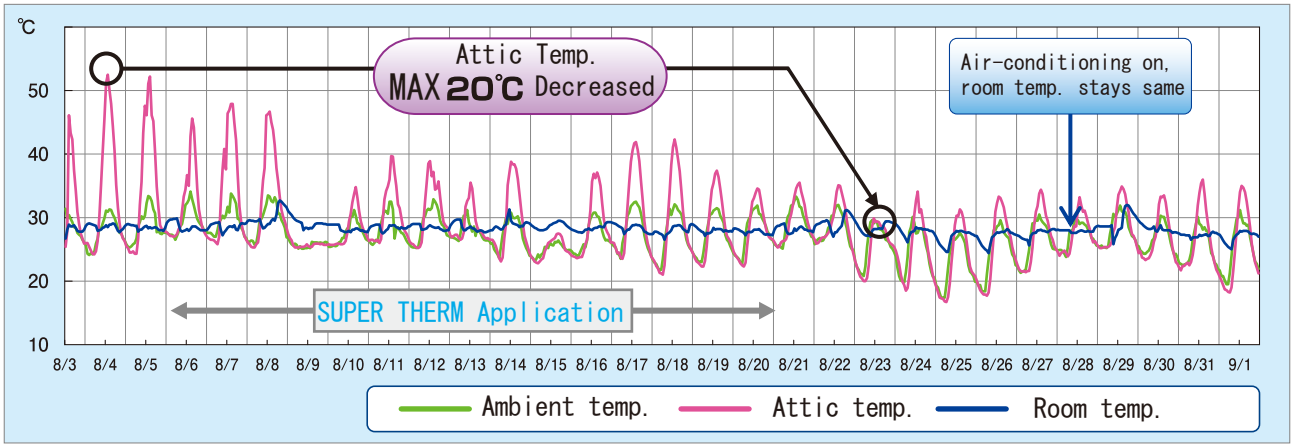
Metal Roof 660㎡ August 2009



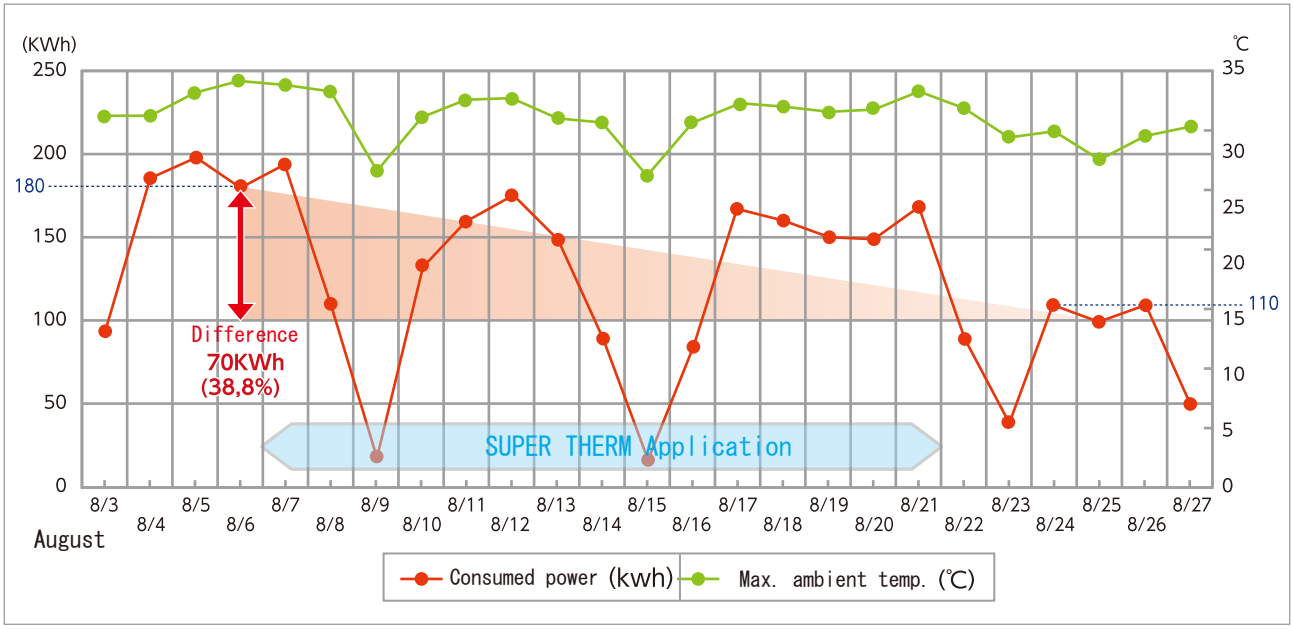
Measured in a building which has ceiling board and 100mm insulation.

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

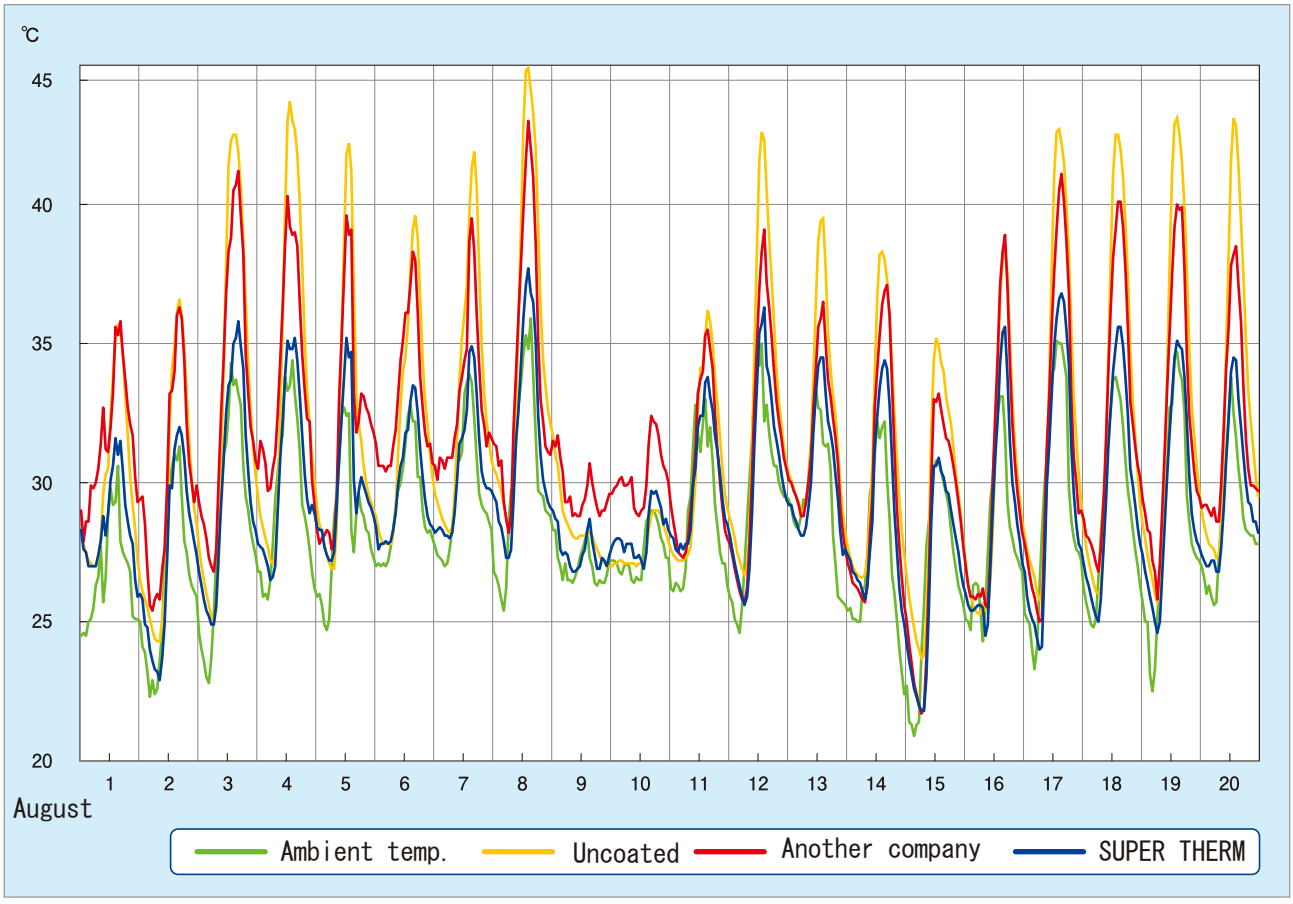
Company S (Hyogo)

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

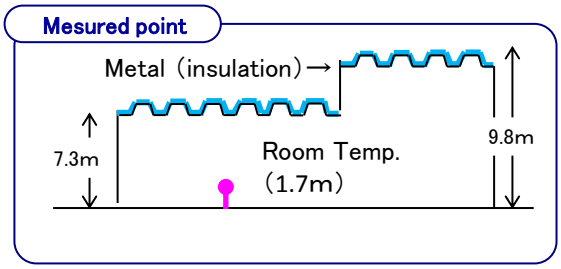
MAX. 5.4℃



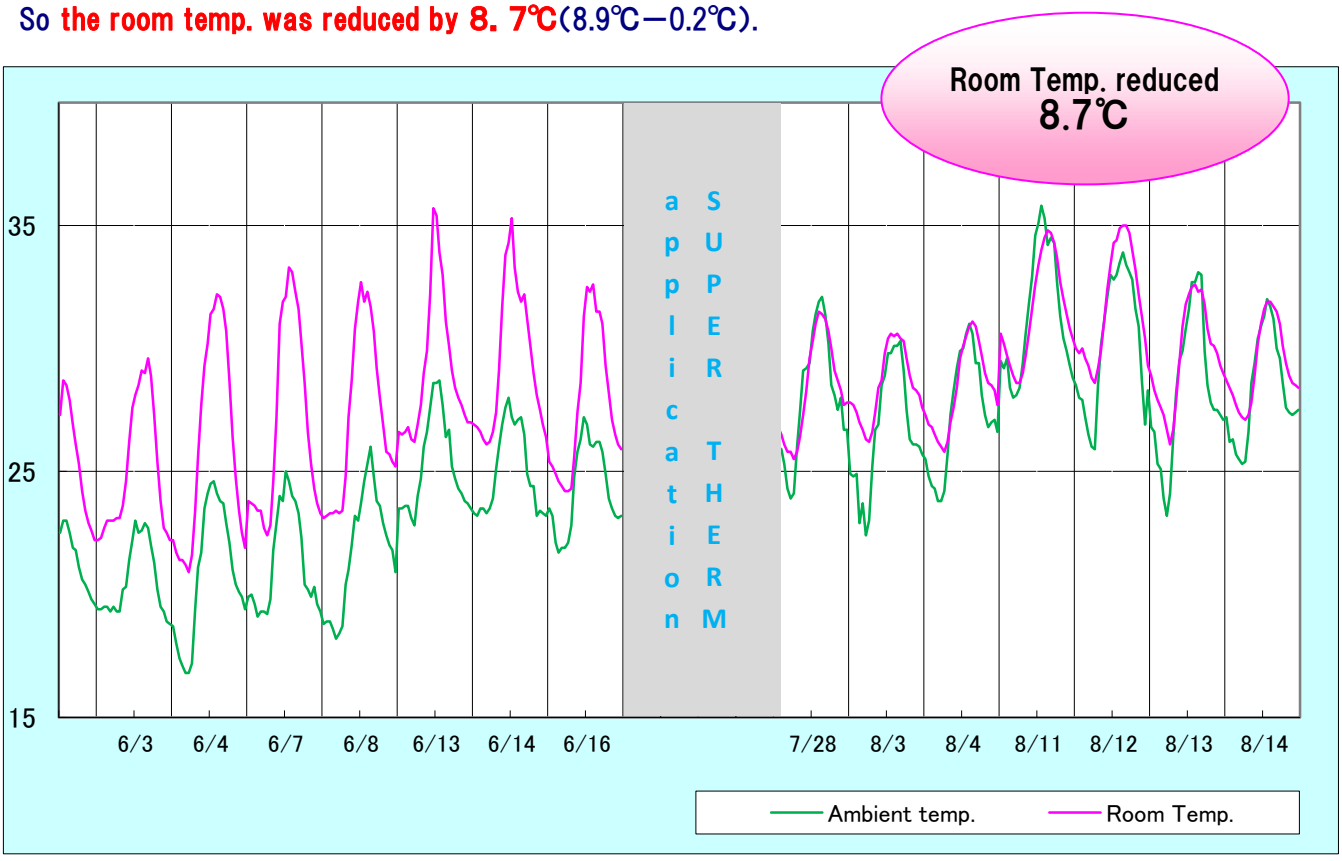
August	8/1	8/2	8/3	8/4	8/5	8/6	8/7	8/8	8/9	8/10	8/11	8/12	8/13	8/14	8/15	8/16	8/17	8/18	8/19	8/20
Weather	☀/☁	☂/☀	☀	☀	☀/☁	☁	☁/☀	☀/☁	☂/☁	☂	☁	☁	☁	☁/☀	☀/☂	☂/☀	☀	☀	☀/☁	☀/☁
Ambient temp.	30.6	31.3	34.3	34.4	32.7	32.8	33.9	35.9	28.3	29.0	33.0	35.0	33.4	32.2	30.8	33.1	35.1	33.8	34.7	33.8
Uncoated	35.7	36.6	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

■YKK AP Inc. Hyogo Plant (Hyogo)

Metal roof
1,350 ㎡ October 2011
1,750 ㎡ June 2012
4,700 ㎡ May 2013
570 ㎡ July 2014

■Room temperature measured result (Height 10m building 2F 1.8m above the floor)

	BFORE June 10 2012	AFTER June 22 2012
Ambient	24.5℃	24.8℃
Room temp.	35.1℃	26.4℃

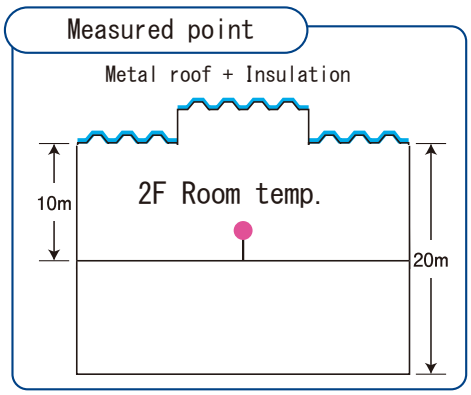
Room temp.
8．7℃ reduced

YKK AP Inc. Kyusyu
Kumamoto 45,500 ㎡
1996～2013

YKK AP Inc. Okayama
Okayama 2,000 ㎡
June 2013

PanaHome Corporation Head office (Shiga)

Metal roof 22,700㎡ December 2010



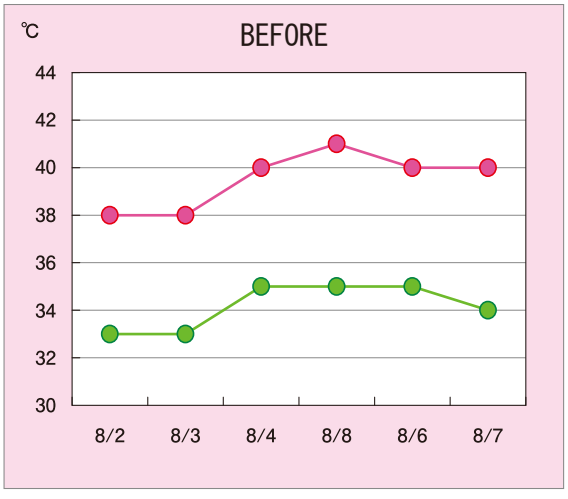
Before the application, the room temperature exceeded above 5-6℃ of ambient temp., but after SUPER THERM application it reduced by the same aound the ambient.

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

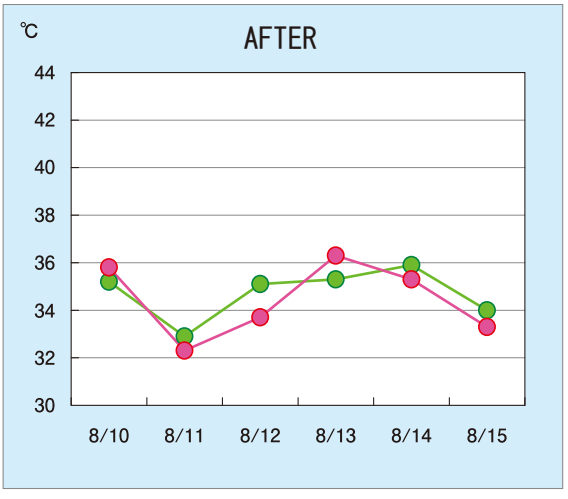
Room Temp.

Reduced by MAX. 7.3℃

2010 Summer



2011 Summer

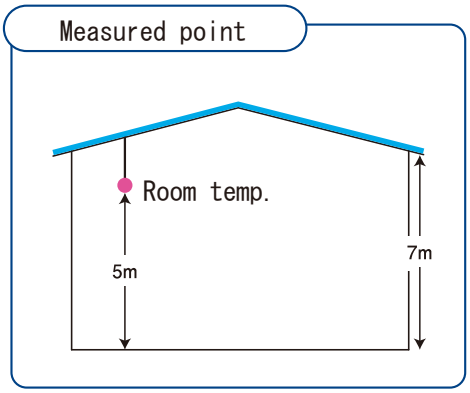


August	8/2	8/3	8/4	8/5	8/6	8/7
Weather	☀	🌤/☀	🌤/☀	🌤/☀	☀	☀/🌤
Ambient temp.	33.0	33.0	35.0	35.0	35.0	34.0
2F room temp.	38	38	40	41	40	40
Difference	5.0	5.0	5.0	6.0	5.0	6.0

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

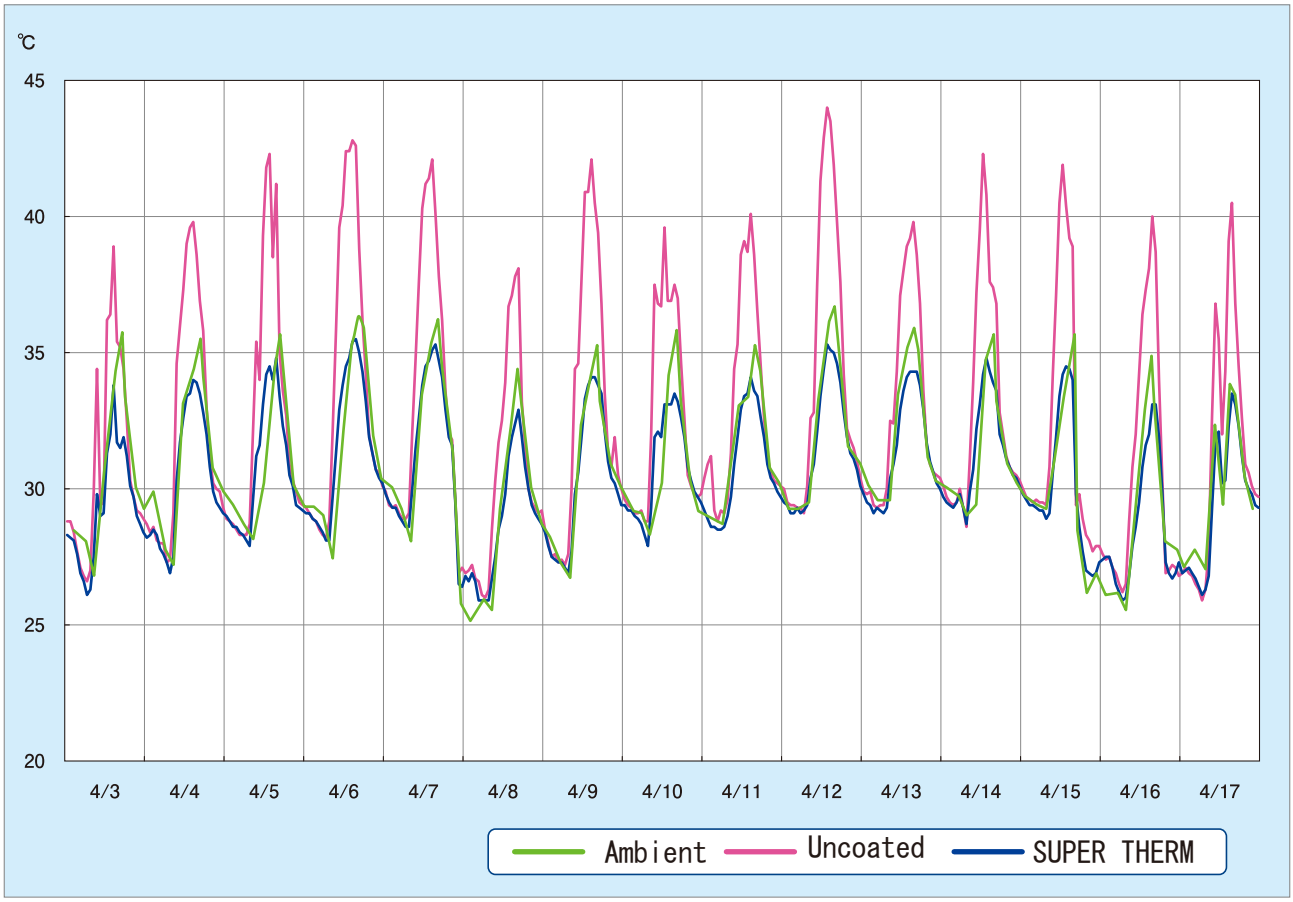
Nissan Motor Thailand Ltd. NMT (Thailand)

Metal roof 20,000㎡ February - April 2006



Room temp.
MAX. **8.7℃** reduced

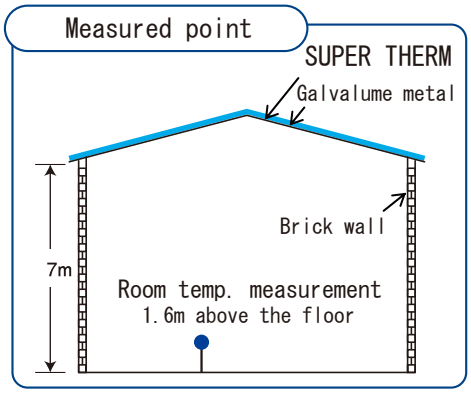
The room temp. was reduced by 6.8℃, MAX. 8.7℃ after SUPERT THERM application, comparing uncoated with a same structure of the plant.



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℃	

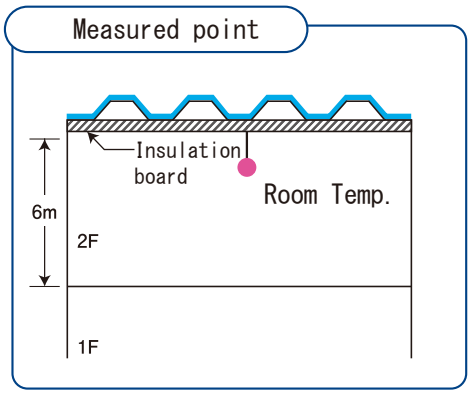
We expect more cooling effect in summer time.

Uncoated

SUPER THERM

YAMAHA Corporation Toyooka Plant (Shizuoka)

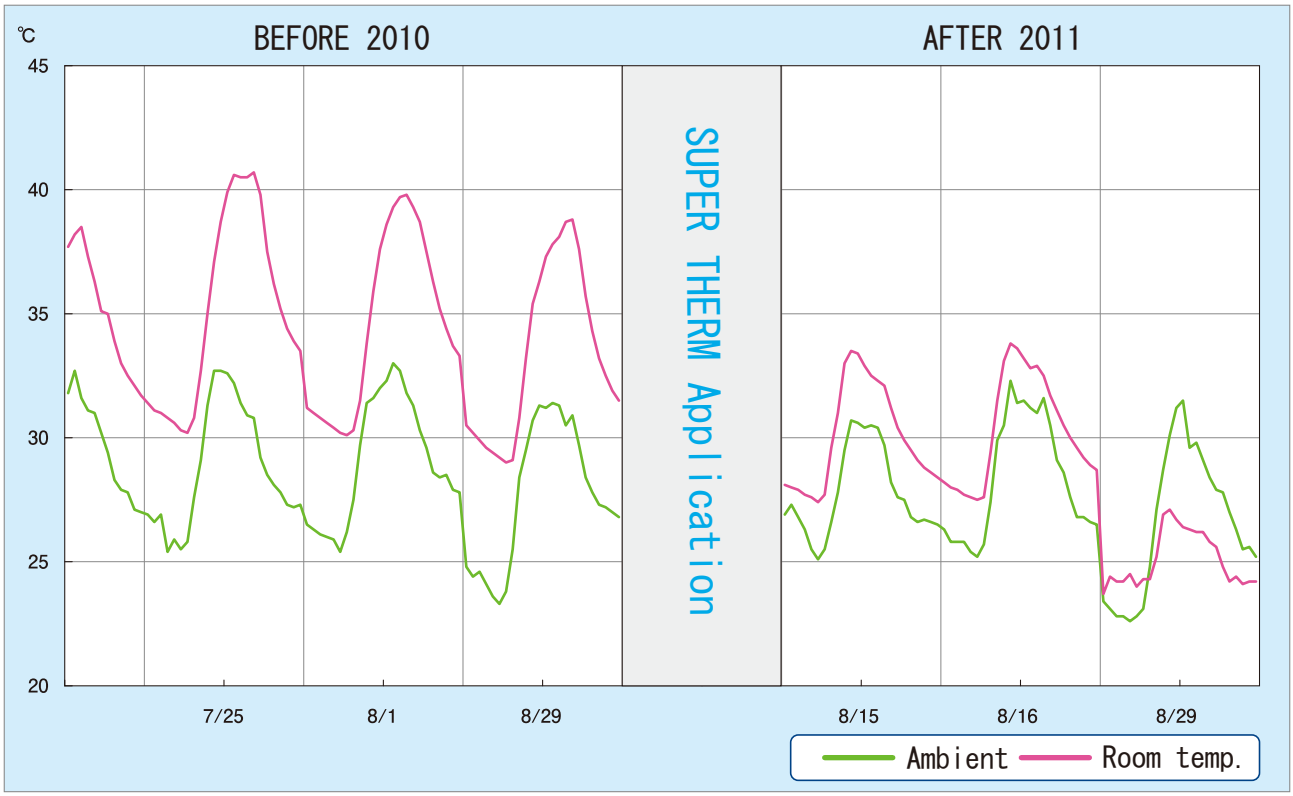
Metal roof 10,000㎡ July 2011



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

Room temp.
11.7℃ Reduced

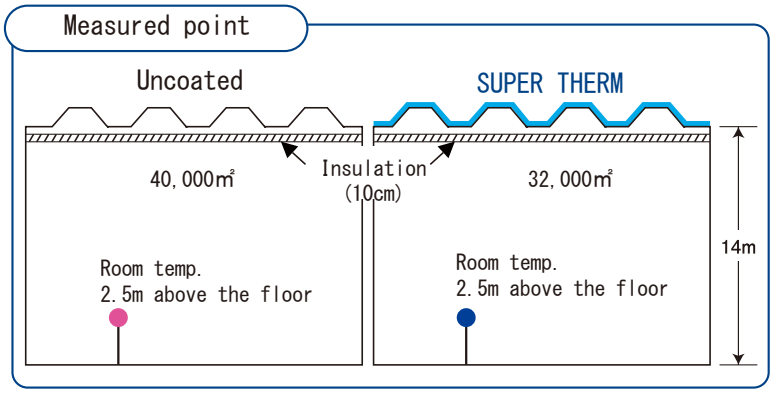
Holidays of no air-conditioning

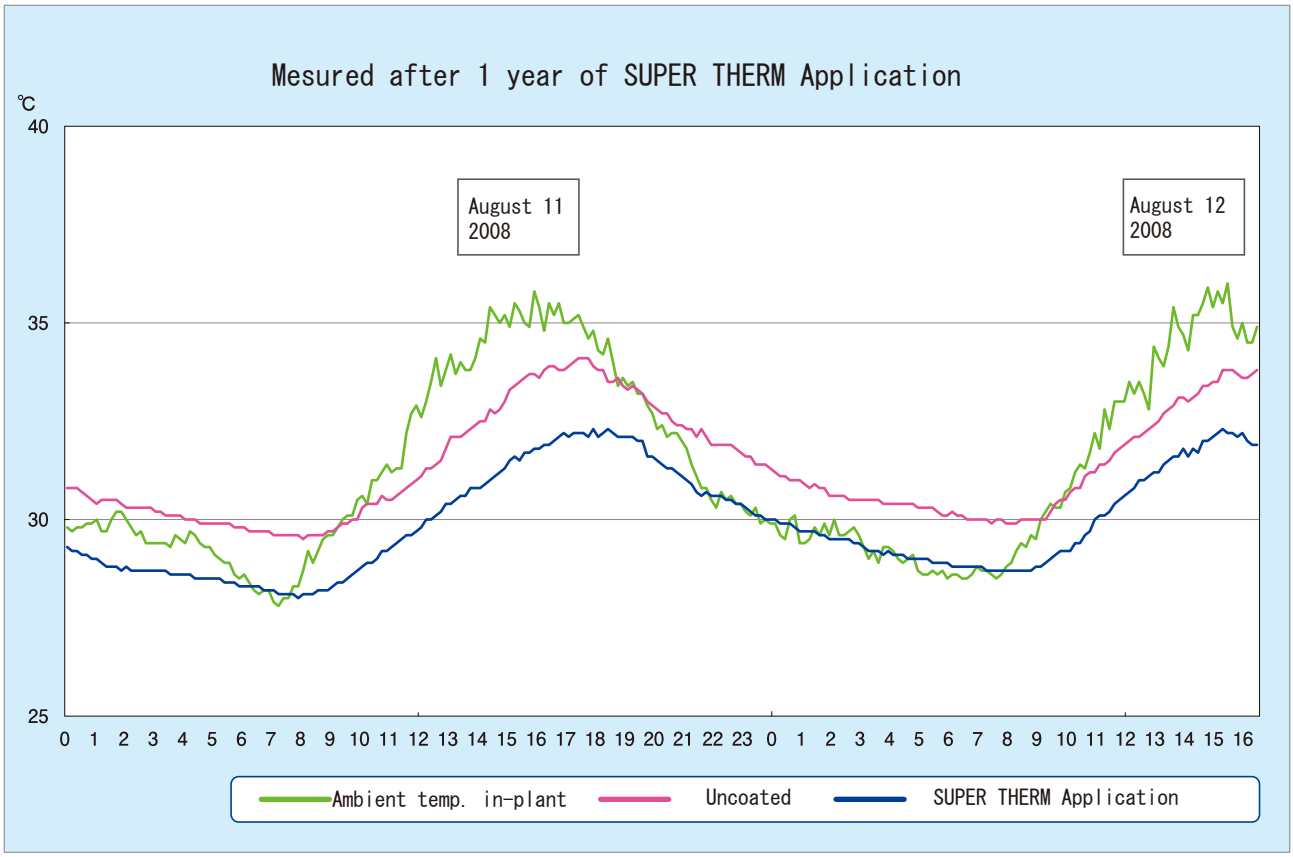


July/August	7/25	8/1	8/29		8/15	8/16	8/29
Weather	☀	☁	☀/☁		☀	☀	☀
Ambient temp.	32.7	33.0	31.4	Application	30.7	32.3	31.5
Room temp.	40.7	39.8	38.8		33.5	33.8	27.1
Difference	8.0	6.8	7.4		2.8	1.5	-4.4

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.

Saving Energy

■Heiwado - Supermarket (Gifu)

Heiwado use Gas air-cooling typed air-conditioning. After SUPER THERM Application, they cut the usage of has for air-conditioning by **４１%～４９%** Especially in September summer time (August 16～September 15) the usage of gas was cut by **５０%** comparing with the year before. It is a big energy saving effect.

Gas usage
Cut 49%

8,000 ㎡ August-September 2013

◆August

BEFORE		SUPER THERM
2012	2013	2014
No data	６１５５㎥	３５０７㎥

Cut ４３%

◆September

BEFORE		SUPER THERM
2012	2013	2014
５６８６㎥	４９３８㎥	２９１５㎥

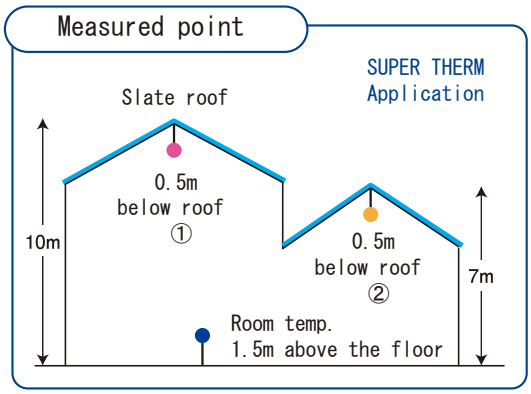
Cut ４１%

Cut ４９%

The application period may influence in 2013, however it can be pure a comparison with 2012 and 2014.

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

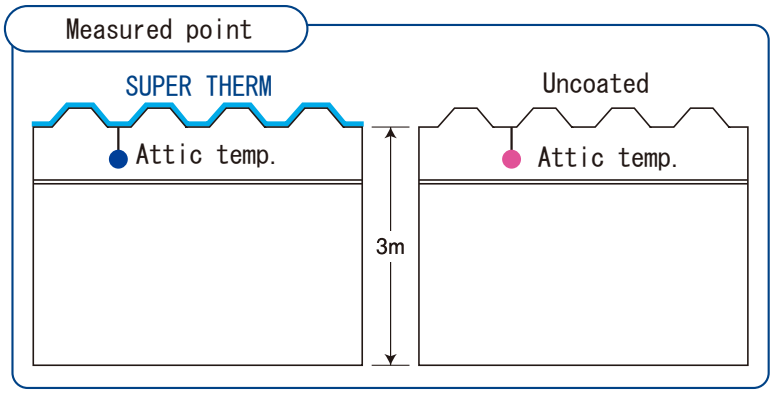
August	Ambient	Room temp.	Difference	Result
2009 Uncoated	30.0℃	34.2℃	4.2℃	**5.3℃** Reduced
2011 SUPER THERM	31.1℃	30.0℃	-1.1℃	

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

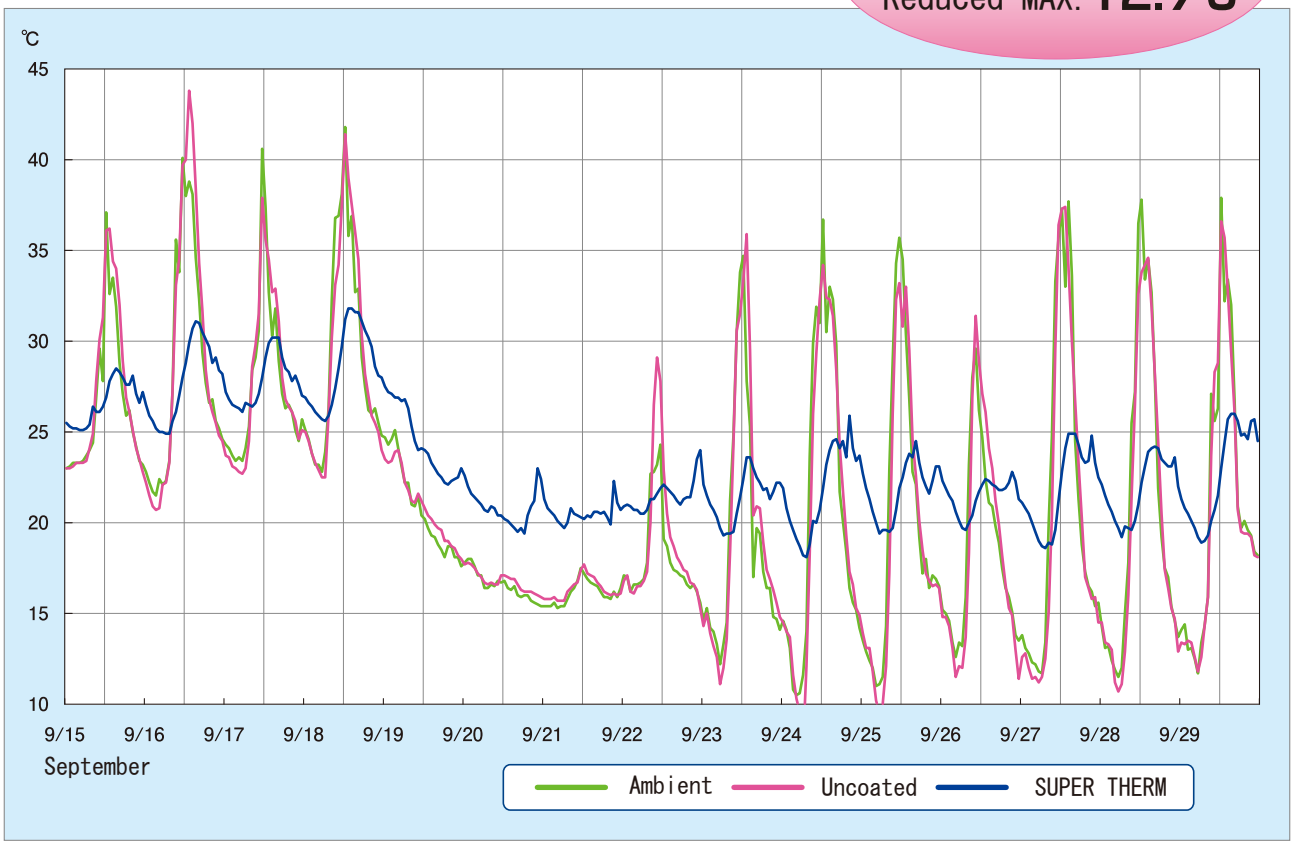
Temporary house (Miyagi) 18,000㎡ August 2011



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

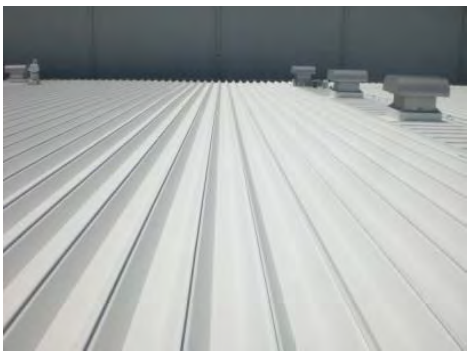
Panasonic Logistics Co., Ltd.

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

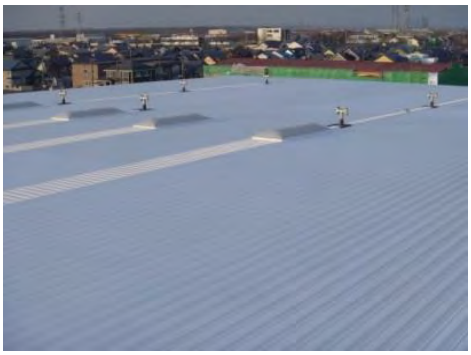
JTEKT Corporation
Osaka

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

AGC Wakasa Chemical Co., Ltd.
Fukui 1,800㎡
August 2012

Sysmex Corporation Ono plant
Hyogo 3,160㎡
January 2013

Tanabe Seiyaku Yoshiki Factory Co., Ltd.
Gifu 5,900㎡
May 2012

Fukuei Steel Corporation
Osaka 10,230㎡
September 2012

Seiko Resin Corporation
Gunma 4,760㎡
September 2012

Hayashi Paper Corporation
Shizuoka 1,400㎡
February 2013

Tada Plastic Co., Ltd.
Osaka 3,100㎡
September 2011

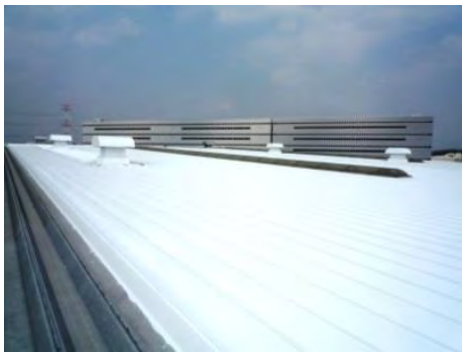
Oji Nepia Co., Ltd.
Fukushima 6,000㎡
June 2012

Fujikura Co., Ltd. Sakura
Chiba 12,000㎡
Nobember 2012

Sumitomo Electric Printed Circuits Co., Ltd.
Shiga 2,280㎡
June 2014

Mitsubishi Nichiyu Forklift Co., Ltd.
Center Office Kyoto 4,500㎡
May 2014

LIXILCorporation
Shiga 2,600㎡
March 2014



Hayama Denki Co., Ltd.
Mie 3,100㎡
April 2013

Shoda Shoyu Co., Ltd.
Gunma 2,200㎡
June 2012

TAIYO Center plant
Osaka 8,700㎡
August 2012

Tokaishiki Corporation Okazaki
Aichi Slate 400㎡
August 2012

Senju Metal Industry Co., Ltd.
Tochigi 2,500㎡
October 2012

Fuji Seihan Printing Corporation
Hyogo 3,800㎡
June 2013

Bando Chemical Industries, Ltd. Kakogawa

Hyogo 1,700㎡
March 2012

■After 12 years

SuperTher	Uncoate	Effect
37.3℃	54.8℃	17.5℃

■Seper Therm March 2012

SuperTher	Uncoate	Effect
34.8℃	56.8℃	22℃

■Another coating August 2011

SuperTher	Uncoate	Effect
40.3℃	53.6℃	13.3℃

Kyoto Tool Co., Ltd.

Kyoto 5,800㎡
July 1996, recoated in 2013

It still maintains the coating film on the roof after **17 years** of SUPER THERM Application.

【Surface temperature】
Uncoated 65℃
Super Therm 39.3℃

Toray Corporation

Shiga 2,050㎡
June 2013

■Roof Surface Temperature

May 30 2014 Sunny
Ambient temperature 29.4℃

Uncoated	53.3℃
SUPER THERM	31.5℃
Difference	21.8℃

Kainan Frozen Warehouse

Wakayama Slate 2,500㎡
June 2013

Shirai Food Corporation

Iwate 1,600㎡
April 2012