



Review of research: Creating cooler communities and cooler products

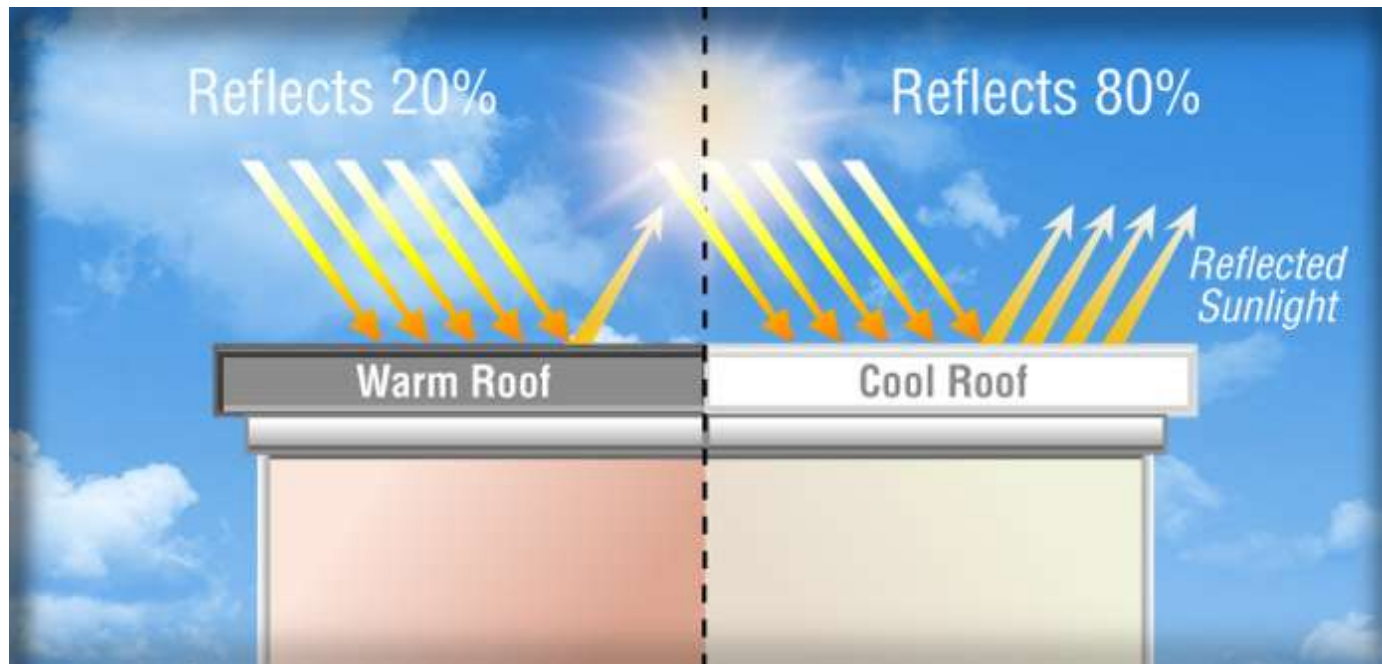
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Cool Surfaces for Energy Efficient Buildings Conference
Mexico City, Mexico | February 28, 2012

Heat Island Group

Works to cool buildings, cities, and the planet by making roofs, pavements, and cars cooler in the sun.



Cool communities in California

CA Title 24 Building Energy Efficiency Standards – Cool Roof requirements

- Low-slope commercial buildings (first required in 2005)

Aged Solar Reflectance	Aged Thermal Emittance	Aged SRI
0.55	0.75	64

- Pitched residential buildings (first required in 2008/2011)

Aged Solar Reflectance	Aged Thermal Emittance	Aged SRI
0.20 (0.15 tiles)	0.75	16 (10 tiles)

- Requirements vary between 16 CA building climate zones

Cool Communities

What

Develop “cool community” programs in California (cool roofs, cool pavements, urban vegetation)

Why

Save energy, reduce emission of greenhouse gases, and improve the urban environment

How

Conduct research & technical assistance to help communities with program implementation & adoption



Cool Communities

Cool pavement demo Investigating:

1. Heat flow
2. Solar reflectance
3. Temperature



Cool Communities

Consumer cool roof website

Presenting:

- Science
- Building codes & rebates
- Roof product search
- Energy savings tool
- Stories/case studies



The screenshot shows the CoolCalifornia.org website. The header features the logo "CoolCalifornia.org" with the tagline "Simple steps for a sustainable future". Navigation links include "HOME", "DASHBOARD", "INDIVIDUALS", "SMALL BUSINESS", "LOCAL GOVERNMENT", "SCHOOLS", "COMMUNITY CHALLENGE", and "ABOUT US". A search bar is located in the top right corner. The main content area displays "Cool Roofs" with an aerial view of houses with blue roofs. Below the image are navigation links: "HOW TO BUY", "BENEFITS", "MY SAVINGS", "TAKING ACTION", and "ABOUT COOL ROOFS".

<http://CoolCalifornia/cool-roofs>

Accelerated aging

What

Reduce time to achieve 3-year aged solar reflectance (SR) ratings for cool roof building codes & rebates

Why

Benefits of cool roofs depend on long term SR & need to introduce new technologies to market quickly

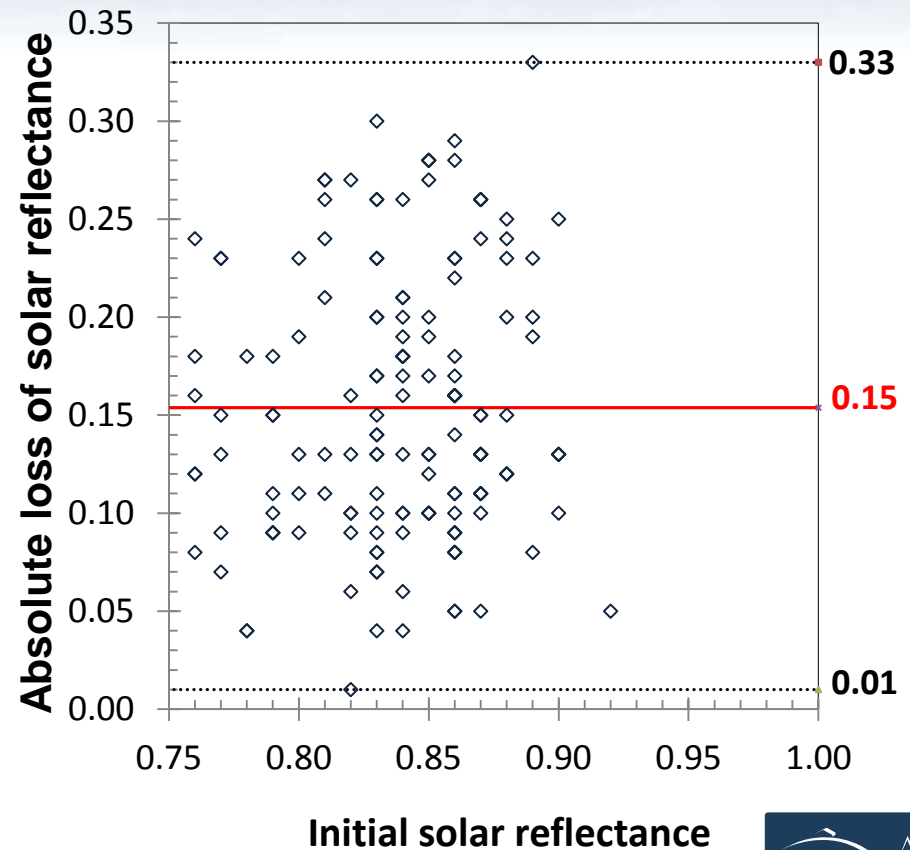
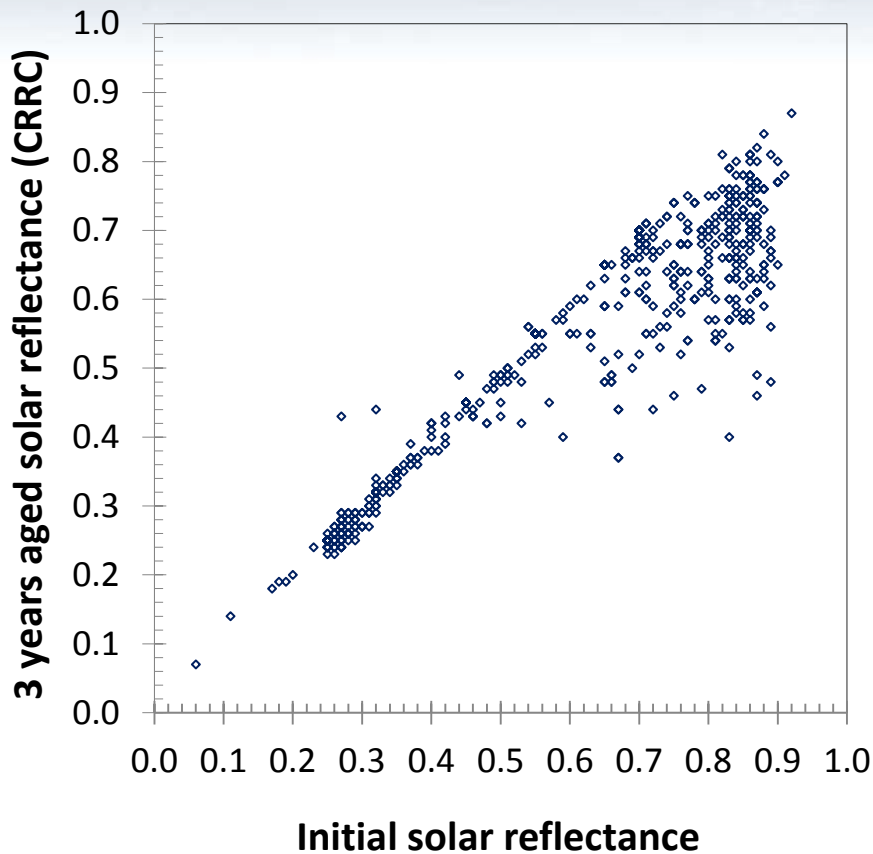
How

Draft laboratory protocols to mimic natural aging

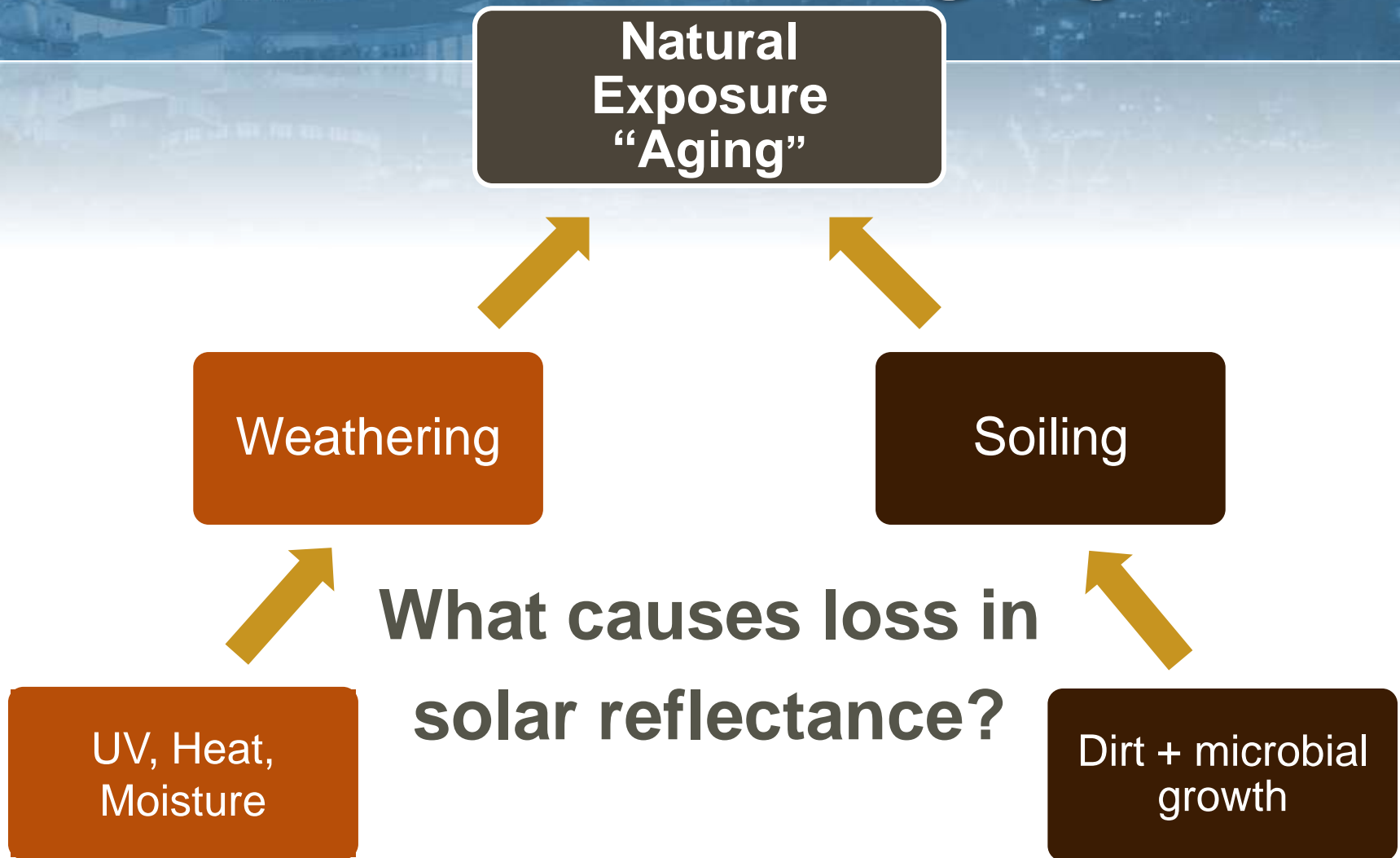


Accelerated aging

Natural exposure decreases SR – up to 40%

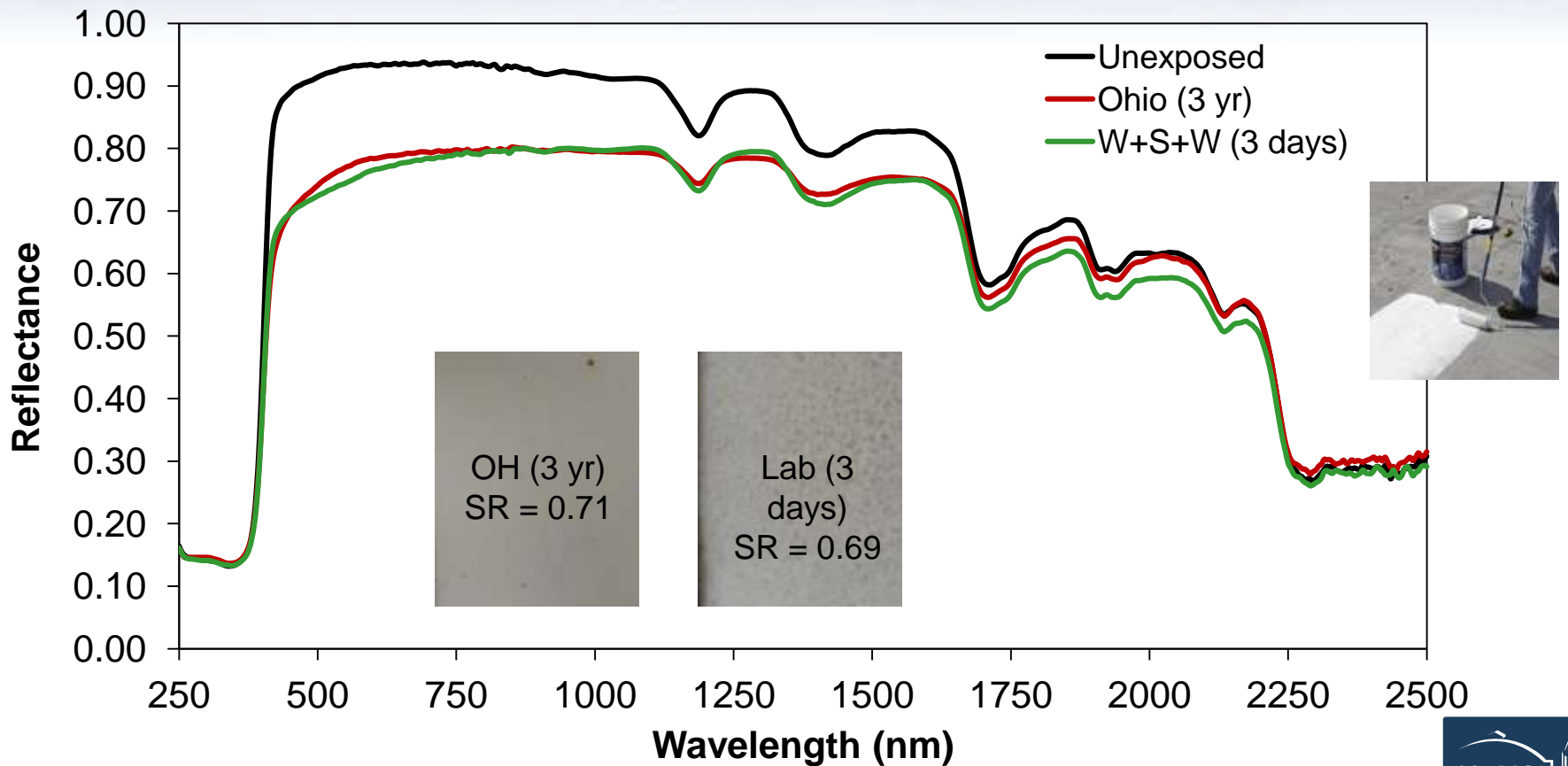


Accelerated aging



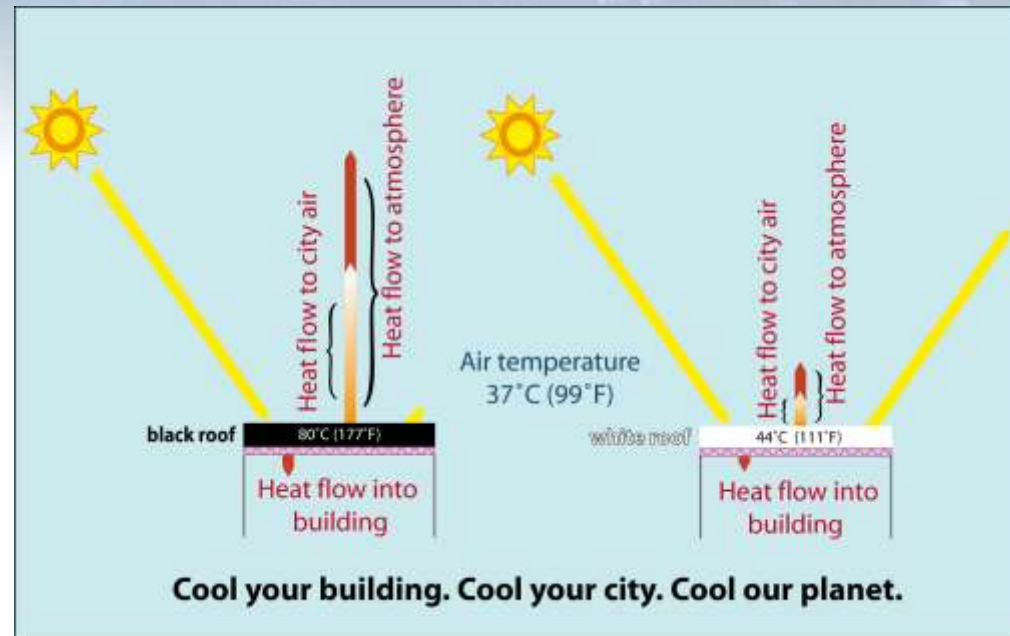
Accelerated aging

Accelerated protocols close match to nature



Other HIG research

- Global cooling modeling & field experiments
- Development of new “stay clean” products & more reflective asphalt shingles



Future HIG research

- Cool surfaces for school yards
- Demonstration cool pavement projects for roads & parking lots
- Models to estimate benefits of cool pavement & roof projects in communities



Learn more here!

HEAT ISLAND GROUP

Home | Cool Science | Projects | Resources | Staff | News | Publications

The Heat Island Group at Lawrence Berkeley National Laboratory works to cool buildings, cities, and the planet by making roofs, pavements, and cars cooler in the sun.

Urban Heat Island Effect

- Cool Roofs
- Cool Pavements
- Cool Cars
- Global Cooling

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IN THE NEWS:

- How Central Park cools the entire planet >
- White roots in "Doonesbury" >
- Berkeley lab hosts workshop on accelerated aging >
- HIG study investigates regional effects of cool roofs >

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