# NYC°CoolRoofs

## Annual Review 2011

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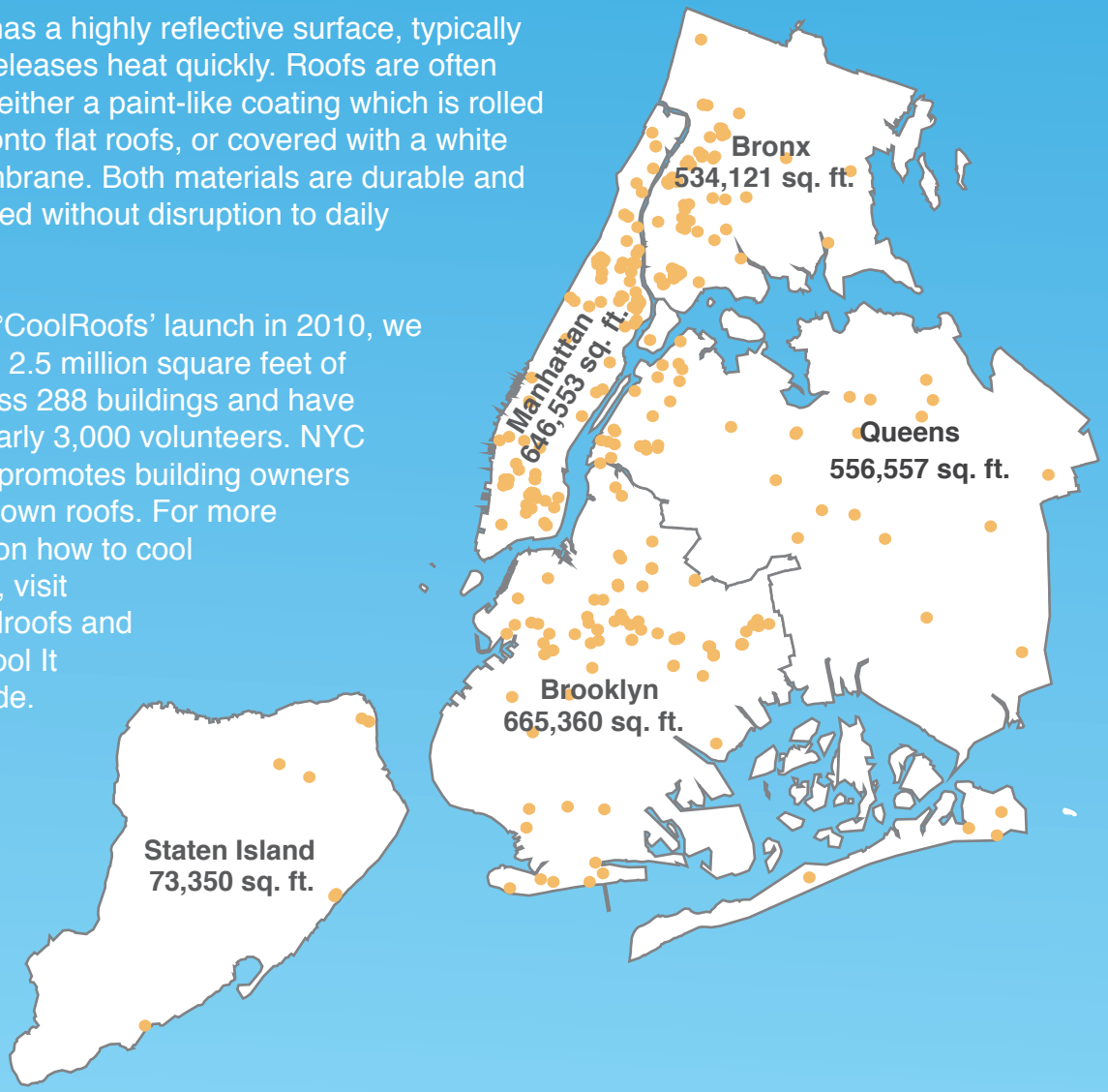
# About NYC °CoolRoofs

NYC °CoolRoofs, an initiative of NYC Service and the NYC Department of Buildings, encourages building owners to cool their rooftops with a white reflective coating that reduces energy consumption, cooling costs and carbon emissions. Utilizing the power of volunteers, NYC °CoolRoofs aims to coat 1 million square feet of rooftop each season. The program supports New York City's goal to reduce greenhouse gas emissions by 30% by 2030.

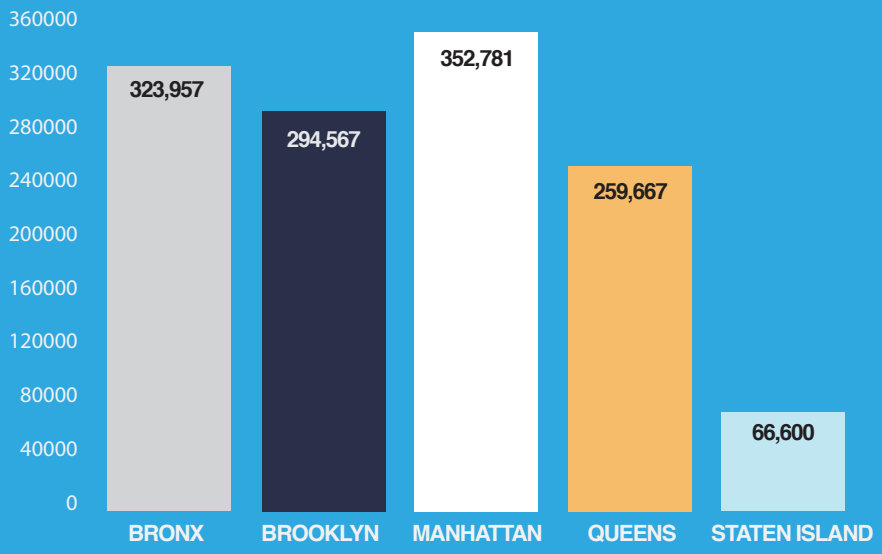
A cool roof has a highly reflective surface, typically white, and releases heat quickly. Roofs are often coated with either a paint-like coating which is rolled or sprayed onto flat roofs, or covered with a white rooftop membrane. Both materials are durable and easily installed without disruption to daily operations.

Since NYC °CoolRoofs' launch in 2010, we have coated 2.5 million square feet of rooftop across 288 buildings and have engaged nearly 3,000 volunteers. NYC °CoolRoofs promotes building owners to cool their own roofs. For more information on how to cool your rooftop, visit nyc.gov/coolroofs and read our °Cool It Yourself guide.

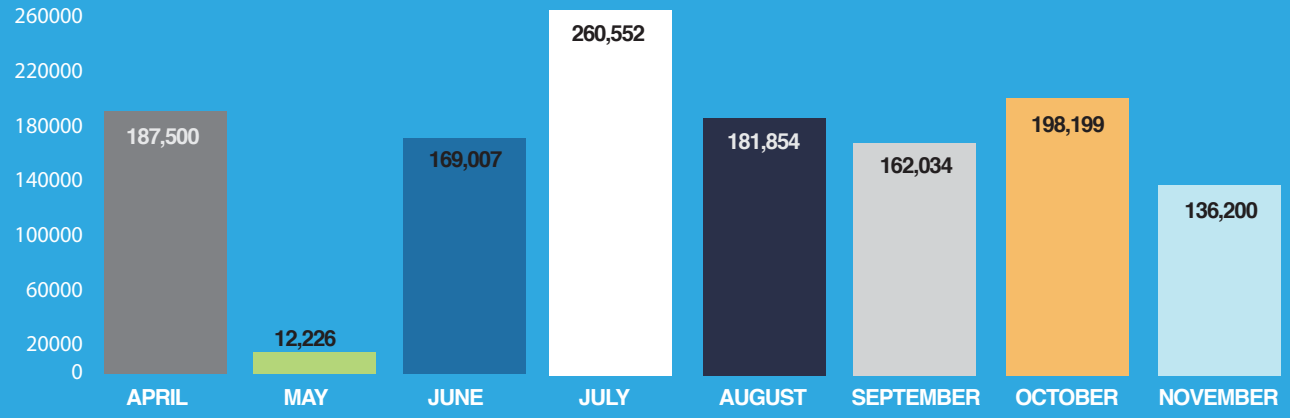



# Season in Review

## Coating by Borough




## Coating by Month




## 2011 Coating Season by the Numbers

**1.3** million square feet coated
**2,991** buckets of coating used
**1,239** volunteers
**153** buildings
**281** Facebook fans &
**592** followers on Twitter,
both launched in 2011

# Impact of Cool Roofs

Columbia University Center for Climate Systems Research

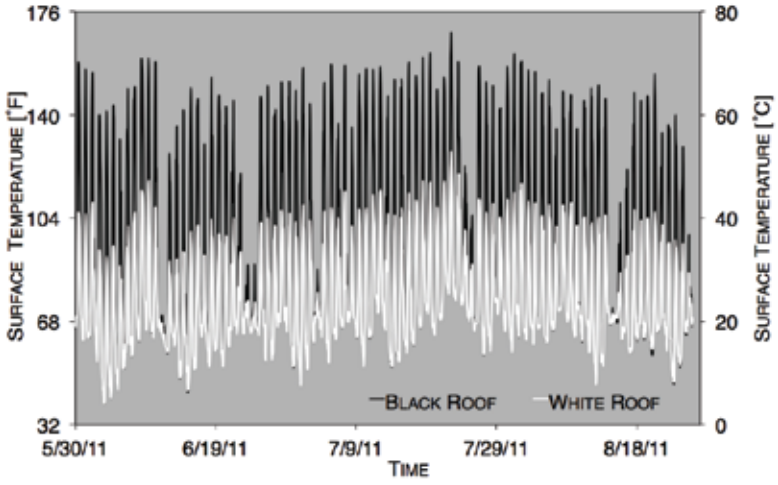
To gauge more specific environmental performance, several sites participating in NYC °CoolRoofs are currently being monitored by Columbia University's Center for Climate Systems Research, which will be reporting on the temperature, energy and cost savings generated by cool roofs in participating buildings.


Using three New York City roofs, two that are made of professional single-ply white membranes and one white acrylic paint coated roof with the original black asphalt roof left partially uncoated as a control, Professor Stuart Gaffin and colleagues at NASA track the temperatures and effectiveness of cool roofs.

With just one year of comparison data collected, the results are promising:

**Cool roofs last longer.** Temperature changes cause roofing material to expand and contract, causing basic roof wear and tear. Because black roofs reach higher temperatures than white roofs, they undergo higher levels of this temperature-induced stress and as a result, experience wear and tear at a more rapid rate. Cool roofs, with their lower peak temperatures, increase roof longevity. This was true for all three roofs Gaffin observed; the side-by-side comparison of rooftop confirmed that black roofs undergo more stresses and more rapid degradation over time, so white coating is likely to significantly increase roof membrane lifetime.

**Cool roofs in New York City average almost 75 degrees cooler than black roofs.** Of the roofs under examination, black uncoated sections were on average 43 degrees Fahrenheit warmer than the white coated sections of the same roof around noon in the Summer. Here are the temperature readings from the roof of the Museum of Modern Art in Long Island City Queens showing an average temperature reduction of 43 degrees on the white portion of the roof!




Gaffin, S.R., M. Imhoff, C. Rosenzweig, R. Khanbilvardi, A. Pasqualini, A.Y.Y. Kong, D. Grillo, A. Freed, D. Hillel, and E. Hartung, 2012: Bright is the new black — multi-year performance of high-albedo roofs in an urban climate. Environ. Res. Lett., 7, 014029, doi:10.1088/1748-9326/7/1/014029.

# Volunteers

Volunteers are vital to the success of NYC °CoolRoofs. The program is an ideal opportunity for New Yorkers to make the City more sustainable.

This season, 1,239 volunteers participated in coating days throughout the five boroughs helping the initiative to exceed the goal of coating 1 million square feet.

"Con Edison volunteers armed with rollers and paint brushes have been creating Cool Roofs throughout New York City, helping to put white roof coatings on buildings like YMCA branches and the Brooklyn Public Library in Grand Army Plaza. Saving energy and money is part of the equation; demonstrating what's possible and working together to help save our environment is the other." - Frances A. Resheske, senior vice president, Public Affairs, Con Edison

# °Cool It Yourself

Private residents, building owners, and contractors have also contributed to the success of NYC °CoolRoofs by voluntarily cooling their own rooftops. In addition, NYC Building Codes mandate cool roof installation for buildings that meet certain criteria.

An increased emphasis on outreach to these private residents, building owners, and contractors throughout the 2011 season has resulted in increased reporting of independently cooled roofs.

°Cool It Yourself cool roofs accounted for nearly 600,000 square feet of our 2011 total.

# Partners

Community partners are crucial to the many facets of NYC °CoolRoofs. City agencies, corporations and corporate volunteer groups, nonprofit organizations, and research institutions generously donated resources in 2011 to support the continued progress of the initiative.

**Lead Sponsors:**

Consolidated Edison Company
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**Government Partners:**

Brooklyn Public Library
The City University of New York (CUNY)
Mayor's Office of Operations
New York City Housing Authority (NYCHA)
New York City Department of Citywide Services (DCAS)
New York City Department of Homeless Services (DHS)
New York City Department of Parks and Recreations (Parks)
New York Police Department (NYPD)
New York City Department of Transportation (DOT)
PlaNYC

**Community and Non Profit Partners:**

Bronx Pro Real Estate Management, Inc.
Community Environmental Center (CEC)
Fordham Bedford Housing Corporation
Green City Force
Mayor's Fund to Advance New York City
White Roof Project
YMCA

**Totally °Cool Corporate Days:**

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Consolidated Edison Company
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Museum of Modern Art


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