Expanding Cool Roof Awareness & Adoption in Metro-Boston

Cool Roof Rating Council

Annual Meeting

6/11/2025

MAPC

Source: Pine Street Inn

What is MAPC?

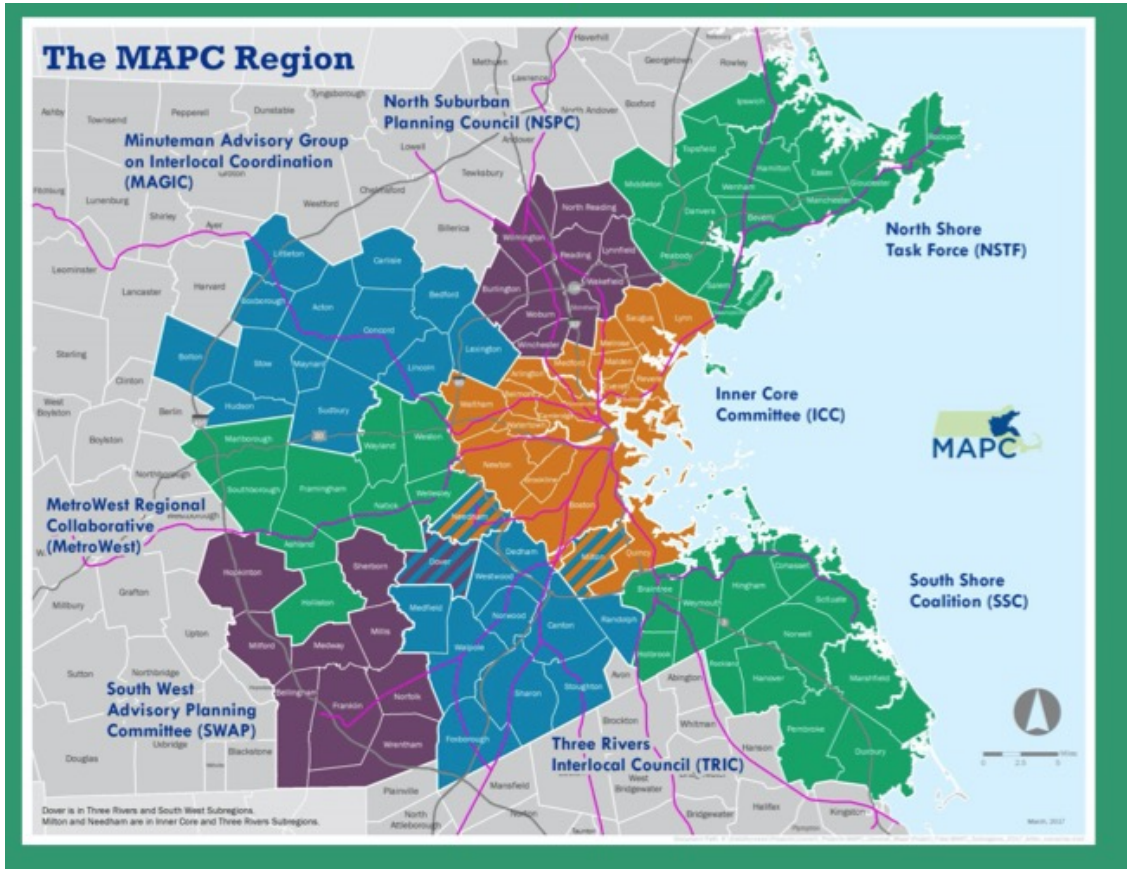
The Metropolitan Area Planning Council (MAPC) is the regional planning agency serving the people who live and work in the 101 cities and towns of the Metropolitan Boston region.

Our Mission

We work toward a more equitable, sustainable, collaborative, and climate resilient future for the people who live and work in Greater Boston.

Areas of Work

arts and culture, clean energy, climate, community engagement, land use planning, economic development, environment, housing, public health, public safety, transportation, public procurement

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SURINAME
FRENCH GUIANA (FRANCE)
GUYANA
COLOMBIA
ATLANTIC OCEAN
ECUADOR
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PERU
Brasília
BOLIVIA
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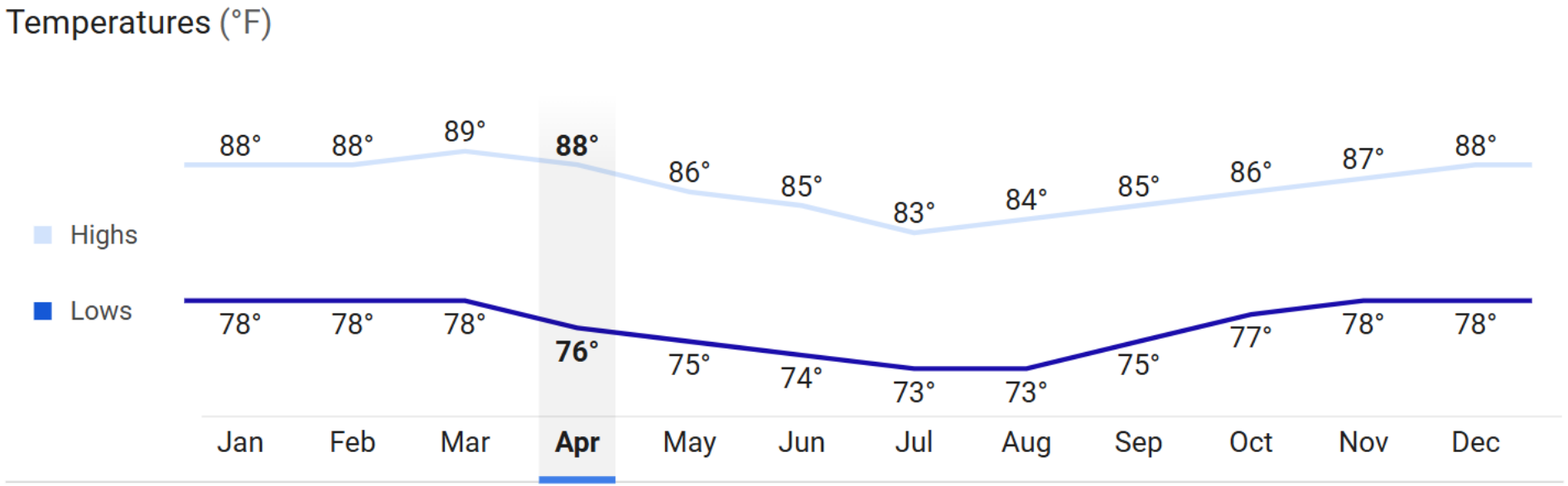
Source: Metropoles

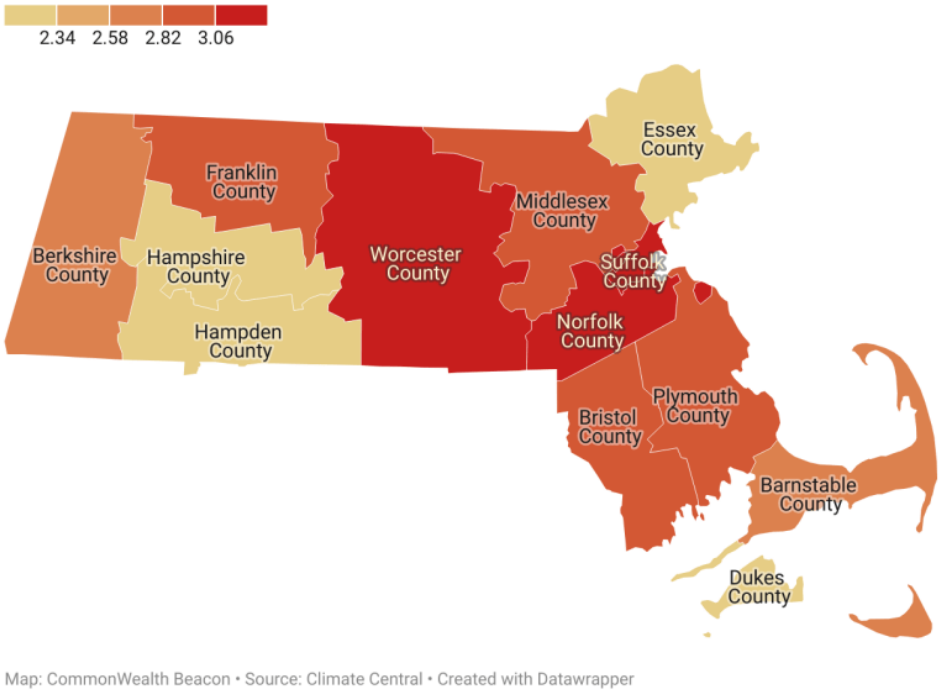


Source:
NOAA

Source:
Recife Ordinario

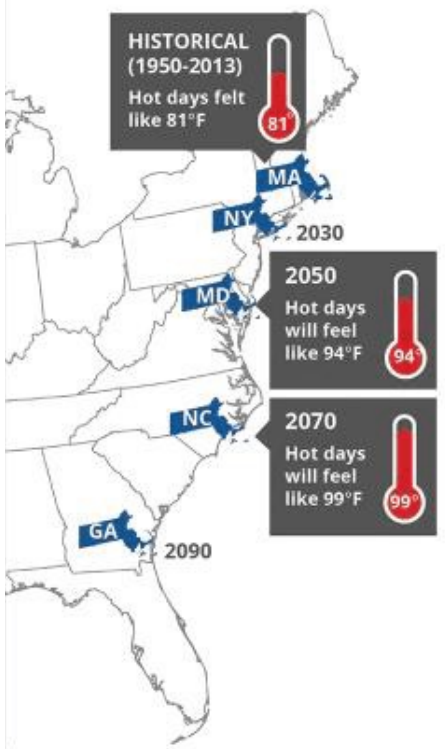
Heat: A Growing Threat in our Region

Average Summer Temperature Change by MA County, 1970-2024



Map: CommonWealth Beacon • Source: Climate Central • Created with Datawrapper

Climate Projections for Average Summertime Temperatures in MA



Source: Massachusetts Climate Change Assessment

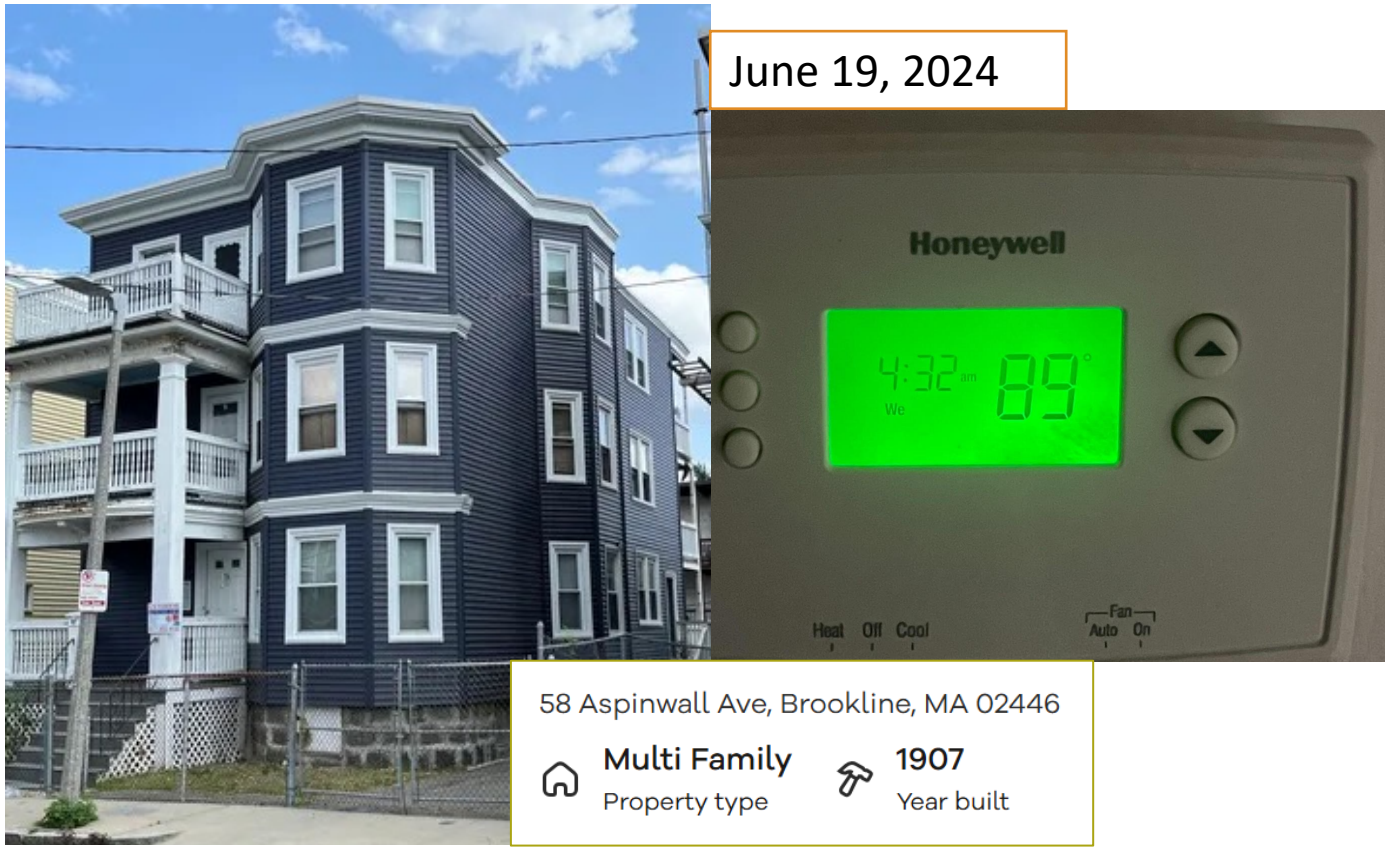
[redacted] May 1st at 10:08 AM

As someone who grew up in Phoenix and lived for 20+ years in NC, I thought I could handle Boston heat...but I just can't some days.

Heat: A Growing Threat in our Region

Old Infrastructure not built for prolonged heat

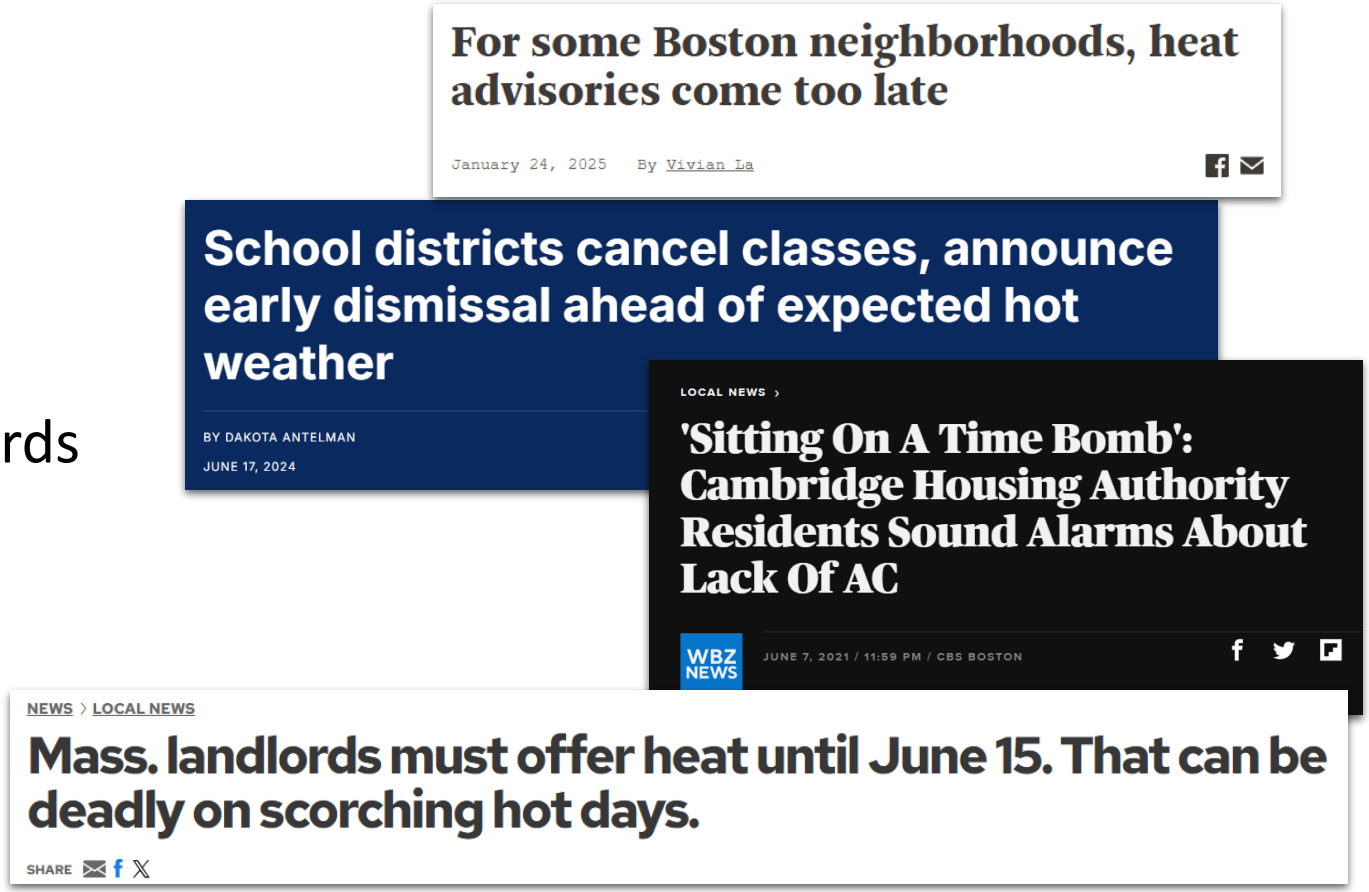
- MA has the 2nd oldest median housing stock in the U.S.
- 28% of buildings in the project region are small 2 or 3-unit multi-family buildings



Heat: A Growing Threat in our Region

Systems and protocols are insufficient and/or outdated

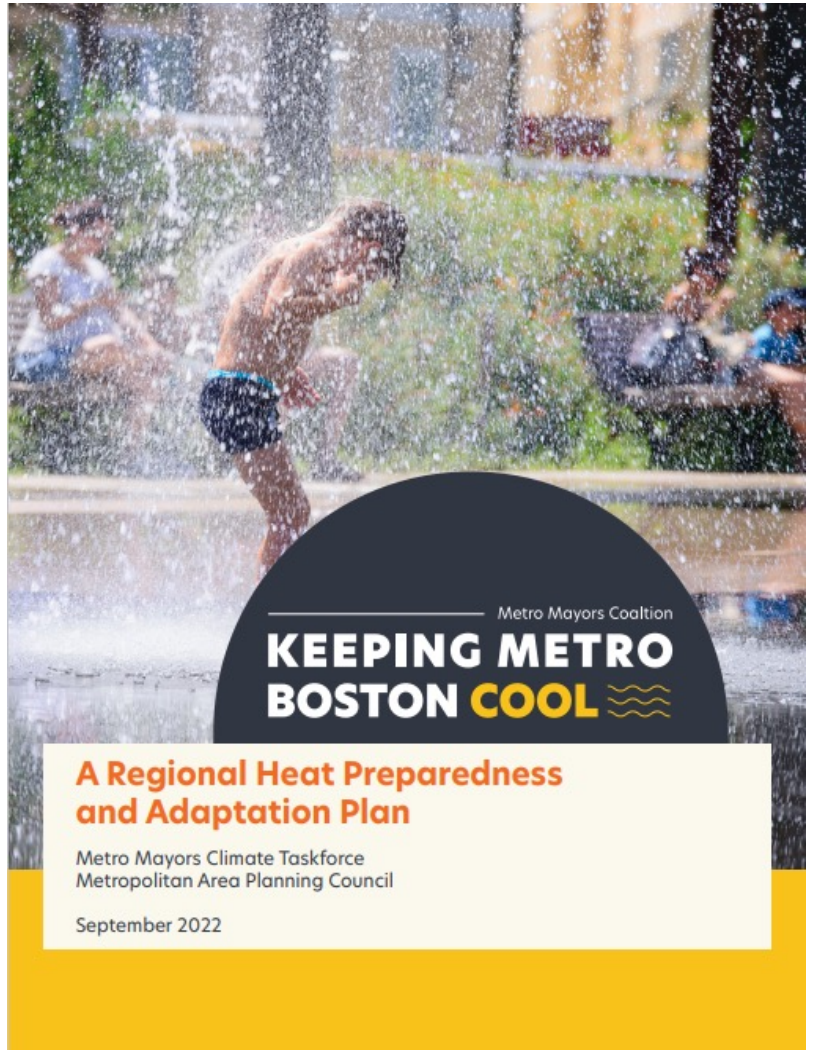
- No state income-based cooling assistance
- No standards to protect outdoor workers (or indoor workers w/o AC) from extreme heat
- No cooling requirement from landlords



Metro-Boston Heat Adaptation Plan

Strategic Focus Areas

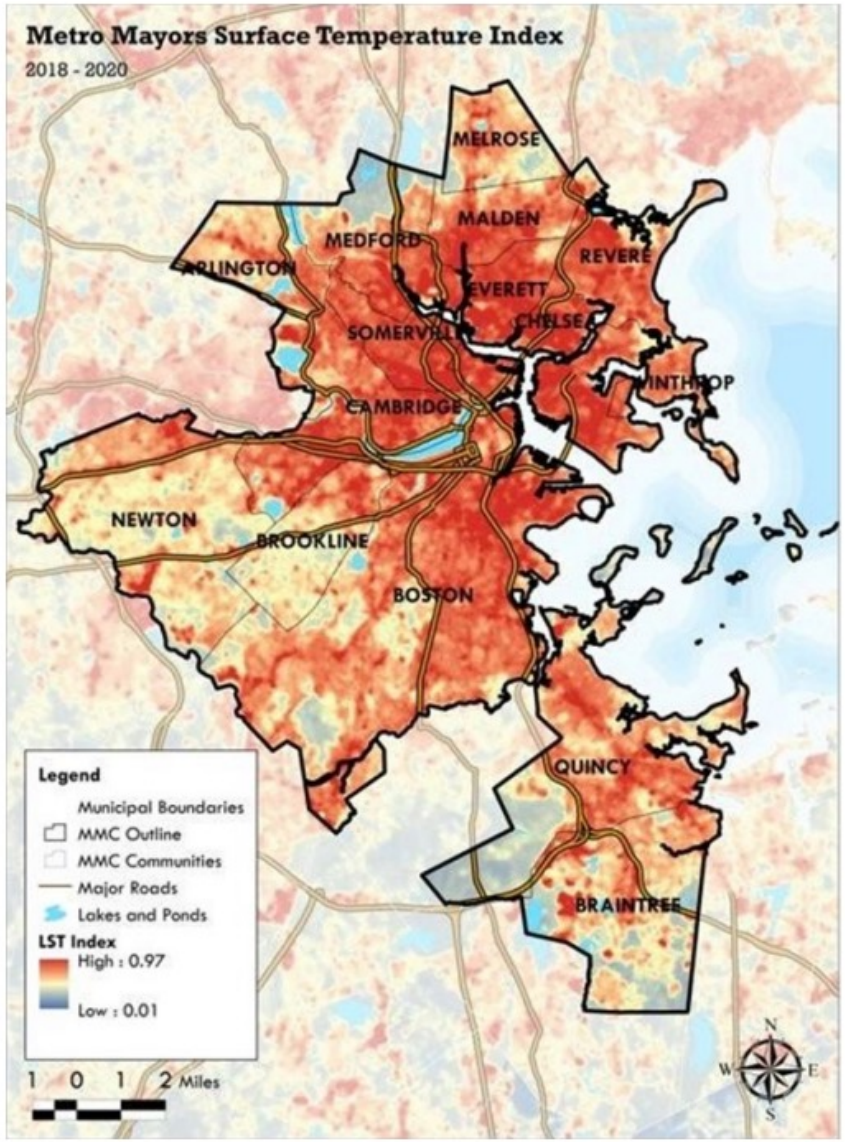
- Cool communications
- Cool communities
- Cooling our homes and buildings
- Cooling our blocks
- Cooling our region
- Emergency response (SOS)



Cool Roofs Project Overview

Goal: To promote adoption of cool roofs in the Metro Mayors region through developing support tools and resources.

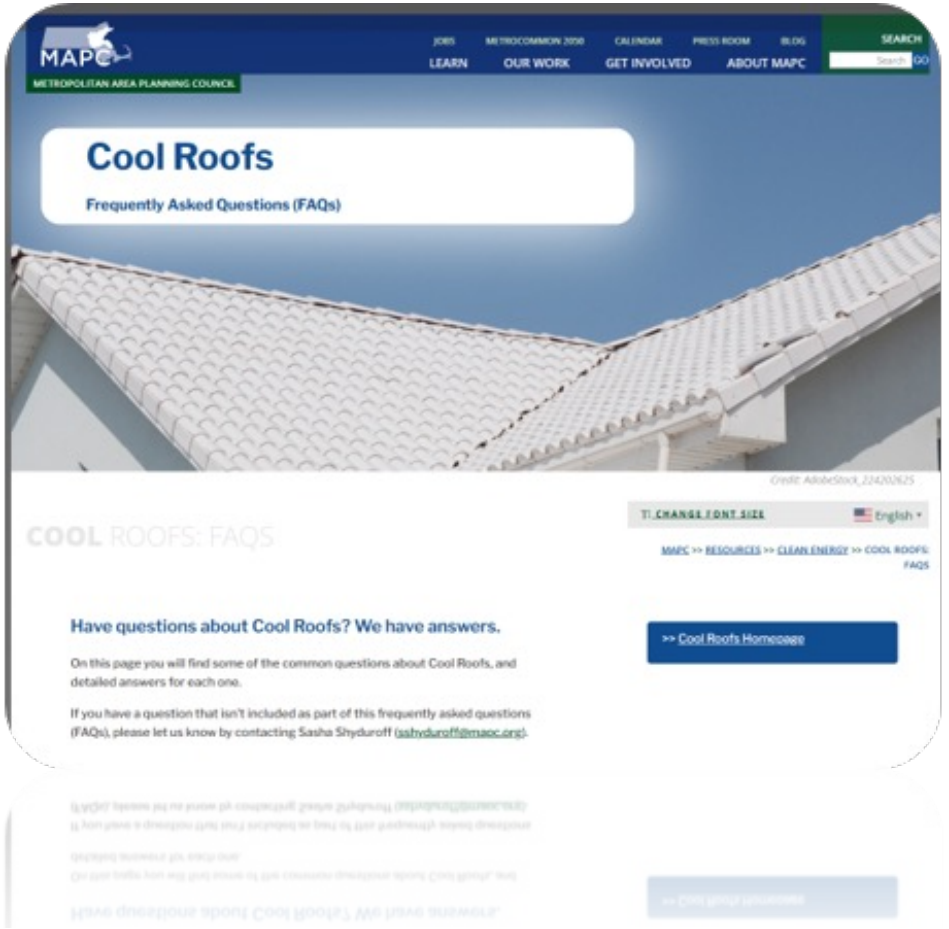
Metro Mayors Coaltion
CLIMATE TASKFORCE



MAPC

Tools & Resources

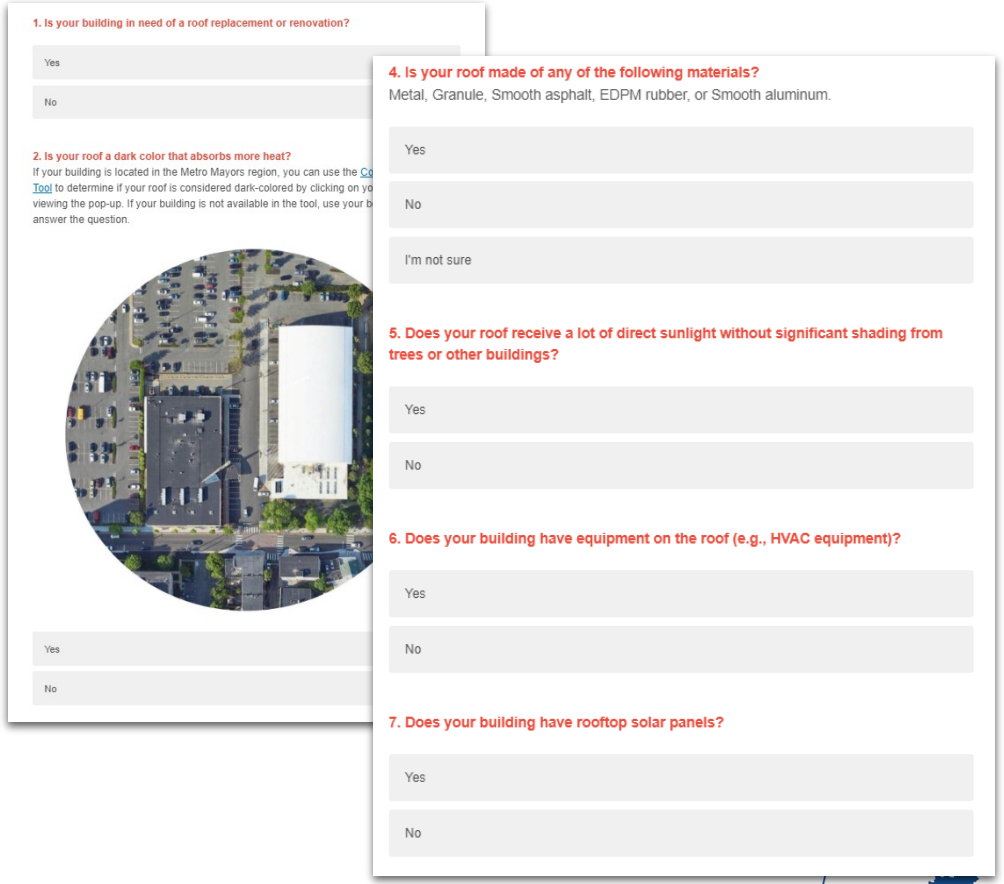
1. **Suitability Tool & Assessment**
2. Market Assessment
3. Educational Toolkit
4. Other Resources
   - Incentive Program Guidance
   - Procurement Toolkit
   - Climate Resilient Land Use



Determining if a Cool Roof Right for Your Property

Step 1: Cool Roofs Suitability Tool

Step 2: Cool Roof Self Assessment



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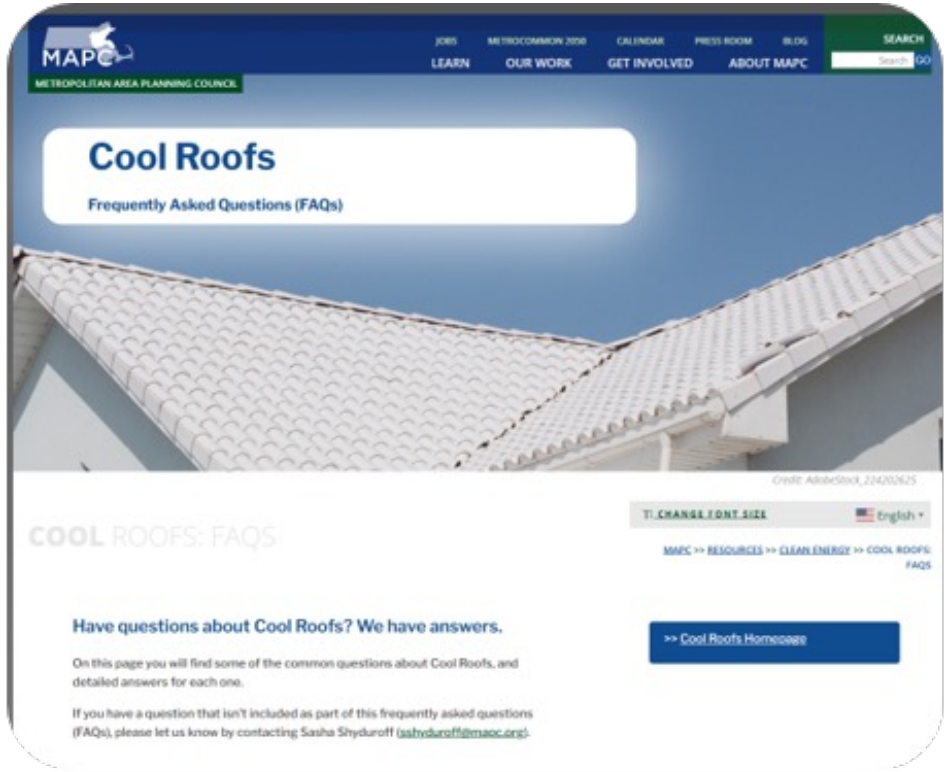

Market Assessment Findings

Did internal market research of 40 contractors and ~50 suppliers.
Key takeaways include:

- Cool roof market is growing but still very nascent in Massachusetts.
- Commercial roofers have seen a recent uptick in white/silver roofs.
- Cool roof coatings more common than coverings.
- Cool shingles are uncommon and expensive.
- Generally, low awareness of cool roofs as an emerging practice among contractors

Case Study:
Pine Street Inn

	Project Details
Overview	• Apartment Building: 52-single units • Roof Area: 11,000 sqft • Largest homeless service providers in New England • Located in Dorchester, Boston • Completed cool roof in 2021
Cool Roof Type	• Coating (Sherwin Williams KOOL SEAL Tundra Silicon)
Cost	• $12,470 (materials) • $40,000 (labor)
Testimonial	• Building has experienced moderate decrease in energy consumption but unclear how much due to cool roofs because other EE upgrades were made at the same time. Anecdotally, facilities managers have shared that the cool roof has made it easier to maintain their required indoor temperature of 73°F.

Pine Street Inn Reflective Coating Installation

Case Study:
Triple Decker – Roof Replacement

	Project Details
Overview	• Triple decker located in Jamaica Plain, Boston • Roof Area: 1,670 sqft • Completed cool roof in 2023
Cool Roof Type	• White membrane (roof replacement)
Cost	• N/A
Testimonial	• “My neighbors were concerned that the cool roof would raise heating costs in the winter. After researching, we learned that the benefits in the summer outweigh the costs in the winter.”

Roof Replacement in Jamaica Plain, Boston

Case Study:
Triple Decker – DIY Coating

	Project Details
Overview	• Triple decker located in Cambridge • Roof Area: 1,100 sqft • Completed cool roof in 2020
Cool Roof Type	• Coating (Henry Tropi-cool silicone coating)
Cost	• $599
Testimonial	• “I live on the top (3rd) floor and do not have AC in my unit. On 90°F days, my home would reach around 5°F hotter than the highest outdoor temperature of the day. After painting the roof, the indoor temperature has been much more comfortable and has never exceeded the highest outside temperature. On a recent 95 plus degree day, the indoor temperature remained below 90°F. Cool roofs should be required on all new and replacement flat roofs.”

Triple Decker Residence in Cambridge

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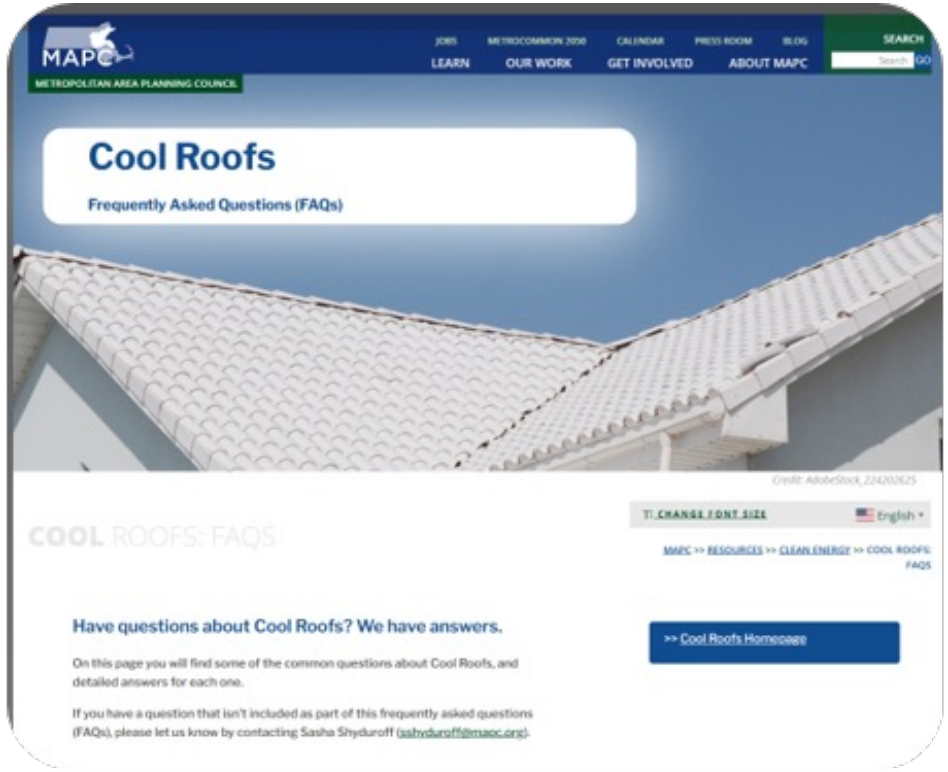


Educational Toolkit Components

Factsheets*

- Cool Roofs 101 Factsheet
- Cool Roofs for Building Owners/Managers

Social Media Assets*

- For municipal planners and partners to raise awareness

Cool Roof FAQs

Recorded Webinars

- Basics & Benefits of Cool Roofs
- How Municipalities Can Use Cool Roofs to Advance Climate Goals

Blog Series

- Basics & Benefits of Cool Roofs
- Is a Cool Roof Right for **You**?
- Cool Roofs in Action: Spotlight on Successful Implementation

* Translated into Spanish, Brazilian Portuguese, Arabic, Haitian Creole, and Simplified Chinese.

MAPC

打造凉爽的街区：
冷屋顶基本原理及优点

什么是冷屋顶?

冷屋顶（也称为白屋顶或反射屋顶）
通屋顶反射更多阳光的屋顶。通过反
屋顶的吸热量减少，让建筑和周边的
凉爽。

冷屋顶的优点：

节能和省钱。冷屋顶可
和风扇的使用频率，节

保护屋顶和屋顶设备。
以减少热应力，帮助保
屋顶设备，例如太阳能
HVAC 系统。

降低室内温度。冷屋顶
内更凉爽，防止出现减
疾病。

打造凉爽的街区。地表
树木少的城市区域温度
冷屋顶有助于降低街区

减少碳排放。通过减少
天气的制冷需求，我们
化石燃料产生的碳排放
染。

Twati fre: Pou Pwopriyetè bilding ak Manadjè yo

Si ou
- Gen yon do kay ki gen koulè fonse, pant ki ba (plat), oswa
- Ap ranplase twati ou byento

Twati fre yo se yon evidans!

Kisa yon twati fre ye, ak kijan li ka benefisye building mwen an?

Twati fre (ke yo rele tou twati blan oswa twati meditativ) se tou senpleman twati ki fèt pou montre plis limyè solèy pase yon twati konvansyonèl. Lè yo reflete plis limyè solèy, twati fre ofri ekonomi sou bòdwo enèji ak tanperati andedan kay la ki pi konfòtab.

Èske yon twati fre oblije Blan?

Twati fre vini nan yon varyete koulè ak materyèl. Pandan ke twati ki gen koulè pi lejè yo gen tandans pou yo pi bon nan bese tanperati, yon twati fre pa oblije blan. Gen vèsyon ki "pi fre" nan koulè nwa ak pwodwi tankou bado fre, ki ka adapte preferans estetik ou.

E si mwen gen panno solè sou do kay mwen an?

Twati fre yo se yon gwo konpleman nan enèji solè sou twati! Yo ka amelyore efikasite panno yo lè yo kenbe tanperati do kay la pi ba. Ou pral bezwen pou retire panno yo tanporèman pandan y ap aplike yon revètman fre sou do kay la.

Èske twati fre egzije yon antretyen espesyal?

Twati fre yo ta dwe rete pwòp san pousyè ak debri pou ogmante reflektivite. Sinon, antretyen an se menm jan ak yon twati konvansyonèl. Kòm yon avantaj adisyonèl, twati fre ka diminye depans antretyen alontèm kòm yo dire pi lontan lè yo pa elaji / kontra nan absòpsyon chalè epi yo ka menm pwolonje garanti twati a.

Konbyen yon twati fre koute?

Pri yon twati fre depann sou gwosè do kay la, pwodwi twati fre (egzanp, kouch, manbràn, bado, elatriye), ak konpleksite enstalasyon. Yon revètman twati fre ka koute ant $0.50-4.50 pou chak pye kare, tou depann de materyèl la, plis mendèv. [1] Sonje pou pran an kont tou faktè nan ekonomi enèji lè w ap konsidere depans: yon etid NYC te jwenn ke yon revètman meditativ ka diminye depans AC a 50% nan yon bilding yon etaj, 25% nan yon bilding de etaj, ak 10% nan yon bilding senk etaj.

Èske twati mwen an ka konvèti an yon twati fre?

Pwodwi ak teknoloji twati fre yo disponib pou yon pakèt kalite twati sa vle di twati ou a gen anpil chans pou l elijib. Tcheke Zouti **Cool Roof Suitability MAPC a*** epi pran **Oto-Evalyasyon** an pou detèmine si yon twati fre posib ak avantaje pou pwopriyete w la.

Zouti **Cool Roof Suitability MAPC a**
Oto-Evalyasyon: **Oto-Evalyasyon**

1- Mwayèn HomeGuide an 2024.
2- NYREJ (2010). https://nyrej.com/print/11547
3- Zouti disponib sèlman pou Arlington, Boston, Braintree, Brookline, Cambridge, Chelsea, Everett, Malden, Medford, Melrose, Newton, Quincy, Revere, Somerville, Watertown, ak Winthrop.

Pou w jwenn plis enfòmasyon, vizite
www.mapc.org/resource-library/cool-roofs/

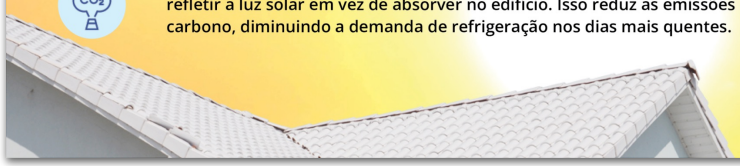
Vantagens dos telhados frescos

MAPC

Econômicas: Ao reduzir a necessidade de ar-condicionado e ventiladores, os telhados frescos ajudam a economizar nos custos de energia durante o verão.

Para saúde e bem-estar : Os telhados frescos melhoram o conforto das casas, escolas e outras edificações, mantendo os ambientes interiores mais frescos.

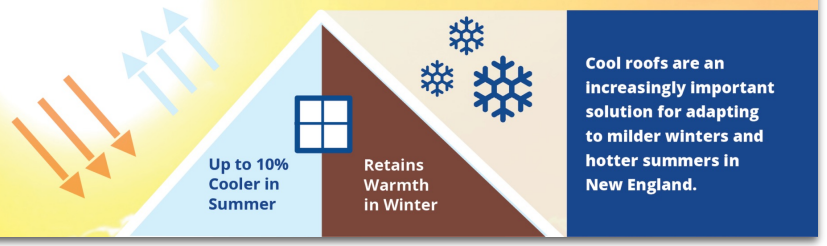
Ambientais: Os telhados frescos reduzem o efeito de ilha de calor urbano ao refletir a luz solar em vez de absorver no edifício. Isso reduz as emissões de carbono, diminuindo a demanda de refrigeração nos dias mais quentes.



Debunking the "heating penalty"

MAPC

The "heating penalty" refers to a potential increase in winter heating bills since the roof reflects more heat than it absorbs. While this can happen, **the savings in the summer months usually far exceed any increases in the winter**.



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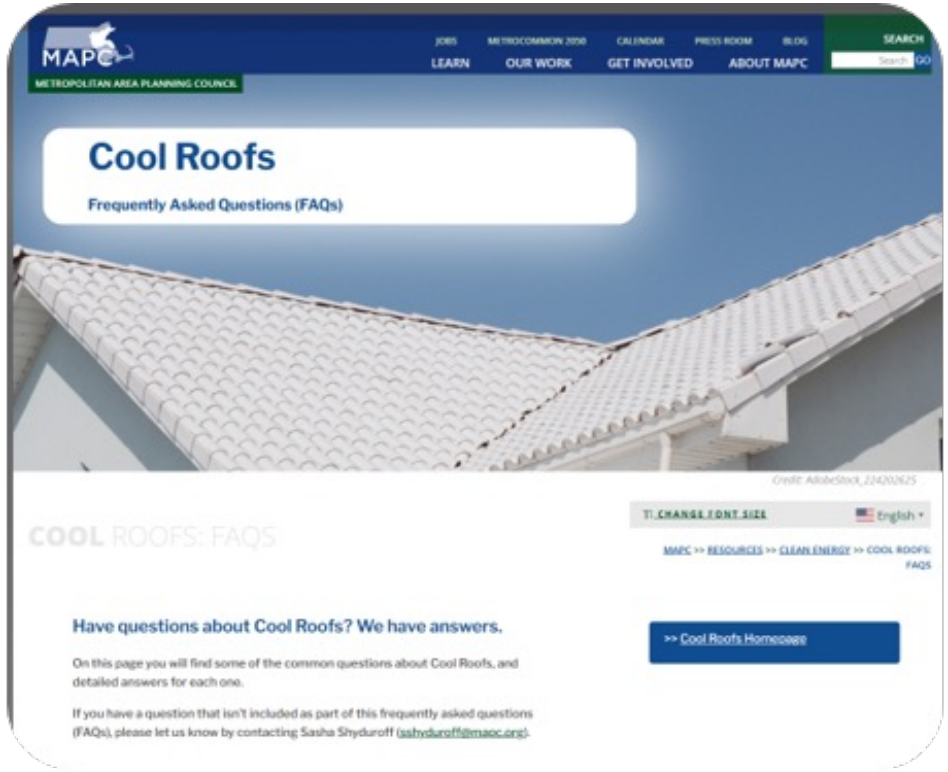


Additional Support Resources

1. Guidance on Creating a Cool Roof Incentive Program

Guidance from Program Managers: Strategies for Success & Lessons Learned

- Start Small
- Integrate into Existing Energy Programs
- As Feasible, Offer Point-of-Sale Incentives
- Collaborate with Vendors
- Educate Property Owners
- **Raise Public Awareness**
- Leverage Community Partners
- Roofing Products
- Debunk the Heating Penalty
- Track Progress

Cool roofs make for great photo-ops! Take photos during the cool roof installation process; publicize a cool roofs tracker (e.g., number and square footage of cool roofs installed); table at community-wide events; engage with public health professionals; and tie in cool roofs to other related energy, housing, or health programs. Roofs may be out-of-sight, out-of-mind, so having signage or information about an installed cool roof is important to raising awareness.

- The City of Louisville circulated mail-in flyers with information about their cool roof program, targeting specific heat-vulnerable neighborhoods.
- Tailor outreach materials separately for residential and non-residential audiences to ensure that the messaging is relevant and effective for each. Residential building owners may be more concerned with the immediate benefits of cool roofs; therefore, outreach for this group should emphasize energy savings, improved home comfort, and health benefits. Non-residential building owners, on the other hand, might be more focused on the long-term economic benefits, such as reduced operational costs, increased property value, and compliance with regulatory requirements (such as building energy use disclosure ordinances). For this audience, highlight how cool roofs can lead to significant energy cost reductions, extend the lifespan of roofing systems, and improve the performance of HVAC systems.

2. Municipal Procurement Toolkit

Chelsea Housing Authority – Public housing for the elderly and people with disabilities

3. Land Use / Zoning Guidance

Strategies to Strengthen Heat Resilient Zoning Requirements

- Development Standards
- **Climate Smart/Cool Roof Ordinances**
- Additional Resources

Municipalities can also address UHI through adding solar reflective index (SRI) standards into a "eco-roof" or "climate smart roof" bylaw. Climate Smart Roofs are roofs that mitigate the impacts of climate change either by addressing stormwater runoff, urban heat, or other climate threats. Cool Roofs are defined as highly-reflective roofs that reflect more sunlight than traditional roofs and can improve energy efficiency within a building and lower urban heat island impacts. Cool Roof standards can be paired with solar roofs as cool roofs can improve the efficiency of rooftop solar.

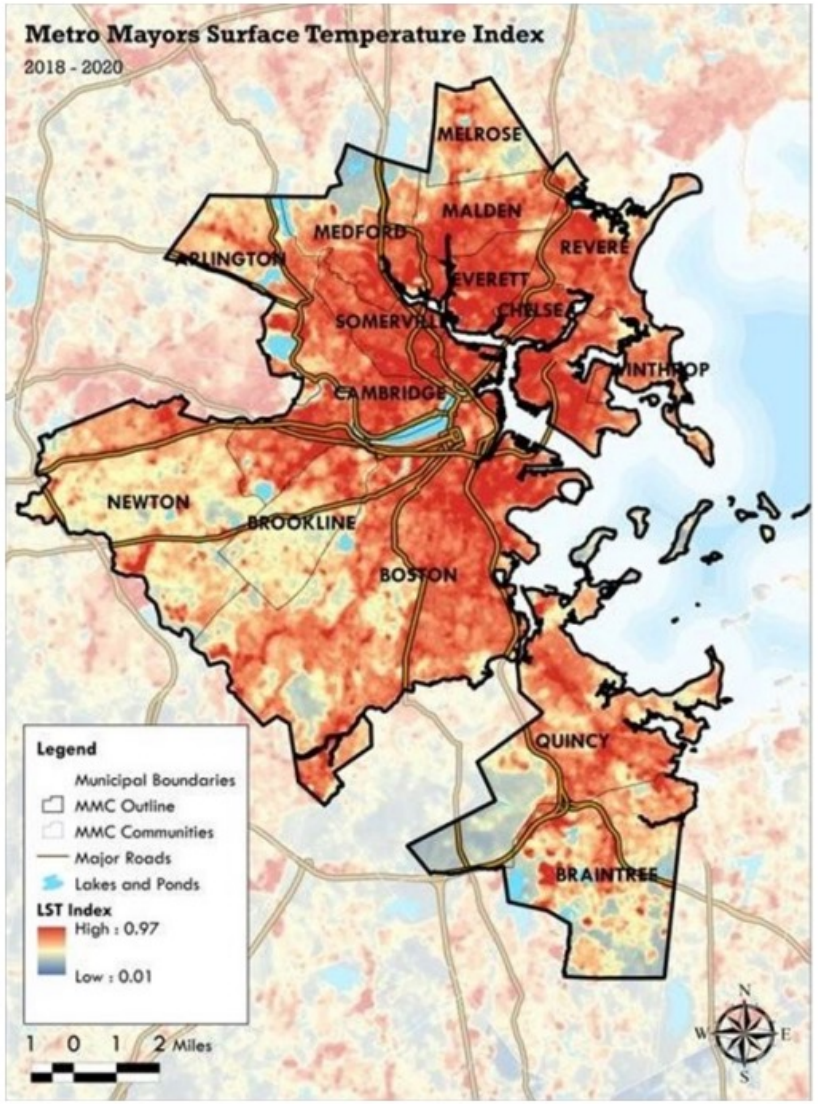
Somerville, MA Heat Island Reduction (10.10) has a minimum solar reflectivity required for 75% of roofs and surface parking.

Cambridge, MA Green Factor Standard (22.93.1) includes a minimum solar reflective index (SRI) for new roofs or when 50% or more an existing roof is being replaced. Additionally, 22.30 sets standards for "Green Roofs" for buildings 25,000 sq ft and above.

What's Next?
Regional-level

Submitted Grant Application for Phase 2, including:

- **Demonstration projects** in 3 cities to gather data on local impact of cool roofs
- **Policy whitepaper** with pathways to integrate cool roofs into existing state policy and programs, like Mass Save or the Community Climate Bank
- **Raise industry awareness**
- **Training workshop** for facilities managers
- **Call for Artists**



What's Next?
Local-level

- Expanding the **Electrify Cambridge** program to include cool roofs
- Targeted outreach to homeowners with flat, dark roofs
- Developing verified contractor list

Thank You!

Explore all tools and resources on our website:

mapc.ma/cool-roofs

Julia Nassar

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