Development of Cool Colored Roofing Materials

Collaboration between ARC, LBNL and ORNL

Sponsored by the California Energy Commission
(Project Manager: Chris Scruton)
History of Research & Collaboration

- ARC explored many cool pigment coatings & selected seven to develop and promote which offer a wide color palette.
- ARC tested cool coatings in Southern California at Riverside Public Utilities on model buildings and demonstrated 5-7% savings in energy.
- ARC is testing cool coatings in Sacramento on houses in conjunction with Hanson Roofing and ORNL.
- ARC has trademarked these as COOLTILE IR COATINGS™ and is promoting them in eco-structures March/April issue.
- ARC is actively promoting these cool coatings to tile manufacturers with the intent of selling them on the OEM use of such cool products.
COOL TILE IR COATING™ technology was developed by Joe Reilly of American Rooftile Coatings
Product Testing on Model House in Southern California (RPU)
A-Style Homes Finished with Hanson Roof Tile and Stucco

House-1 4979 Mariah Place

House-3 4987 Mariah Place

COOL TILE IR COATING™
41% reflective

House-1 4979 Mariah Place
Cavalli Hills Roof Before Coating
Cavalli Hills After Coating
Cool Coating Reduces Heat Flux Through Ceiling

Hanson Tile Roofs

![Graph showing heat flux through ceiling over time with two lines representing Standard Color SR08 and CRCM SR41. The graph includes a date of 24-Aug-04 and units of Heat Flux in Watts/m² and Btu/hr-ft².]

American Roofing Coatings
Concrete and Clay tile and Painted Metals under exposure

Clay and Painted Metal exposed for 1½ years
Concrete Tile Coatings under exposure at all seven weathering sites
Eagletile Tiles with ARC Cool Coatings
MonierLifetile™ Black over White
ARC Ad for eco-structure
Research Issues

- Improving the reflectance of our coatings by including new functional pigments.
- Instruments to measure the solar reflectance of colored concrete tiles in the field on curved surfaces.
- Tools to estimate the cooling energy savings and peak demand reduction achieved by installing cool coatings on specific buildings. ARC believes real savings will exceed 5-7% seen for model buildings.
Monitor the solar reflectance and color change on roof materials installed at the California weathering sites.

Testing the solar reflectance, color change, and thermal performance of roofing materials at ORNL test facilities.

Market deployment and large-scale demonstration; this could be driven by rebate or tax credit incentives.