

Tikkurila Climate Cooler

Leif Andersen Slot Tikkurila Oyj Cool Roof Conference October 12, 2016



Tikkurila

Tikkurila is the leading paints and coatings professional in the Nordic region and Russia. With our roots in Finland, we now operate in 14 countries. Our high-quality products and extensive services ensure the best possible user experience in the market. Sustainable beauty since 1862.



Tikkurila in brief

Our end-customers



Professionals Industry Consumers

Our goal is to provide the best user experience

3,100 employees



50%

Market position in key markets* in decorative paints

Balanced geographical presence between mature and emerging markets

Production in 9 countries **Operations in 14 countries** Presence in 40 countries



*Russia, Sweden, Finland, the Baltic countries Tikkurila is #4 in Poland



Tikkurila 2015

Our largest markets are Sweden, Russia, Finland, Poland and the Baltic countries. We have production in nine countries, and we are the leading decorative paint company in all our main markets. On the whole, our products are available in 40 countries. In 2015, Tikkurila's revenue totaled EUR 584 million, and it had 3,100 employees.



*Excl. non-recurring items



Climate Cooler

References & simulations



Case study in Copenhagen



Hotel Clarion in the central part of Copenhagen is the first hotel in Denmark with the "Cool roof".



Case study



It has two equally large wings in its building. The roof of one of the wings where airconditioners machines are located was treated with ClimateCooler, while the other was left untreated. The roof area of both wings is 150 m².



Thermographic tests



The black spot, which is untreated is very warm, compared to the white coated roof. In the thermographic picture, it clearly stands out, that the black roof is warmer than the treated part of the roof. White vs. Black 28 °C vs. 57 °C / 82 °F vs. 135 °F



Copenhagen conclusion

The hotel has achieved 10% cost savings or saved abt. 40-50 MWh of energy.

In addition to the cost saving, the hotel was able to cut annual CO_2 emissions by 27 tonnes after the application of ClimateCooler. This can be converted to driving seven times around the world with a small car.





Ventspils, Riga

Starting point:

- Old bitumen roof of Ventspils hospital, Latvia
- Roof area is 300m²
- Bad odor from bitumen should be removed, because windows of young mothers are just above the roof
- The view from the window also should be improved
- Any decreasing of the temperature inside the operating room would be helpful.

Results:

- Customers are very satisfied with the result
- Targets were reached: odor is gone and the view was improved
- Painters liked to work with **ClimateCooler** products
- Unfortunately, it was not possible to measure temperature inside the building, because air condition in operation room is working all the time.







Test simulations





Simulations

Center for Sustainable Energy Systems CSE

- Understand globally the effect on different climate zones
- Effect on different **building types** / building use scenarios
- Effect of different climate cooler colors
- Prove the **efficiency of climate cooler** in general
- Check for hygrothermal risks



Climate Zones

1A Kuala Lumpur Very Hot Humid **2A** Brisbane Hot Humid **3A** Athens Warm Humid 3C Rome Warm marine 4A Milan Mixed Humid 5C Hamburg Cool Marine 6A Stockholm Cold Humid 7 Tampere Very Cold





Energy used for cooling buildings













Office: Total energy consumption 1373 MWh/a Saving potential 2,2 %



Brisbane - Australia

















Savings turned to money

Kuala Lumpur Office: Total energy use: 1 342 780 kWh/a

Saving potential: 2.2 % White Climate Cooler

Savings/a: $2660 \in (+taxes)$

ROI 1.6 a, compared to a normal coating (excl. taxes)

http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_price_statistics





Climate Cooler all in all

An intelligent roof-painting system that reflects up to 80% of solar radiation back into space

- Lower temperature on the roof surface
- Lower energy consumption for cooling down buildings
- Lower CO₂ emissions
- More comfortable indoor conditions
- Good bonding properties
- Extends the service life of the roof with many years.





Future in reflectance coatings

Facade solutions

Linking solutions to megatrends

Stronger demand from markets

Next generation of reflectance solutions expected from raw material suppliers. Especially reflectance properties of darker shades should be improved.