
The Cozy System

Radiator Labs

BuildingEnergy NYC | Innovation-Driven Solutions
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Why Steam Heat?

- **Overheating**
 - Wasted money
 - **Harmful emissions**
- **Resident Discomfort**
 - Complaints
 - Open Windows
- **Maintenance Inefficiency**
 - Lack of data
 - Time consuming
 - Costly

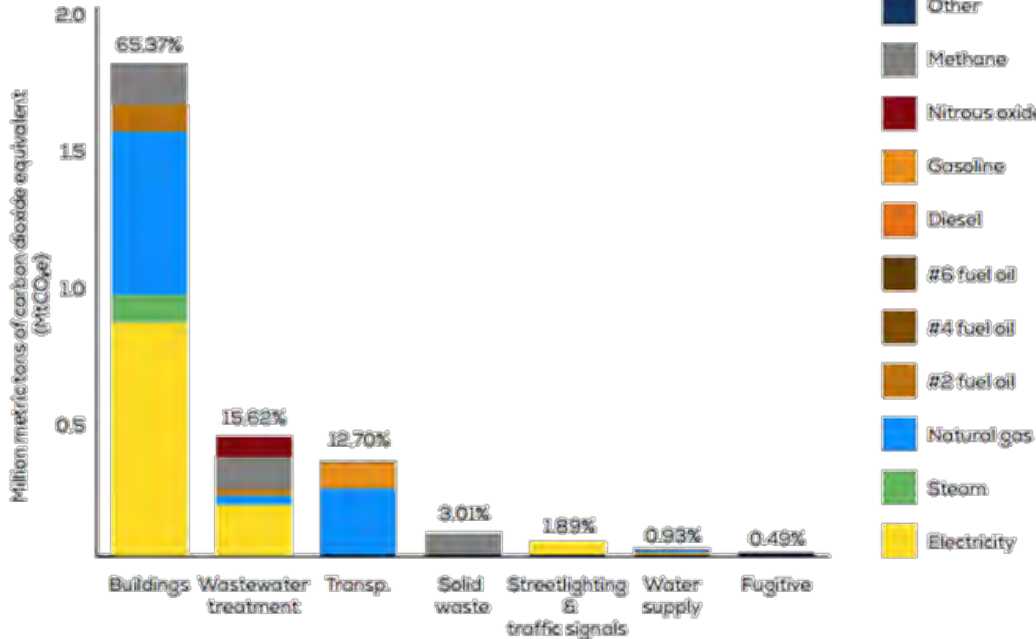
**\$7+ billion/year is wasted
due to overheating in
steam heated buildings.**

-The Department of Energy



Why Steam Heat?

CITY GOVERNMENT ANNUAL GHG EMISSIONS BY SECTOR AND SOURCE

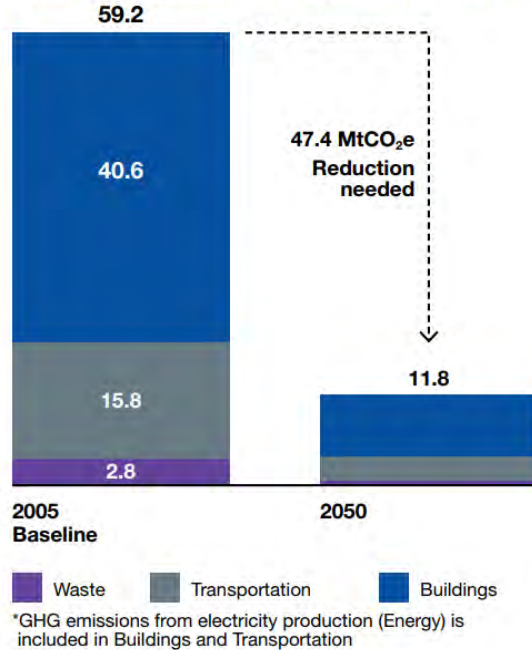


“Upgrades to buildings’ steam heating distribution systems represent one of the single largest potential reductions in GHG emissions of all cost-effective efficiency measures”

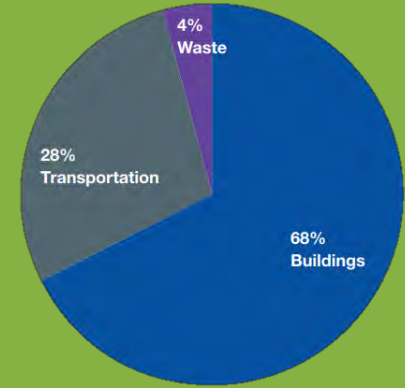
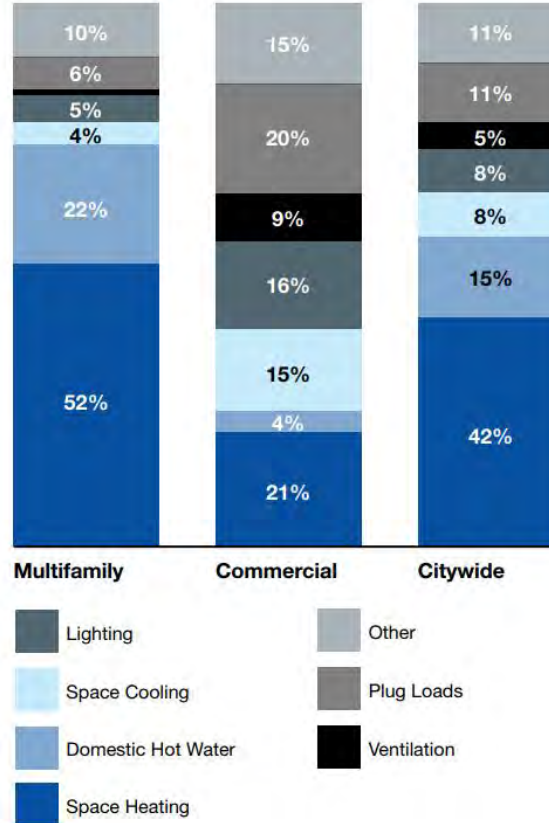
- NYC’s Roadmap to 80x50

Why Steam Heat?

80 x 50 Target GHG Emissions Reductions, in Million Metric Tons of Carbon Dioxide Equivalent (MtCO_{2e})



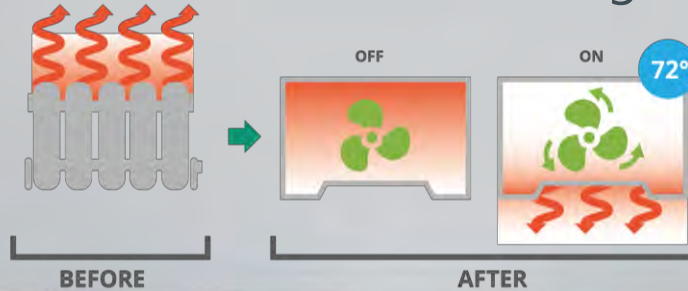
GHG Emissions from Large Buildings by End Use (2014)



NYC GHG Emissions by Sector (2014)

The Cozy Solution

The Cozy System – a smart, insulating enclosure installed over existing radiators.



The Cozy controls the transfer of heat from the radiator to the room via a thermostatically-controlled fan

The Cozy System

- **Fuel Savings up to 40%**
 - Reduced OpEx
 - Increases NOI & Asset Value
 - Utility Incentives Eligible
- **Resident Comfort**
 - Far Fewer Heating Complaints
 - Room by Room Control
- **Maintenance Efficiency**
 - Pinpoint Issues
 - Proactive Alerts
 - Reduced Overhead

Columbia University uses 33% less oil with the Radiator Labs Cozy.



Watt Hall at Columbia University

Quick Facts:

Units: 120
Units with Cozy: 116
Square Ft: 50,930
Project Cost/sqft: \$1.14
Annual Savings: \$32,000
Payback: 22 months

Ask the Experts...

NYSERDA says:
"Three separate analyses demonstrate that the Radiator Labs units effectively balances heating throughout the building, improves comfort, and saves energy."¹

Will the overheating

stop? Yes!
"Comparison of the room temperature dataset before and after the Radiator Labs installation shows that temperatures are reduced in overheated spaces and stabilized between 70 to 76 degrees Fahrenheit."²

Big Savings for Steam Buildings

Columbia University began testing the Radiator Labs Cozy in January 2014 at Watt Hall, which houses 164 students. By May of that year, the estimated savings for Columbia were \$32,000³.

By stabilizing the building's heat, the Cozy...

- Reduced boiler run-time by 41%.
- Reduced average room temperature 3.6° degrees.
- Produced #4 fuel oil savings of 8,212 gallons/year, or 50 gallons/occupant.

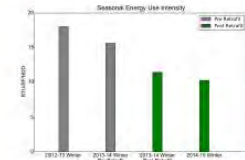


Figure 11. Energy Use Intensity (EUI) of the site before and after Radiator Labs installs. The building showed a 33% reduction in EUI (from 100 to 66) (increased performance in winter only) (10/11-06/16/16) (kBtu/sqft).

¹ Per NYSEERDA Energy Performance Validation Report

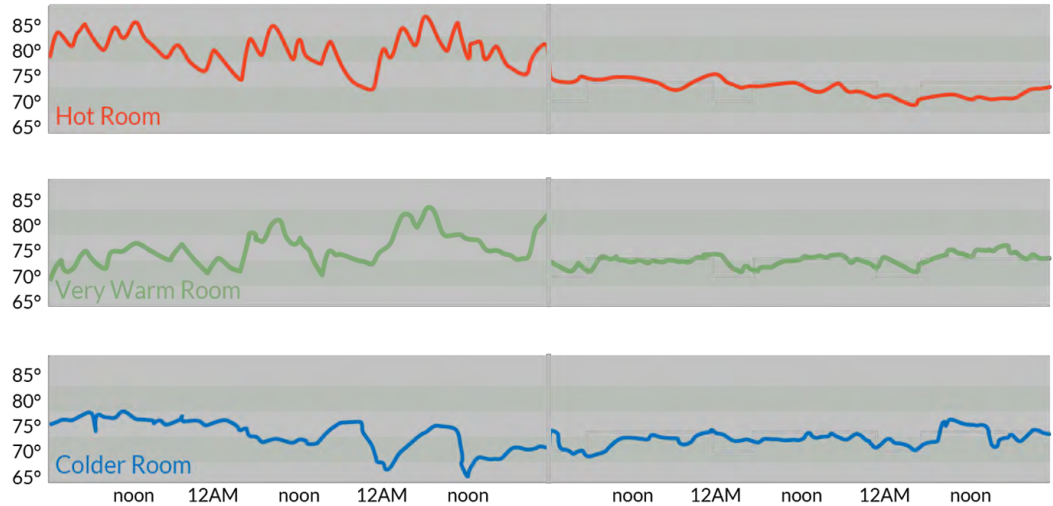
² While Columbia switched to Gas (from Heating Oil #2) in September 2015, savings still tallied above \$15,000/year

TENANT COMFORT

The Cozy brings room temperature to desired setpoints, and keeps them there.

No more open windows, no more wild temperature swings.

Temperature Implications of Radiator Labs



Before Cozy

After Cozy

- Reduced temperature volatility
 - Smart boiler control
 - Cozy releases heat on-demand
- Room by Room Control



BUILDING DATA

The Data we're gathering can be used to identify problems in real-time, including:

- **Heat distribution problems**
- **Envelope problems**
- **Alerts** (too hot, too cold)
- **Emergencies** (boiler fire-failure, zone-valve malfunctions, etc)

Constant monitoring and alerts

