



Why You Should Get a White Roof Or not.

Source: [Washington City Paper](#)

By Cecil Adams

I ran across your 1984 Straight Dope column about whether water freezes or boils in outer space. (You said it boils, then freezes.) You mentioned that polished aluminum in space can absorb enough solar radiation to reach 850 degrees, but some types of white paint will absorb so little they will reach only -40 degrees. Are any of these paints suitable for use on houses to keep them cooler in the summer? — Walter Carmichael, Tampa, Fla.



You're not the first person to think what works in space might work on earth. Last summer [U.S. Energy Secretary Steven Chu](#) called on Americans to either paint their roofs white or replace their shingles with white materials. To understand why, you don't need to travel in space, just compare black and white car seats on a hot summer day. Sure, the white seat will get pretty warm, but the black seat will just about sear your flesh.

How much good will a *white roof* do you? Example: The Hyperseal company claims its Hyperglass paint, which contains glass microspheres to help reflect sunlight and insulate the roof, can keep your roof as cool as 112 degrees on a 100-degree day. That may sound pretty toasty, but compare it to a black asphalt roof, which on a 100-degree day can reach 182 degrees. According to Lawrence Berkeley Laboratories, white-coated roofs can reflect 60 to 85 percent of the solar energy that hits them and stay as little as nine degrees above air temperature. Dark-colored roofs, by contrast, typically reflect 20 percent of sunlight or less, and a black asphalt roof reflects only 5 percent. I'm guessing few people are crazy enough to install a black asphalt roof in Tampa, but if your roof is a darkish color, you might think about switching to white.

What if a *white roof* just isn't you? One might think a shiny metal roof would be a reasonable alternative, but don't be too sure—metal roofs often don't release the thermal radiation they've absorbed as efficiently as white ones. Other disadvantages of metal

Energy Seal Coatings

Acrylic Coatings for Roof and Wall Applications



roofs include poor sound insulation, susceptibility to hail damage, and cost, so for most folks they're not the best choice.

A white (or at least light-colored) roof provides two benefits. The first is reduced air conditioning costs, which can drop 15 to 20 percent. The second benefit is more cosmic. A lighter-colored roof will reflect as much as 80 percent of the solar radiation that hits your house back into space. This increases the albedo (reflectivity) of the planet, which could help reduce global warming—surely a worthwhile goal for any home improvement project.

The anti-warming effects can pay off on the local level too, reducing smog and generally making the neighborhood more livable. Light-colored roofs have a couple downsides—they get dirty. Rain helps some, but over time your roof is going to accumulate tree sap, bird poop, and other species of urban crud, and you'll have to clean it off to maintain the energy savings. One study found on average a *white roof* can lose 20 percent of its heat reflectivity in just a year. A cooler roof also means your house soaks up less sunlight in the winter, resulting in higher heating bills. On the whole, though, the tradeoff tends to be favorable. How favorable will vary with local climate.

Other possible pitfalls include blinding your neighbors and fighting with the aesthetics committee of your homeowners' association. Another issue is that energy prices are relatively low at the moment—in most cases it's not economically worthwhile to replace a roof with some remaining useful life. However, if yours is due for replacement soon, or simply painting it is an option, I'd give a cool roof some thought. You could save a couple bucks and help make this a better world.