

THE ARIZONA REPUBLIC

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EDITORIAL

Editorials represent the opinion of the newspaper, whose Editorial Board consists of: Phil Boas, Richard de Uriarte, Jennifer Dokes, Cindy Hernandez, Kathleen Ingley, Doug MacEachern, Joel Nilsson, Dan Nowicki, O. Ricardo Pimentel, Robert Robb, Paul Schatt, Linda Valdez, Ken Western and Steve Benson.

Reflecting the heat

Our stand: 'Cool roofs' can cut utility costs and make life more comfortable

Wave a magic wand and make the Valley cooler. Sure, it's fantasy. But we can come close.

Just change a roof. Light-colored roofs, made of materials that don't give off much heat, cut a building's air-conditioning bills. And they help us all by reducing the buildup of heat in the day and by shedding heat quickly at night.

The effect is immediate. As soon as a light coating is applied, a roof becomes cooler. The roof temperatures on two medical buildings and a drugstore in California dropped 70 degrees immediately after a reflective coating was applied.

Installing light colored roofs throughout Phoenix would save an estimated \$37 million a year in electricity.

You'd think "cool roofs" would be a no-brainer in the Valley, at least in commercial buildings.

Think again.

Cool roofs have been astonishingly slow to catch on. We need governments to set an example in public buildings, a public push to spread the word and incentives to get the ball rolling.

A cool roof needs to do two things: reflect a lot of sunlight instead of absorbing the heat energy, and get rid of the heat it does store very quickly. Most roofing fares well on the second point, but there are huge variations in reflectivity.

Asphalt shingles, even white ones, do poorly. Dark brown shingles reflect only 8 percent of the light that strikes them and can be 79 degrees hotter than air temperature.

That's about the mirror image of specially designed

white coatings, which reflect 85 percent of sunlight and gain just 9 degrees.

Tucson put a white coating on the roof of an administration building that had been metal and black. Vinnie Hunt, energy manager in the city's Operations Department, admits he was "kind of skeptical up front." The results amazed him. Electricity costs dropped \$4,000 to \$4,500 a year, and the project will pay for itself within six years.

Phoenix has a few pilot projects and is looking at roof reflectivity requirements as it makes city building standards more "green."

The right course is obvious: Cool roofing should be the standard for government buildings here.

We need progress on the commercial side, too.

Jerry Brown, head of the Arizona Cool Roof Council, figures that just 5 percent of commercial roofs in the Valley are "cool." In Tucson, by contrast, Brown says that the vast majority are cool.

Obviously, we need a big awareness-raising campaign.

We should also consider carrots, either financial or preferred treatment.

California, in the wake of its energy crisis, offered rebates to encourage cool roofs. The \$11 million program cooled off 55.7 million square feet of roofs, saving 19.5 megawatts in electric demand (a megawatt powers about 250 homes in the Valley).

The Sacramento Municipal Utility District has been a leader in encouraging cool roofs, part of its strategy to meet a California mandate to control demand. It originally offered rebates of 20 cents a square foot, but has gone to 10 cents, with plans to phase out the money as cool roofs become an industry standard.

Scottsdale is giving a push to cool roofs, which count as a credit for developers trying to meet its green-building standards. Besides the marketing benefits of being environmentally friendly and energy efficient, developers get expedited review if they follow the standards.

Other Valley cities should at least play catch-up with Scottsdale. And Scottsdale should consider going further for commercial construction.

Residential roofs are a tough challenge for now.

Most cool roofing is designed for flat roofs, but most houses these days have pitched roofs, and the options are relatively limited. A California manufacturer, MCA, makes clay tiles that reflect 50 percent or more of sunlight, better than typical tiles and with an Energy Star



Arizona Cool Roof Council

Workers finish installation of a "cool roof" on Prescott High School. Such roofs should be required on municipal buildings.

rating from the U.S. Environmental Protection Agency. There's no additional cost for the tiles.

Technological advances may be able to boost reflectivity on other products for pitched roofs while staying within a color range that homeowners would accept. Because aesthetics are an issue.

To help buildings blend into the desert, many homeowner associations restrict how reflective a house or roof can be. So do Scottsdale's development rules for the northern part of the city.

But even with a flat roof, hidden by a parapet, retired architect Donald Grieb had a battle with the HOA after he installed a white roof on his north Scottsdale home. He figures the light-colored roof cuts his electric bill by at least one-fourth.

Dollars and cents are a persuasive argument for light-colored roofs on individual buildings. Widespread use of cool roofs would also reduce the buildup of heat in the urban area.

That's magic we can all appreciate.

Written and researched by Kathleen Ingley.

Series at a glance

PART 1: The Valley's urban area generates extra heat, putting a burden on our comfort, our wallets and our health. It's time to fight back. (Sunday, Sept. 14)

TODAY: Turn roofs into solutions, not problems.

PART 3: Use the cooling power of trees.

PART 4: Make roads more reflective.

Information: <http://eetd.lbl.gov/HeatIsland>.

SUNSTROKE



Our urban heat island, and how to escape it