GAINA

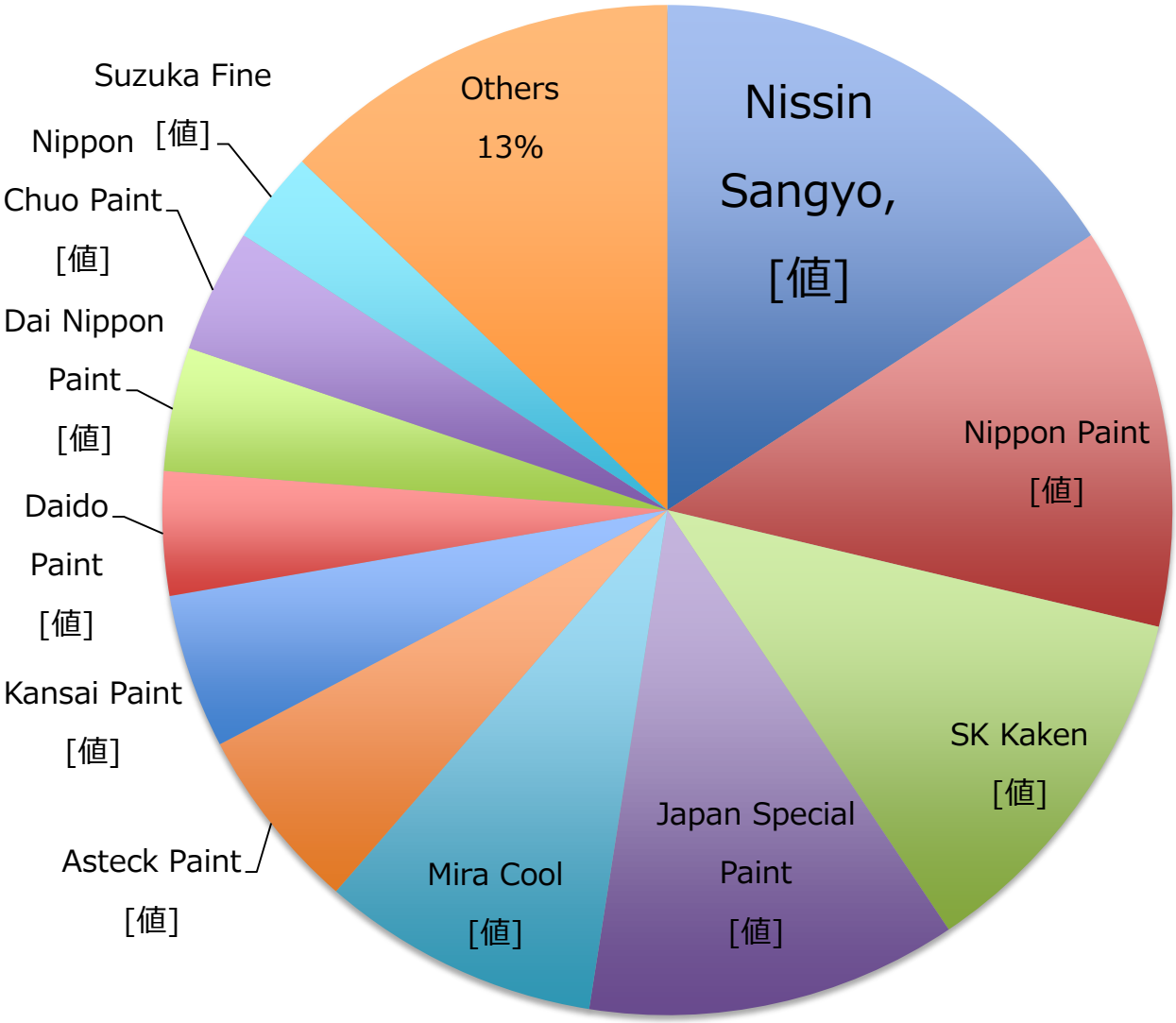
Case Studies

Nissin Sangyo Co., Ltd.

Kens.iLham Sdn Bhd

●2012 Energy saving paint products market share figure

GAINA keeps the top share in three years!



※20th March 2013
"Paint&Coating Journal" Magazine (Japan)

● Energy Saving Case Study

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

【Outline】

Warehouse of garment manufacture

•Date : May 2005

•Painted part : Folded plate roof1300㎡)

・Area : Saitama, Japan

・Color : Light Blue（69−70L）

【External view】

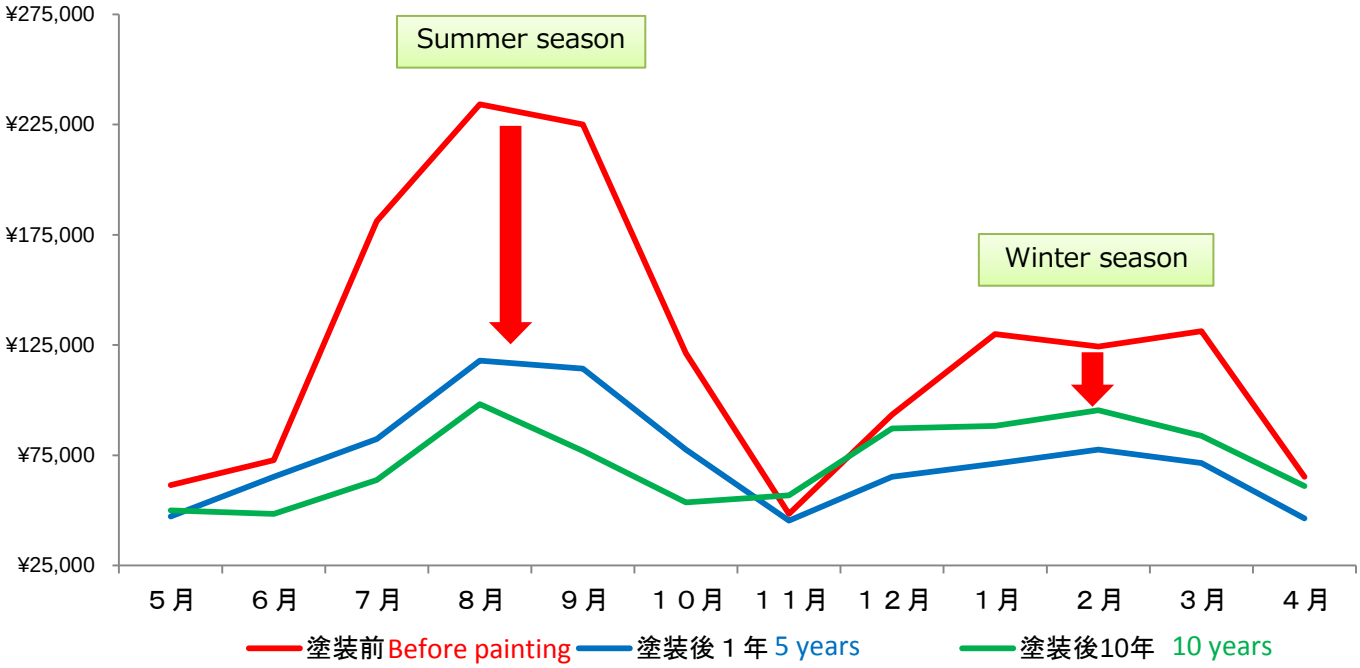
Outside of warehouse

Painted part on the roof

【Effect】

・8.2 million YEN reduction in 10 years
・15℃ reduction in 2nd floor, 4 to 1 air conditioner.
・no water sprinkling in summer ・Energy efficiency in winter was enhanced
・Lengthening of painting cycle

●Power consumption data (comparison of painted and no-painted period)



● Energy Saving Case Study

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

【Outline】

Painted cold storage in an industry zone of inland Shimane, Japan.

•Date : May 2005

•Painted part : Folded plate roof(3800m²)

・Area : Shimane

・Color : White（GAINA N−95）

【External view】

Painted part on the roof

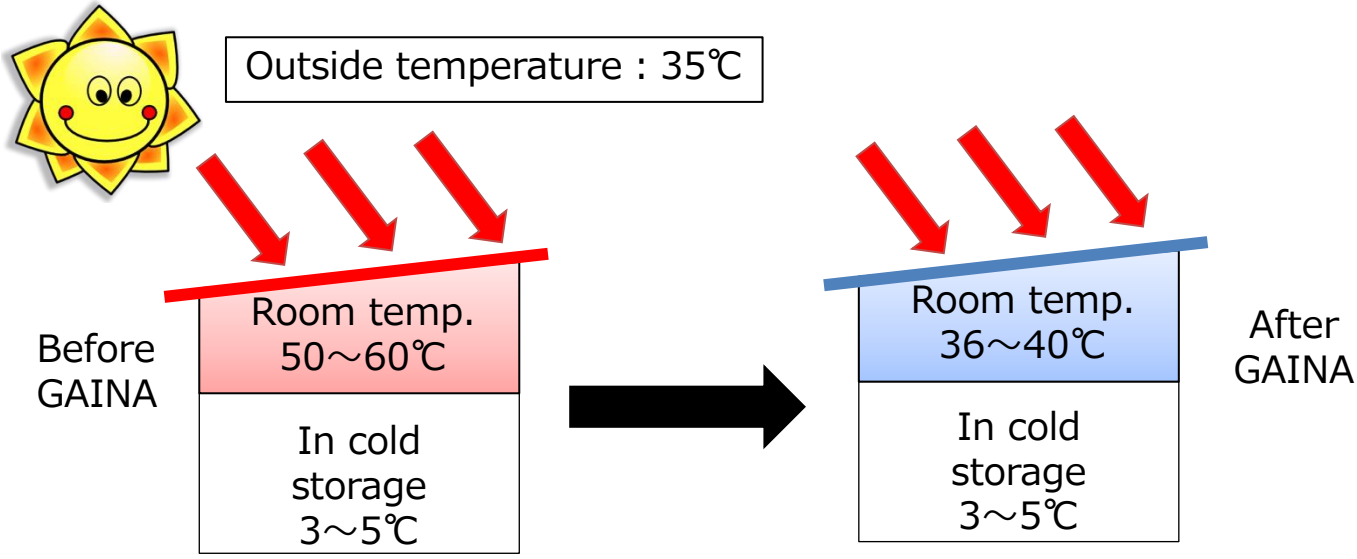
【Effect】

・Temperature of outside of cold storage room went down 49 to 36℃
・Power consumption of air conditioner was significantly reduced.
・Annual peak of electricity usage was cut from 1815kw to 1600kw.

●Effects after peak cut

・7.4 million Yen cost cut in two years

・Awarded by the Director of Resource Energy Agency of Japanese government in 2005.



● Energy Saving Case Study

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

【Outline】

Painted GAINA to reduce power consumption

•Date : June 2007

•Painted part : Folded plate roof(2940㎡)

・Area : Nagano, Japan

・Color: White（GAINA N−95）

【External view】

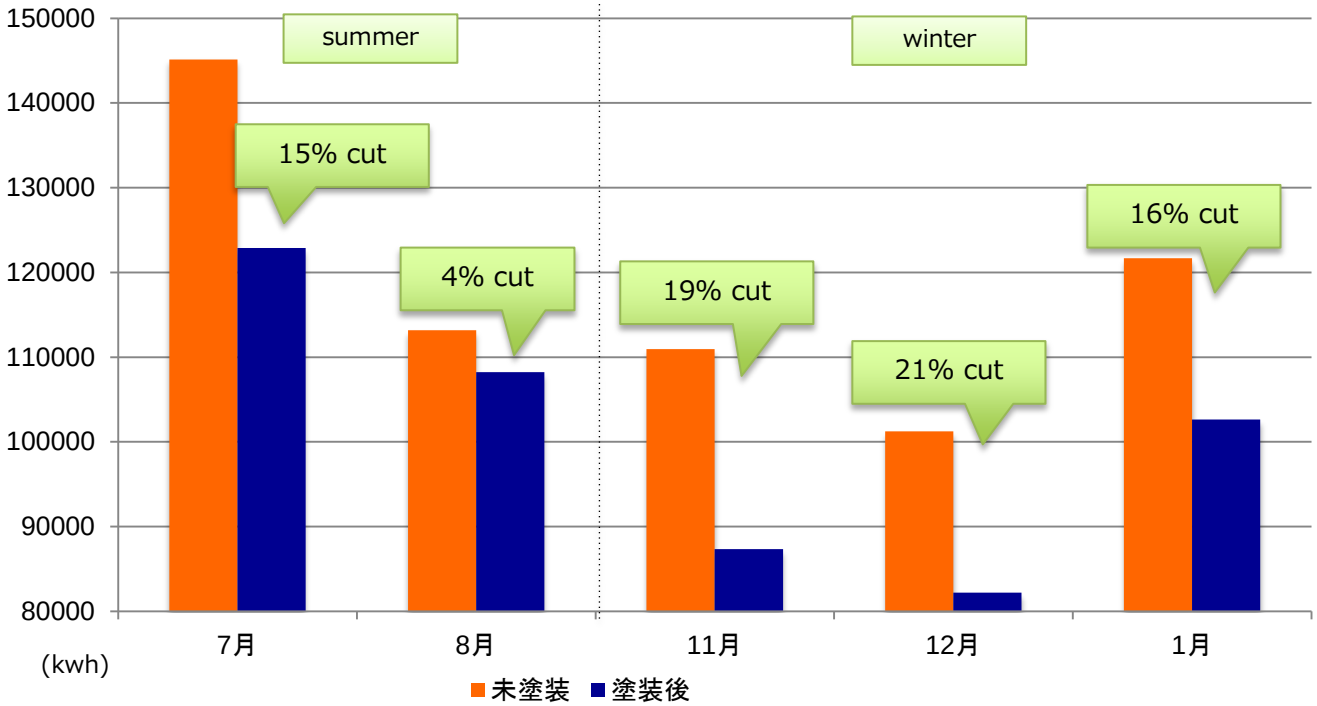
Before

After

【Effects】

・Temperature of the back of ceiling was reduced 20℃ in summer.
・Efficiency of air conditioner was increased in summer and winter.
・1.4 million Yen was cut in a year.

●Power consumption graph in summer and winter



● Energy Saving Case Study

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

【Outline】

Painted to reduce heat in summer season.

•Date : June 2008
•Painted part : roof of amusement spot(2800m²)

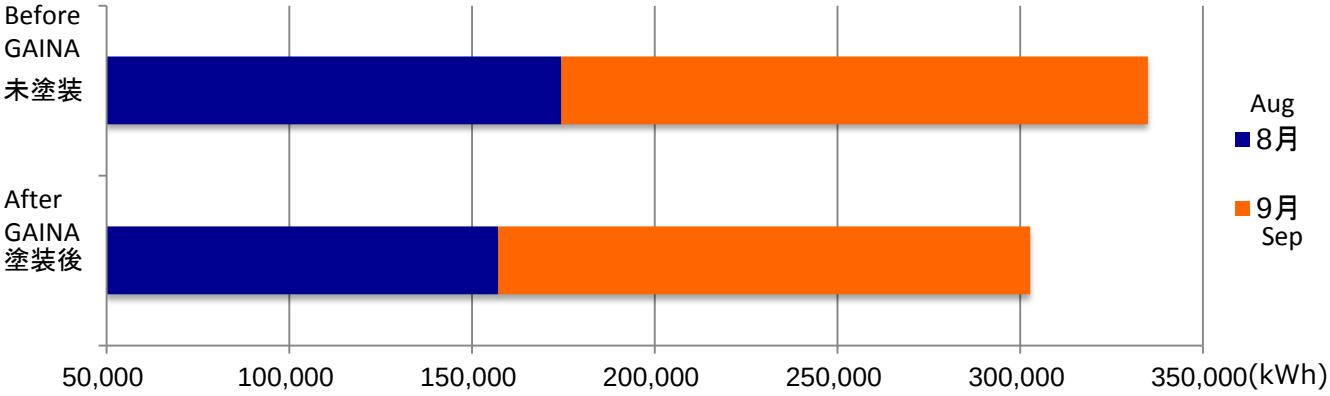
・Area : Saitama, Japan
・Color : White
GAINA N—95)

【External view】

【Effects】

・10% power consumption reduction in August and September
・1.08 million yen cut in summer four months. (1kWh=17Yen)

●Comparison of power consumption



● Energy Saving Case Study

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

【Outline】

Painted for renovation of 3 stories of building

*Some air conditioning devices were also replaced.

•Date : March 2009

•Painted part : roof and external wall of concrete, some for interior（total: 460㎡）

・Area : Okinawa, Japan

・Color : White (GAINA N—95)

【External view】

Before

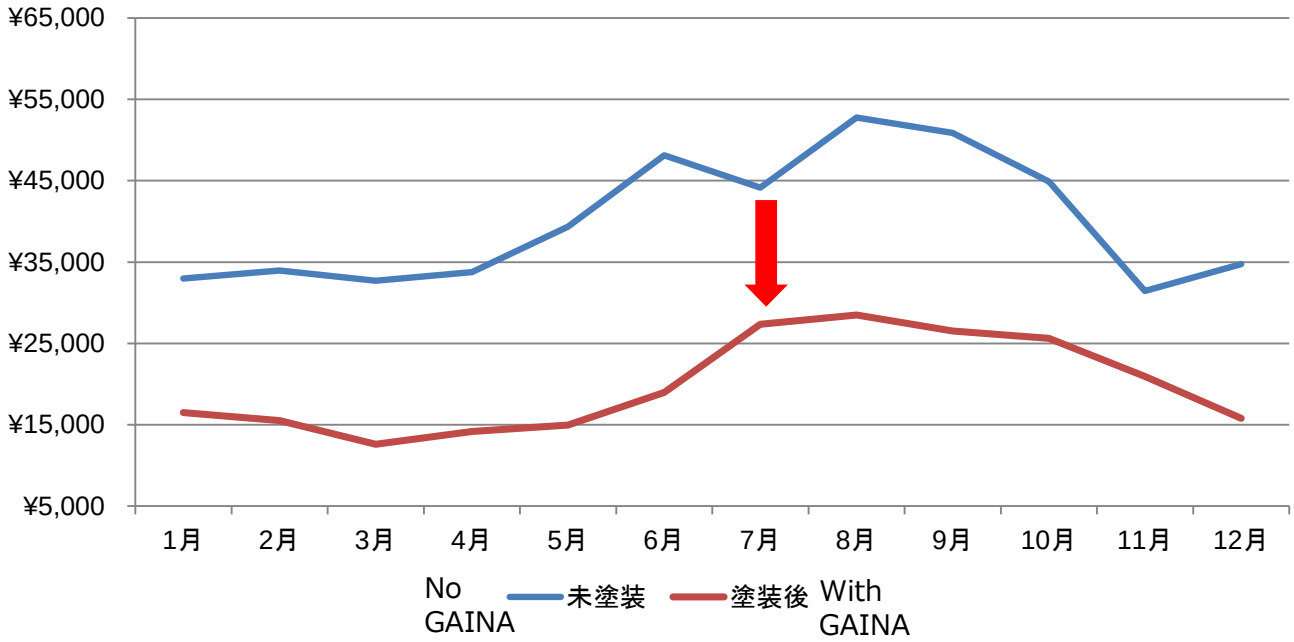
After

【Effects】

・before painting 0.47 million Yen, After painting 0.24 million Yen (50% cut)

・stop using heater in winter season

●power consumption graph



● Energy Saving Case Study

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

【Outline】

Painted for exterior renovation

•Date : July 2011

•Painted area : Roof/external wall (Total: 200㎡)

・Area : Kochi, Japan

・Color : Grey（N-50）Roof
Ivory（25−92B）External wall
Medium grey（25-60B）External wall

【External view】

Before

After

【Effects】

Reduction of power consumption

・Summer apprx 28.4%、Winter Apprx 26.3%

July to September
Comparison of power consumption

Before GAINA		After GAINA	
month	power（Yen）	month	power（Yen）
22’7	14,240	23’7	10,176
8	14,169	8	9,805
9	11,084	9	8,289
total	39,493	total	28,270

November to February
Comparison of power consumption

Before GAINA		After GAINA	
month	Power（Yen）	month	Power（Yen）
22’12	24,505	23’12	19,958
23’1	20,562	24’1	13,423
2	14,912	2	10,800
Total	59,979	Total	44,181

● Energy Saving Case Study

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

【Outline】

Painted Yonahara town office, under the public project of thermal insulation of government buildings in Okinawa prefecture

※some wind film and air conditioner were replaced too.

•Date : March 2011

・Area : Yonahara, Okinawa

•Painted part : concrete roof（1030㎡）

Concrete external wall（1500㎡）

・Color : White（N−95）Roof

Grey（N−70）Wall

【External view】

Before

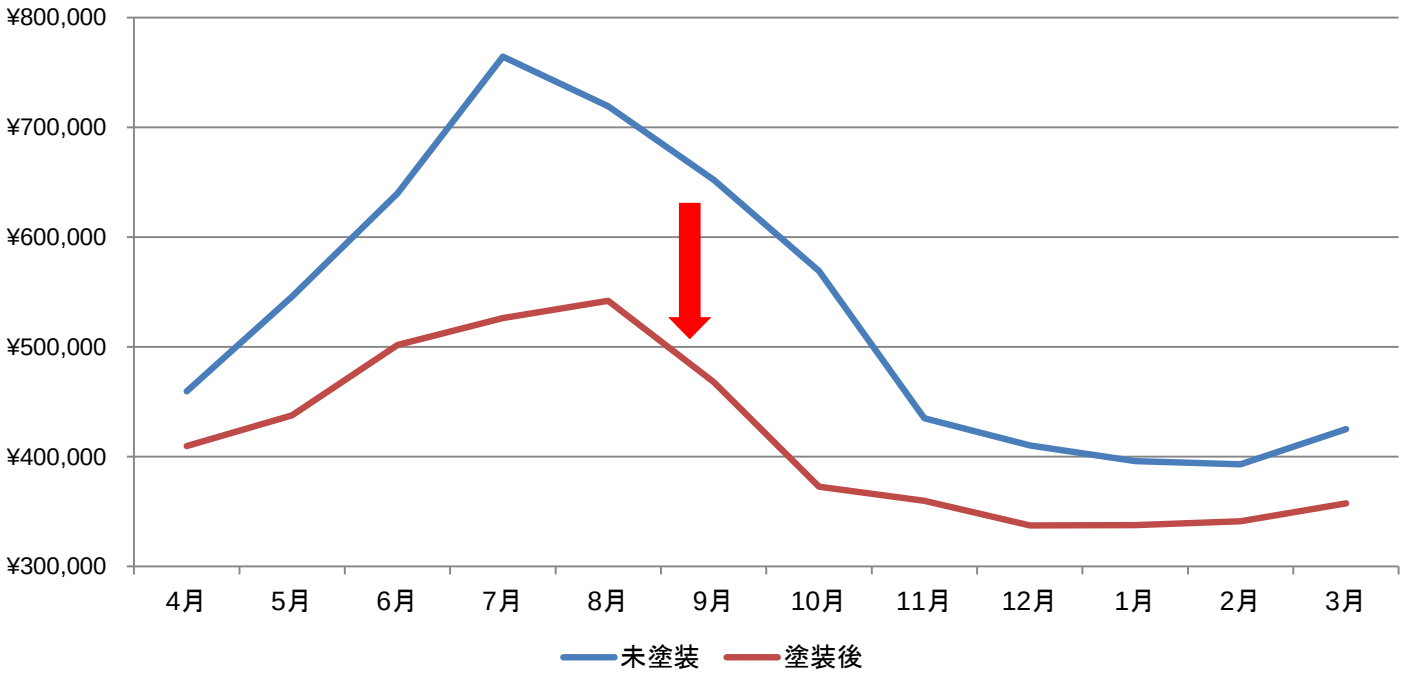
After

【Effects】

・1.41 million Yen cut in a year

・Penetrating cold in winter was reduced.

●power consumption graph



● Energy Saving Case Study

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

【Outline】

Painted logistic center

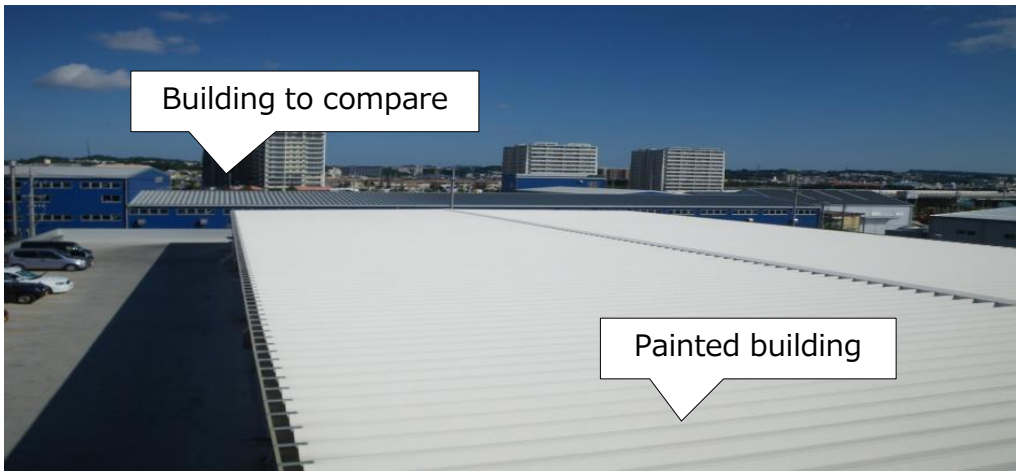
•Date : March 2009

•Painted part : Galvalume plate roof（2200m²）

・Area : Okinawa, Japan

・Color : White（N—95）

【External view】

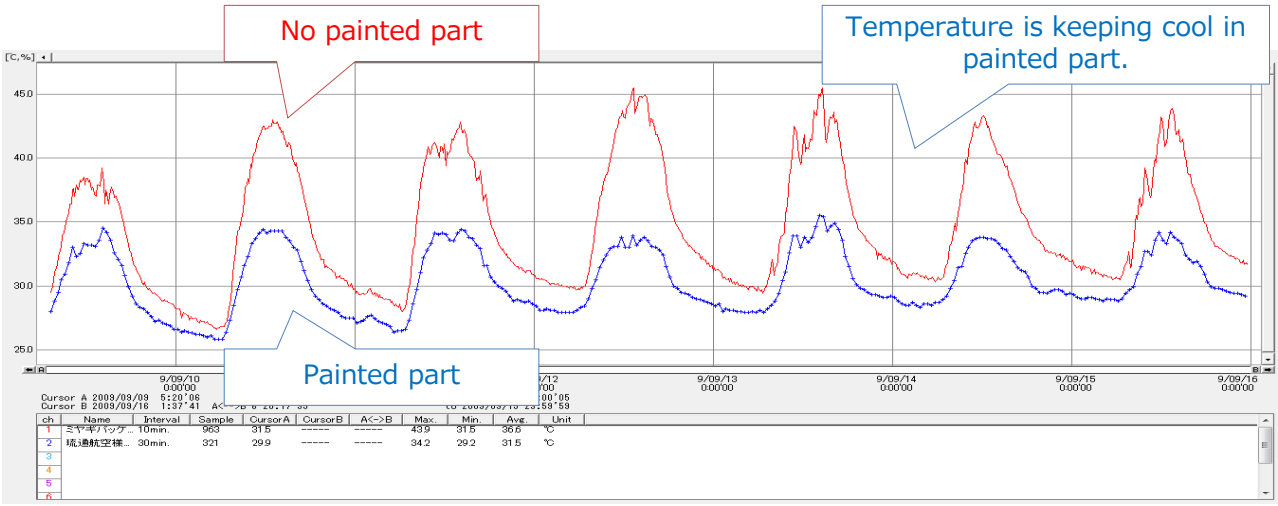


【Effects】

Tested inside temperateure of two buildings (photo above) under the same condition.
Temperature of the backside of roof was reduced at maximum 8.9℃, average 5.3℃.

figure	Temperature of the backside of roof	
	Average	Maximum
Not painted	36.7℃	43.3℃
painted	31.4℃	34.4℃
reduction	−5.3℃	−8.9℃

※Max temp : 33.0℃,
Average temp : 29.6℃



● Energy Saving Case Study

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

【Outline】

Compared temperature on the roof of warehouse

•Date : September 2008

•Painted part : Concrete roof（1420㎡）

・Area : Tokyo

・Color : GAINA N−70

【External view】

【Effects】

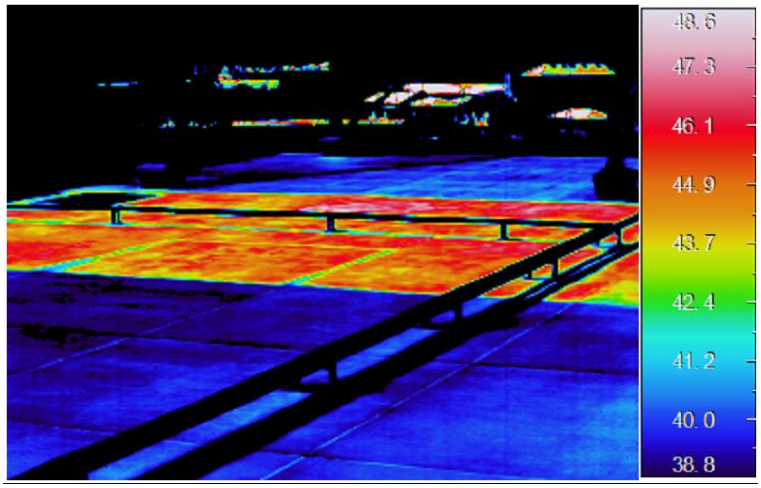
・Surface temperature was significantly reduced

	No painted side	Painted side
Concrete	44 ～ 48℃	35 ～ 40℃

Painted part

painted　　Not painted

Thermography



※Date : Sep 2008 13:00pm
Temperature : 33℃

● Energy Saving Case Study

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

【Outline】

Painted roof to compare the temperature

•Date：August 2009

•Painted part：Folded plate roof（307㎡）

・Area：Chiba, Japan

・Color：White（GAINA N－95）

【External view】

Before painting

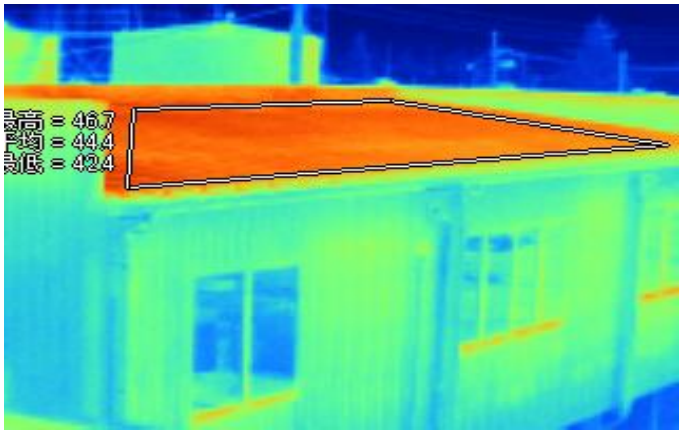
After painting

【Effects】

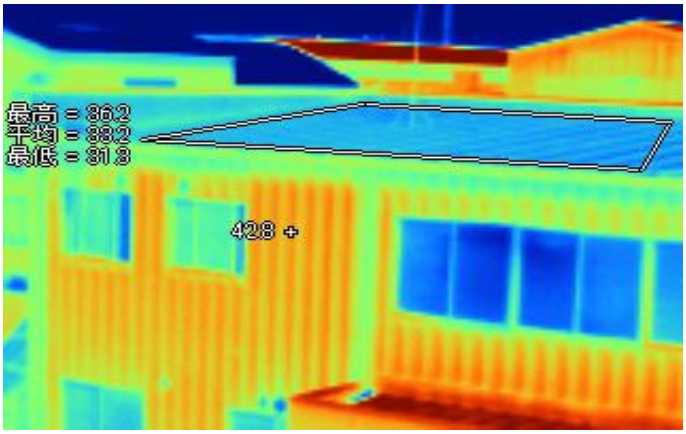
・Temperature of surface and back of roof was significantly reduced.

	No painted side	Painted side
Surface	44℃	33℃
Back of roof	41.5℃	33.5℃

Before painting



After painting



※Date： Sep 2009　13:00pm
Temperature：33℃

● Energy Saving Case Study

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

【Outline】

Painted roof of warehouse and office

•Date : June 2010

•Painted part : Color steel plate roof(1200㎡)

・Area : Okinawa, Japan

・Color : White
GAINA N−95)

【External view】

External view

Painted part

【Effect】

・Temperature of back of roof was reduced at maximum 19.5℃, on the average 5.9℃.

・Property of heat was changed, air conditioner could work faster.

Figure	Date	Temp. of backside of roof		Weather
		Average	Maximum	
Before GAINA	27th June	37.0℃	55.5℃	Partly cloud
After GAINA	17th July	31.1℃	36.0℃	Partly cloud
GAINA	−	−5.9℃	−19.5℃	−

※before（27 Jun）Max : 32.0℃, Average : 29.0℃
※after（17 Jul）Max : 32.2℃, Average : 29.3℃

● Energy Saving Case Study

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

【Outline】

Painted roof of factory to compare the temp.

•Date : September 2010

•Painted part : Folded plate roof（2838㎡）

・Area : Yamanashi, Japan

・Color : White
GAINA N—95)

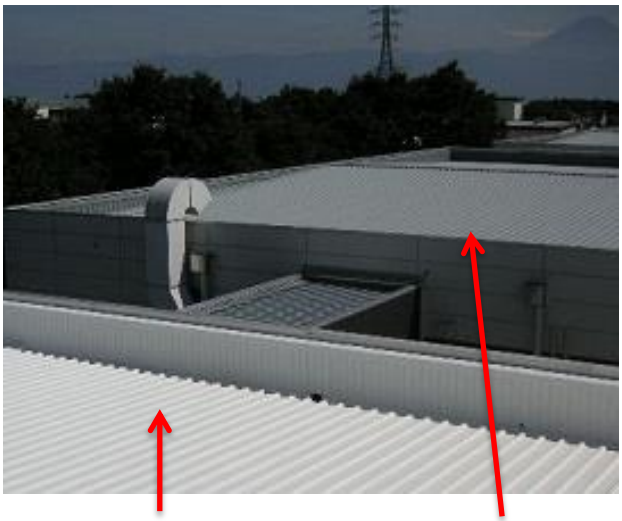
【Exterior】

【Effects】

・Temperature of surface of roof was significantly reduced.

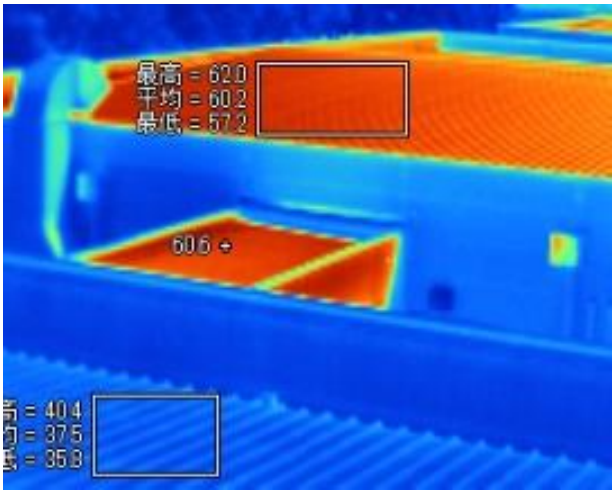
	No painted side	Painted side
Folded plate roof	57 ～ 62℃	35 ～ 40℃

Painted part



painted　　Not painted

thermography



※date : Sep 2010 13:00pm
Temperature : 33℃

● Energy Saving Case Study

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

【Outline】

Painted roof of hypermarket

•Date：July-August 2011

・Area：Fukushima, Japan

•Painted part：Galvalume plate roof（10600㎡)

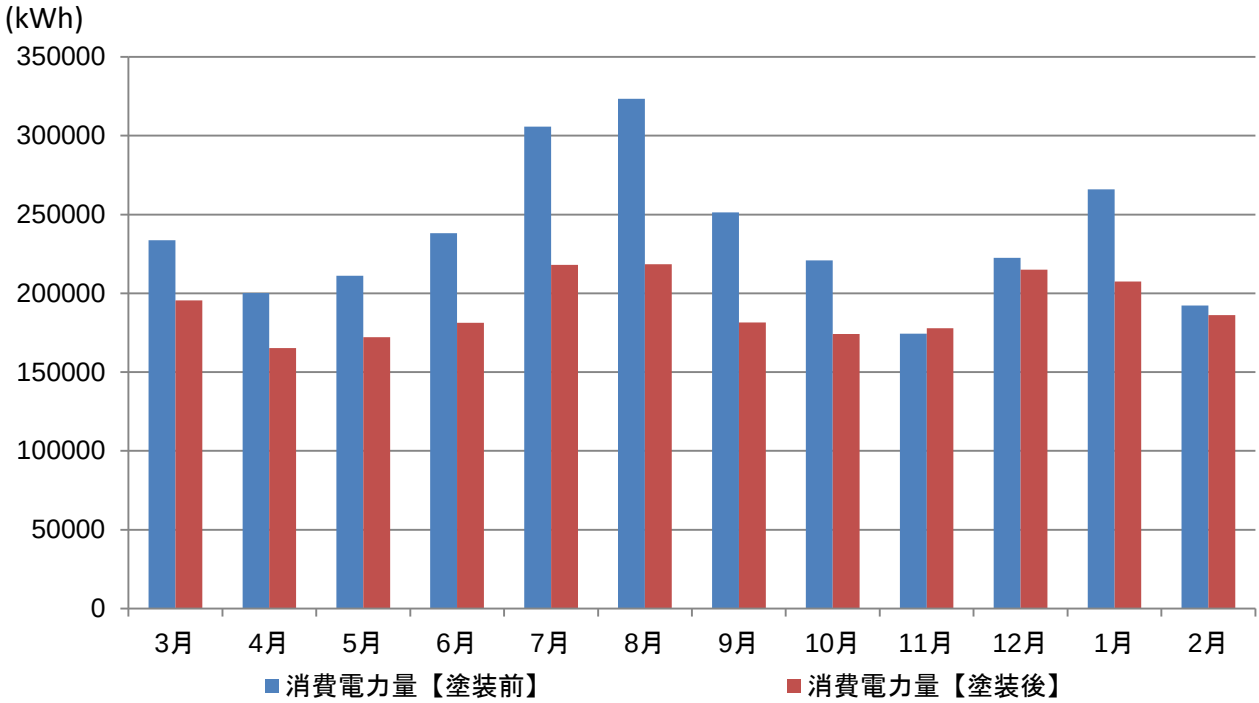
【External view】

Structure of roof：
- Galvalume plate roof
- Air layer 1000mm
- Glass wool 100mm
- Gyptone 9.5mm

【Effect】

- 20% of energy saving in a year
- 7.1 million Yen was cut in a year （※13Yen／kWh conversion）

●Power consumption graph



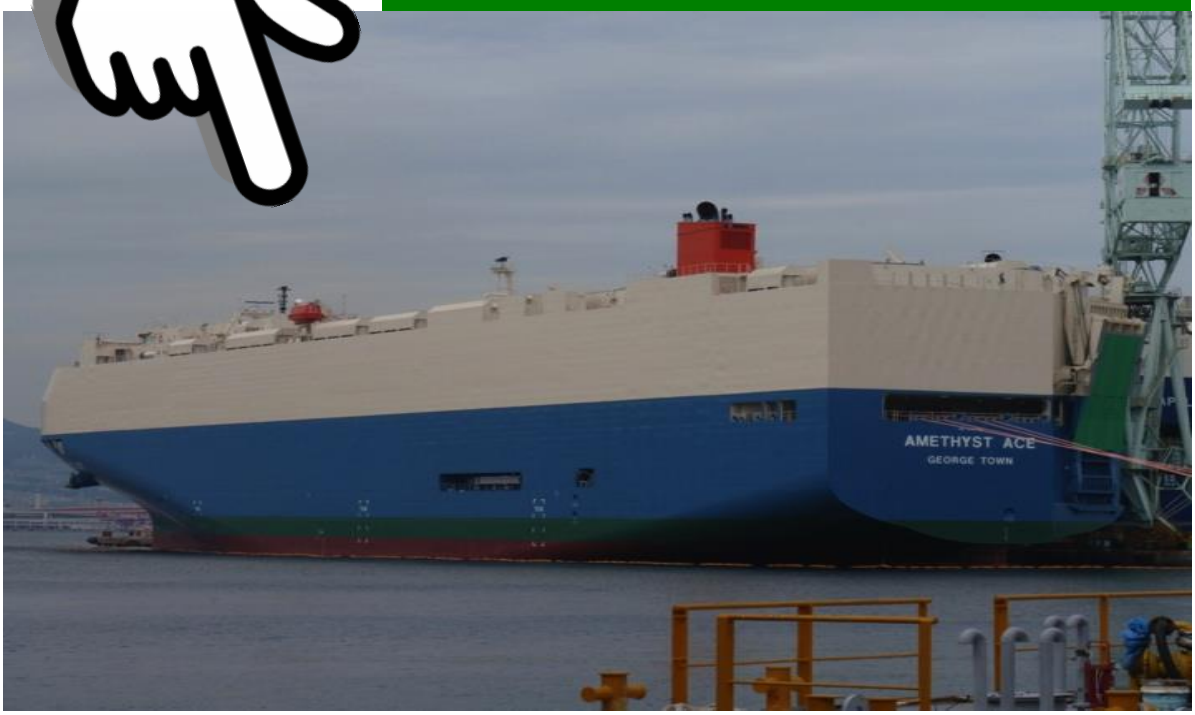
Nissin Sangyo Co., Ltd.

Kens.iLham Sdn Bhd

Deck

Here is GAINA

Mitsui Shipping Vehicle Carrier



Why GAINA?

・GAINA was applied to the deck of large carrier.

Temperature **65℃** to **38℃** reduction.

Working condition inside vessel got more comfortable.

Thermal condition was changed significantly in a week. The deck was exposed to much amount of UV. After careful selection, we decided to apply GAINA as our standard painting. (Comment of Mitsui Shipping Co., Ltd.)

Nissin Sangyo Co., Ltd.

Kens.iLham Sdn Bhd

Here is GAINA

Interior

Todaiji temple Museum

Why GAINA?

To maintain national treasure, we have spent a lot in air conditioning. To increase thermal insulating function, we chose GAINA.

GAINA and Non Ketsuro (No Due) have been studied carefully in our museum. We highly evaluate its thermal insulating property, high durability against rust, and design.

(Comment of the staff in charge of design)

Nissin Sangyo Co., Ltd.
Kens.iLham Sdn Bhd

roof

Here is GAINA

Kansai Int'l airport
Train "Wing Shuttle"

Why GAINA?

・Applied GAINA to the roof of Kansai International Airport Express Train（AGT）.

Temperature of the backside of roof was decreased **57℃** to **47℃**, energy efficiency of air conditioner was increased.

GAINA was adopted as the energy saving technology of Kansai International airport.

Nissin Sangyo Co., Ltd.

Kens.iLham Sdn Bhd

Special Application

Here is GAINA

External device of Air Conditioner of restaurant chain

Reduction of power consumption with GAINA

After painting（per a day）

974kwh → 898kwh

Monthly

47,000Yen reduction

Nissin Sangyo Co., Ltd.

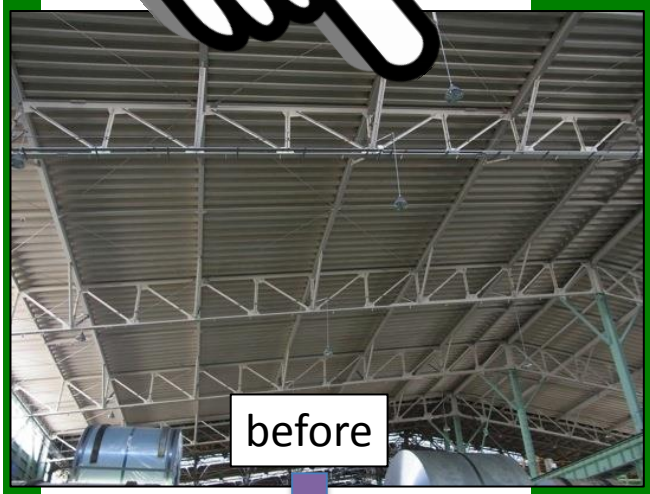
Kens.iLham Sdn Bhd

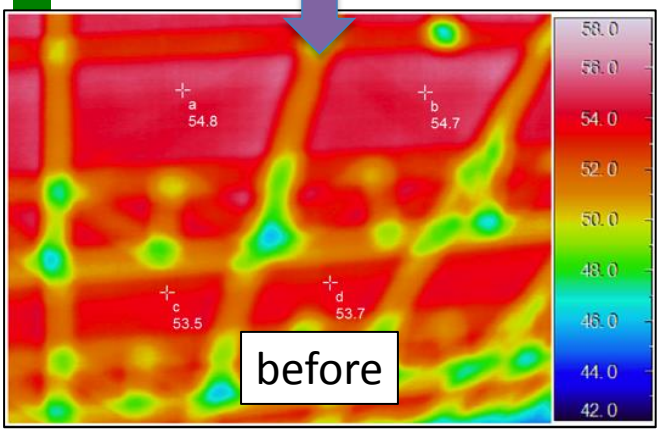
Here is GAINA

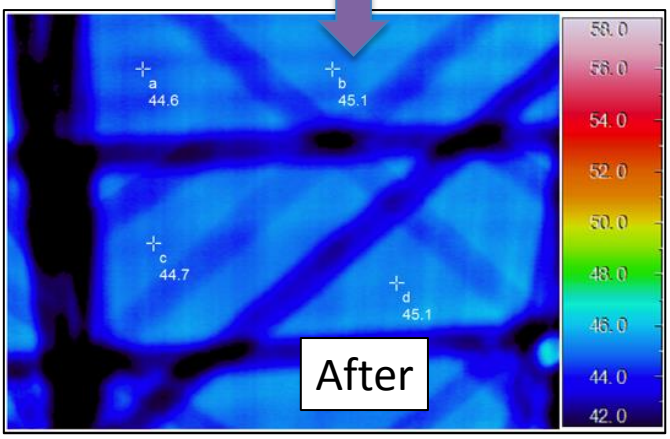
Factory of automobile

Roof

compared temperature by thermograply







54.8℃ → 44.6℃

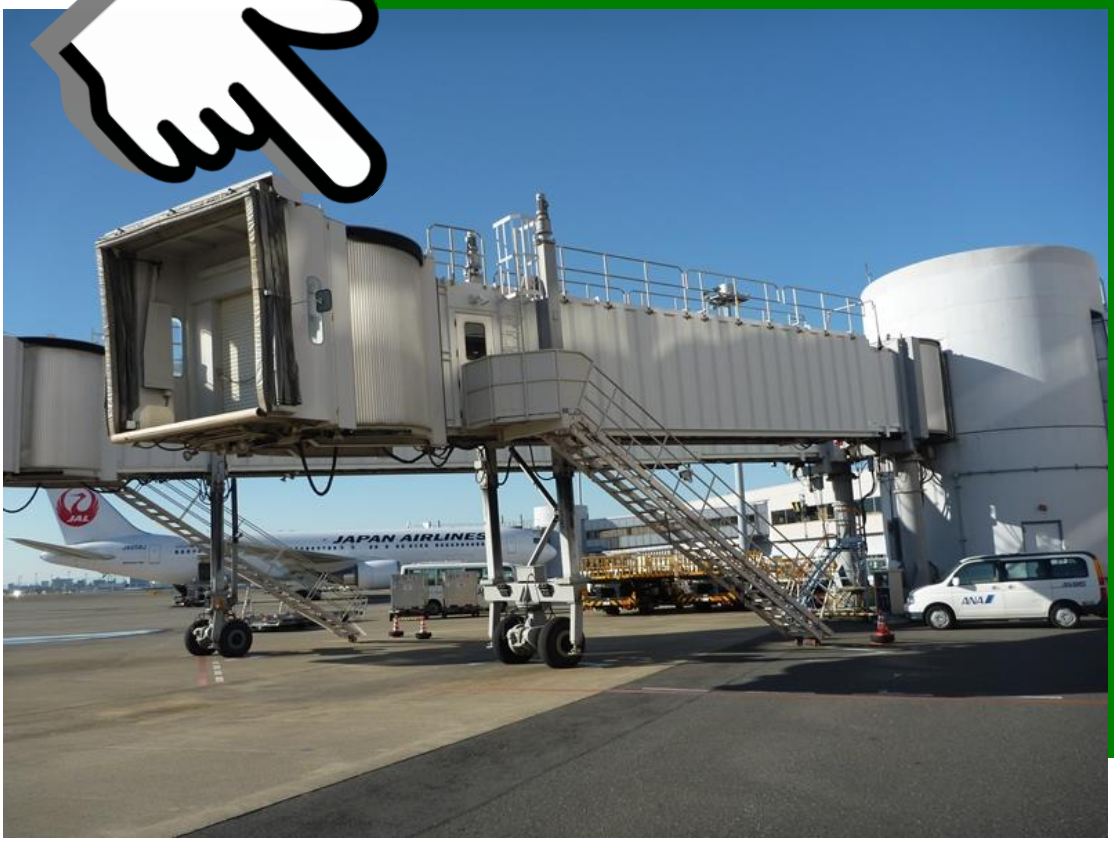
Nissin Sangyo Co., Ltd.

Kens.iLham Sdn Bhd

Here is GAINA

Passenger boarding bridge (PBB) of Tokyo International Airport

Roof



Terminal No.1 Building of Tokyo International Airport (Haneda). GAINA was applied to the Gate No.10.

Nissin Sangyo Co., Ltd.

Kens.iLham Sdn Bhd

Here is GAINA

Minna-no-Ie Rikuzen-Takada city

Exterior &Interior

Designed architecture "Minna-no-Ie (Everyone's house)" that was awarded in Golden Lion Prize (1st prize) at 13th Venice Viennale international architecture exhibition applied GAINA to its interior and exterior design.

Architect: Mr. Toyoo Itou, Ms. Kumiko Inui, Mr. Sosuke Fujimoto, Mr. Akihisa Hirata