



Chicago's Battle of the Roofs: Green vs. White

Two public buildings competed to see which type of roof would reduce their electric bill the most. The result may surprise you.

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Last spring, Cook County, Ill., was crowned victor of the "[Battle of the Bulbs](#)" competition, which pitted the Cook County Building against the Chicago City Hall in a race to see who could reduce their electrical bill the most. Ultimately, Cook County saved more than \$65,000; the city saved a little less than \$22,000.

The catch is that the two share more than just a healthy sense of competition and a goal to save the environment. They share a building. The Cook County Building and the [Chicago City Hall](#) are one and the same. But that's where the sharing ends. They have separate addresses, entrances, HVAC systems, fire alarm systems -- and, yes, even two separate roofs. Cook County's is colored white, while the rooftop on the City Hall's side is green, covered in plants and trees.

And each side thinks its roof is better.

It all started in 2001, when then-Mayor Richard Daley called for a [green roof](#) atop City Hall. The city planted 20,000 plants in 150 varieties -- all chosen because they could thrive without an irrigation system and could withstand Chicago's notorious wind. The summer the new rooftop was completed, the city measured the surface temperatures: The green roof averaged 50 to 70 degrees cooler than the county's adjacent black tar roof.

Then in 2010, [Cook County](#) decided to lay down [white-coated roofing](#) membranes, to reflect sunlight and ultraviolet waves, on its side of the building. This time the county had the edge: Its white roof turned out to be 2 degrees cooler than the city's green roof.

So which is better -- white or green? Of course they're both vast improvements on traditional black roofs, which attract and retain heat from the sun, making it costlier and more energy inefficient to cool a building's interior. Both white roofs and green roofs mitigate the "[urban heat island](#)" effect by helping reduce city temperatures one building at a time. But white roofs are far easier to install and maintain than green roofs. They're cheaper -- white roofs can be as simple as a coat of paint, but even the membranes like Cook County's are considerably more affordable than planting green roofs. And white roofs don't require any special engineering. The benefits are similar to those of a green roof, but without as much investment, says Jim D'Amico, director of the Cook County Department of Facilities Management. "We get all the same advantages for a lot less."

Well, not quite all the same advantages. Green roofs not only reflect heat, they help tackle air pollution by absorbing and processing greenhouse gas emissions. They also collect rainfall and help with stormwater runoff; Chicago's green roof collects about 60 percent of the rainwater that falls on it, meaning that's water that doesn't churn through the city's sewer system. Green roofs provide pocket habitats for urban birds too. Then there are the aesthetics: Many green roofs are open to employees or to the public (although Chicago's City Hall roof is not), providing a quiet spot of parkland in the middle of a dense downtown.

For those reasons, green roofs may be worth the higher upfront investment -- which can run as much as \$30 per square foot -- and the maintenance costs. But even the far less expensive white roofs will dramatically cool buildings once the summer sun returns.