

#### **ECOBIOS** COOL ROOFING TECHNOLOGY



WE MAKE YOUR HOUSE COOL... WHEN IT WARMS UP!

# COOL ROOF PRODUCTS & COOL ROOFING TECHNOLOGIES

Global warming is a recognised hazard for the planet. Its effects are even more dangerous in cities because of the Urban Heat Island effect along with associated pollutants and greenhouse emissions.

The recent rise in number of air conditioning units right across southern Europe increases the cost of electricity and disrupts the energy balance.

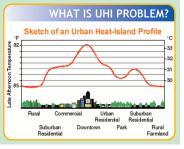
The increase of the air temperature in our homes and in our cities affects human comfort both indoors and outdoors, our health, our energy bills, our wallets.













#### WHAT are Cool Roofs?

Cool materials stay cool under the sun by reflecting away the solar radiation during day time and radiating away the stored heat at night time.

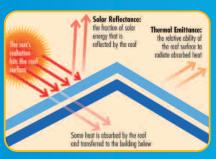
Unlike conventional roofs (which can see a temperature rise of 30°C during summer months), Cool Roofs stay at or near ambient temperatures even on the hottest summer day.

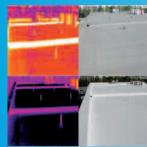
All roofing techniques could become cool: tiles, coatings, membranes, asphalt shingles, metal roofing.

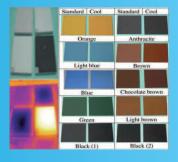
Cool Roof techniques apply to all roof typologies, both low-slope and tilted options.

Not only white roofs are cool, new materials bring the same cooling benefits to coloured roofs and preserve the architectural value of the building.

Cool Roofs are:
 Affordable
 Easy to install
 Sustainable
 Durable
 Safe









### WHERE do Cool Roofs perform best?

In principle any building that needs to be cooled can benefit from a Cool Roof.

In practice, the warmer the climate, the greater the benefit.

Significant cooling savings are monitored across Europe, from London to Sicily.

Global energy savings need to be assessed taking into account the totality of energy and environmental impacts.









## WHEN is the most effective time to apply Cool Roof protection?

All these measures are cheaper and most effective when the building is in construction, but existing buildings can benefit from Cool Roof applications as well.

The roof is the envelope component that requires the most maintenance.

On existing buildings, roof refurbishment is the best time for applying Cool Roof protection.







#### WHY use Cool Roofs?

To reduce the energy and peak cooling demand in cooled buildings (downsizing of equipment) leading to a decrease of pollutant emissions at power plants

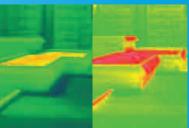
To improve thermal comfort in buildings that do not have air conditioning

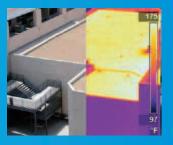
To extend the life span of the roof, minimise roof maintenance and replacement expenses due to their reduced thermal fatigue

To mitigate the Urban Heat Island Effect (less heat will be transferred to the surroundings) and improve outdoor thermal conditions for city dwellers and residences in cities and suburbs

To reduce urban smog formation due to lower outdoor temperature levels

























#### WHO can tell me more about Cool Roofs?

The EC supports the Cool Roofs project within the IEE (Intelligent Energy for Europe) Programme aiming at promoting Cool Roof applications among the EU Member States through four main actions: technical, market, legislation and communication.

The EU Cool Roofs Council was founded in the framework of the Cool Roofs Project activities and involves several actors from industry and the building market to universities and research institutes. The EU Cool Roofs Council and the Cool Roofs Project cooperate closely with the long-established US Cool Roof Rating Council.





National and Kapodestrian University of Athens Group Buildings Environmental Studies www.grbes.phys.uoa.gr





Technological Educational Institute of Crete www.teicrete.gr







Municipality of Kessariani www.kessariani.gr



**Brunel University** www.brunel.ac.uk



Greater London Authority www.london.gov.uk



University of la Rochelle www.leptiab.univ-larochelle.fr



SIPEA Habitat www.sipea-poitiers.fr



Italian National Agency for New Technologies, Energy and Sustainable Economic Development www.enea.it



Regional Province of Trapani Sector for Land Environment Natural Resources



Ecobios Laboratori www.ecobios-solaria.com

www.provincia.trapani.it



Federation of European heating and air-conditioning associations



www.rehva.eu

Supported by Intelligent Energy 🔀



Athena Consulting Group

The sole responsibility for the content of this publication lies with the authors. It does not necessari reflect the opinion of the European Union. The European Commission is not responsible for any use that may be made of the information contained herein. The information contained is given for information purposes only and does not legally bind any of the parties involve





Laboratori Ecobios s.r.i. Via B. Cellini, 28 - 73033 Corsano (Le) Italy Tel./Fax +39 0833 533080

www.leuc.it www.ecobios-solaria.it www.coolroofs-eu.eu

labo@ecobios-solaria.it