

Los Angeles implements cool roof ordinance to address city's urban heat island effect

September
2016

Q&A interview with Osama Younan

On a sunny afternoon, the typically dark, impermeable surfaces of urban roofs and pavements can get warm in the sun and in turn heat the air. The air temperature in nearby rural areas tends to be cooler, because those surfaces are more reflective and permeable.

Higher urban air temperatures compared to rural air temperatures is called the [urban heat island effect](#). Urban heat islands (“UHIs”) can increase energy use, degrade air quality and aggravate heat-related illnesses in cities. In addition, there is concern about UHIs contributing to global warming.

Over the past decade, metropolitan areas have worked to address the UHI effect – on a national and global scale. As the second-largest urban region in the U.S., and with the highest heat island effect in California¹, Los Angeles has demonstrated strong commitment and leadership with these efforts. LA’s [“cool community”](#) strategies include cool roofs, pavements, walls and urban vegetation measures. In 2015, LA became the first major city to mandate cool roofs for new residential construction projects in response to the heat island effect.

Los Angeles Cool Roof Ordinance

The first of its kind, the Los Angeles Cool Roof Ordinance² is intended to help the city:

- become more resilient and healthier on hot days
- reduce heat-related hospitalizations
- improve air quality by reducing the formation of ozone
- inoculate against power outages
- reduce homeowners’ electricity bills
- reduce greenhouse gas emissions
- provide a more pleasant home environment

By helping to keep temperatures down, cool roofs can help protect lives, lower bills by increasing energy efficiency, and help combat global climate change at the local level.³

Cool roofs reflect more sunlight and absorb less heat than a standard roof, thereby saving energy and money by using less air conditioning. Installing a cool roof instead of a warm roof can benefit buildings, cities, and the planet by reducing:

- conduction of heat into the building
- convection of heat into the outside air
- thermal radiation of heat into the atmosphere⁴

To learn more about the cool roof ordinance, its reach and impact, we spoke with the Los Angeles Department of Building Safety Division Chief, Osama Younan.

Hi, Mr. Younan. Thank you for meeting with us. Can you start by telling us about your background? How did you come into this position, and what is your role when it comes to green building in the city of Los Angeles?

As Division Chief with the Department of Building and Safety, one of my responsibilities is to oversee the green building section, established in 2011 to implement the state CALGreen Code. Los Angeles has been proactive in green building construction for many years, so when the state published the CALGreen Code, we embraced it and made sure to implement it effectively and in a practical and reasonable way to achieve the maximum environmental benefits while continuing to provide guidance and good customer service to our development community.

What is the CALGreen Code?

The [California Green Building Standards Code](#), or CALGreen Code, was the first statewide green building code. The City made a number of local amendments to address local environmental issues and make the code in line with the City's goals relating to green buildings and sustainability. Requiring cool roofs on residential buildings was one of the amendments. A number of the local amendments that were adopted by the City were eventually adopted into the State Code.

Why? What was your main objective with the cool roof ordinance? When did it take effect?

The goal of the ordinance was to address the heat island effect that the city suffers from. Reduced energy consumption is an indirect benefit from having a cool roof, so there are energy savings. In March 2013, the City helped convene a cool roofs conference where researchers, policy makers, industry representatives and other stakeholders gathered to discuss cool roofs. The conference identified the benefits of cool roofs and the negative effects of the urban heat island effect that the City suffers from. In recognizing the heat island problems and the cool roof benefits, in July 2014, the City passed an ordinance amending the CalGreen Code to require cool roofs on residential buildings. The amendment took full effect January 1, 2015.

Cool roofs can save property owners money and benefit the environment. But, are cool roofs more expensive than standard roofs?

We looked at cost while developing the ordinance and found out that tiles, flat roofs and coatings had little or no increased costs over non-cool roofs. However, cost can increase for asphalt shingle roofs. To offset increased costs, the Los Angeles Department of Water and Power created a cool roof rebate that offers \$0.20-\$0.30 per square foot of cool roofing.

What has been the general response from residential homeowners? How long do you think it will be before cool roofing is widespread in the city?

Overall, the implementation has been smooth. The cool requirements are triggered only when new work is performed, such as re-roofs or new roofs. Based on that, we will see an incremental increase in cool roofs.

Were there any barriers to implementation?

Initially, there was concern over product availability and cost. Since we started implementation, things have been smooth overall.

That makes sense. Los Angeles seems to be very proactive with these initiatives. Why do you think that is? What do you think has led to your success as a trailblazer in this area?

I believe the City has a history of being very proactive on environmental issues, green building construction and green building codes. The City has great leadership who are very proactive and well informed. We also work very closely with our stakeholders to get their input and to make sure our local amendments and initiatives are reasonable and practical.

How would you position this for other communities?

It's up to each city to evaluate their specific needs. If any city decides to mandate cool roofs, we will be very happy and willing to share the information and research that we gathered.

That's great. Thank you. Do you have any closing thoughts?

I would like to underscore that the cool roof provision that the city came up with was to address the heat island effect. Of course, there are indirect benefits such as the reduction in energy consumption. Additionally, there were other provisions made in that regard, but cool roofs get more attention. As the market transforms, this provision may be adopted by other cities or make its way into the State Code.

Absolutely—we agree. Thank you, Mr. Younan, for your time. We look forward to watching the continued progress and impact of this ordinance.

At 3M, we understand that Los Angeles may be ahead of the curve when it comes to implementing a cool roofing initiative, but cool roofing products are available to any contractor and homeowner interested in energy efficiency. As green initiatives take shape across the country—and the world—it's important to be educated about the science behind these energy efficient shingles and how they can contribute to energy savings and green building efforts. Click to learn more about [3M Sustainability Goals](#) and energy-efficient [3M™ Cool Roof Granules](#).

References

1 Totten, Sanden. "LA area has highest urban heat island effect in California" 21 Sept. 2015. *Southern California Public Radio*. Web. 14 July 2016.

2 "LA: First Major City to Mandate Cool Roofs on All New Residences." *Climate Resolve*. 17 December 2013.

3 Phillips, Ari. "Los Angeles Becomes First Major City to Require 'Cool Roofs.'" *Climate Progress*. 18 Dec. 2013. *Think Progress*. Web. 14 July 2016.

4 "Cool Science, Cool Roofs." *Heat Island Group*. Lawrence Berkeley National Laboratory.



3M Industrial Mineral Products

3M Center, Building 0220-3-E-11
St. Paul, MN 55144 USA

Phone 1-800-447-2914

Fax 1-651-736-8474

Web 3M.com/roofinggranules

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