

# BUILDINGENERGY BOSTON

---

## **Scope vs. Carbon: Stories of Decarbonizing Multi-Family**

Robert Corsetti, Aspen Air Duct

Mike Marotta, West Work

Chris Lewis, GreenerU

Meredith Elbaum, Built Environment Plus



MASSACHUSETTS  
**CLEAN ENERGY**  
**CENTER**<sup>®</sup>

**Kellie Murphy**

*Program Manager, High-Performance Buildings*



## COST REDUCTION LAB FOR 1-4 UNIT BUILDINGS



**Do you have an idea to  
reduce the cost of  
decarbonizing small  
residential buildings?**

**\$2.5M total funding – awards up to \$500K**

**Supporting demonstration projects for business models, market implementation approaches, and technology solutions**

**Join our Slack channel – develop new partnerships, brainstorm ideas, collaborate as project partners**

**Applications due May 8, 2026**

**Learn More and Apply:** [masscec.com/program/cost-reduction-lab](https://masscec.com/program/cost-reduction-lab)

**Questions?:** Email [buildings@masscec.com](mailto:buildings@masscec.com).





# Building Performance Exchange

*Learn more and subscribe for  
email updates by visiting  
[buildingperformance.exchange](http://buildingperformance.exchange)*

A statewide resource for people and organizations seeking to enhance performance and reduce carbon pollution in larger existing buildings.



*A program of Built Environment Plus, Funded by MassCEC*

# Scope vs. Carbon: Stories of Decarbonizing Multi-Family



**Robert Corsetti**

**Aspen Air Duct Cleaning**  
Principal



**Mike Marotta**

**West Work**  
Senior Associate



**Chris Lewis**

**Greener U**  
VP of Engineering



**Meredith Elbaum**

**Built Environment Plus**  
Executive Director



**SCOPE &  
TECHNICAL  
OVERVIEW**

**DRIVERS OF  
DECARB**

**FINDING THE  
POT OF GOLD**

**COPY PASTE  
STRATEGIES**

**BONUS  
CONTENT**

**SCOPE &  
TECHNICAL  
OVERVIEW**

DRIVERS OF  
DECARB

FINDING THE  
POT OF GOLD

COPY PASTE  
STRATEGIES

BONUS  
CONTENT



# Jaycee Place

---

Lowell, Massachusetts

Completion Year - 2024

**Robert Corsetti**

*Principal*

Aspen Air Duct Cleaning

### 138-unit Affordable Housing

7 Stories

100,000 SQ FT

Built in 1976

- Clean, seal, and replace 38 Risers + 1 Make Up Air Riser
- Install 276 constant air regulator/fire dampers



Constant Air Regulator with Mounting Plate



# Levinson Tower Heat Recovery System

---

Mission Hill, Boston

Completion Year - 2026  
(Anticipated)

**Chris Lewis**  
*Vice President of  
Engineering*  
Greener U

## Roxbury Tenants of Harvard

Grassroots tenant organization established 1970

## Mission Park

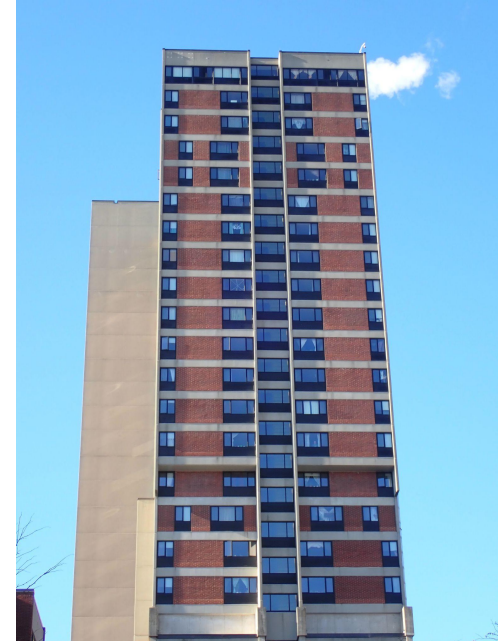
775-unit affordable housing community; high-rise, mid-rise, townhome.



147 townhome apartments

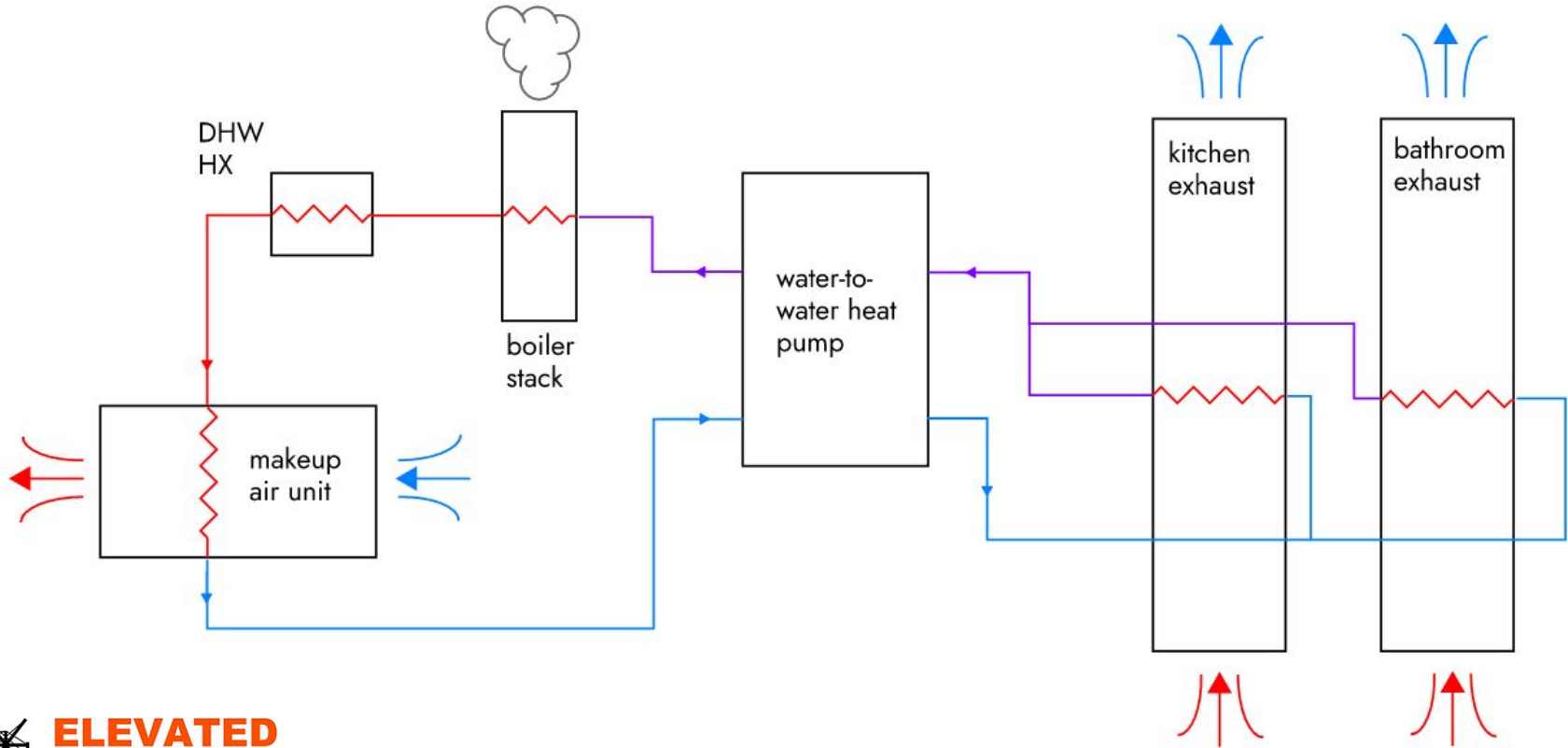


3 mid-rise buildings



Levinson Tower

27-story tower, housing campus heating, cooling and DHW plant.



27

GEORGE ST  
ADAPTIVE REUSE



## Attleboro Family Center

---

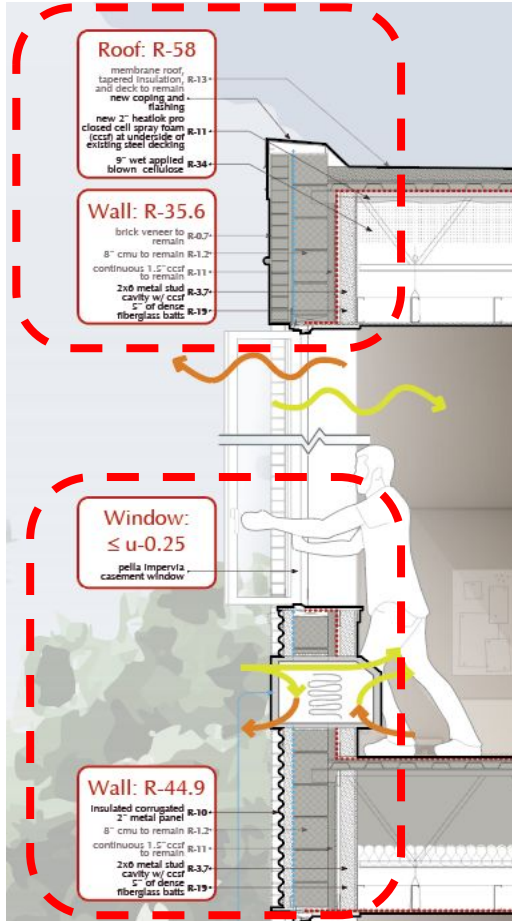
Location: Attleboro, MA

Completion Year - 2027

**Mike Marotta**, RA, LEED,  
CPHC  
*Senior Associate*  
West Work

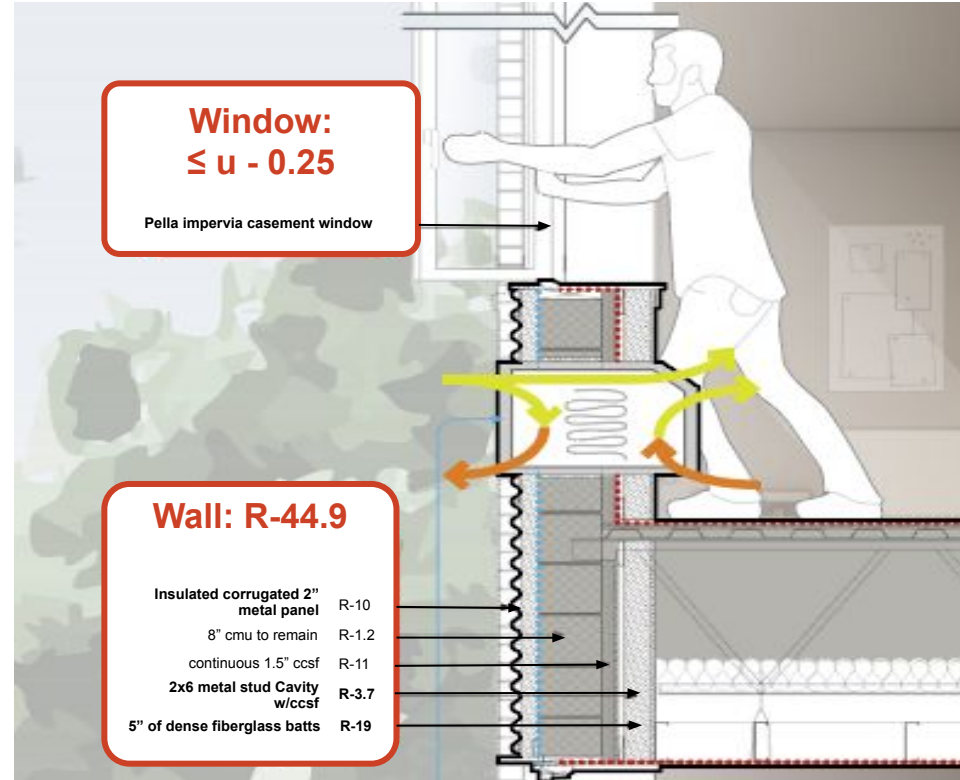
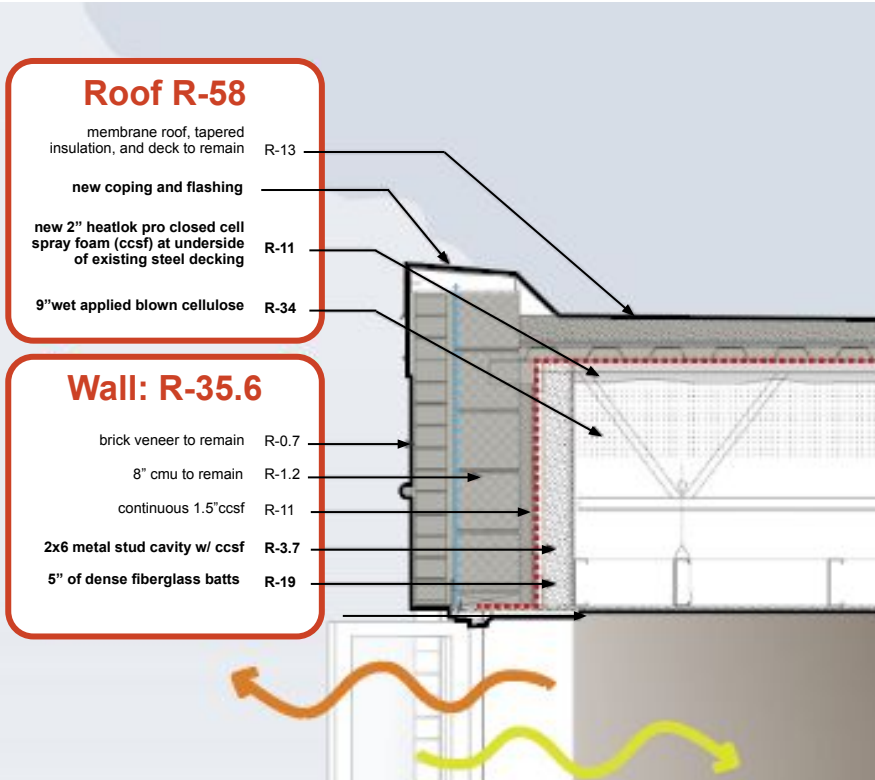
# SCOPE & TECHNICAL OVERVIEW

# Attleboro Family Center



- Former Golden Senior Living Center transformed into 50 units for family shelter.
- Community kitchens, laundry and play spaces
- Constraints to reuse existing utilities and service
- All electric heating/cooling
- Thermal upgrades to meet or exceed stretch code requirements







**Jaycee Place**



**Levenson Tower**



**Attleboro Family Center**

## SCOPE & TECHNICAL STRATEGIES

- Affordable housing, 7 stories, 130 units
- Ventilation system optimization
- Reduce leakage
- Standardize airflow
- Right-size fans

- Affordable housing, 27 stories, 260 units
- Mechanical system retrofit
- Energy recovery from apartment exhaust and boiler flue
- Heat pumps for increased effectiveness

- Transformed family shelter, 3 stories, 50 units
- Whole building retrofit
- Combination of heat pumps and PTAC units
- Keep existing utilities including gas DHW and electric service



**October**  
*Jaycee Place*  
**Planning Begins**



**May** — **July**  
*Jaycee Place*      *Jaycee Place*  
**Construction Begins**    **Project Completion**



*Attleboro Family Ctr.*  
**Project Begins**



*Levinson Tower*  
**Campus Initial Study Begins**



*Levinson Tower*  
**Campus Energy Study Completion**



*Levinson Tower*  
**Construction (Anticipated)**



*Attleboro Family Ctr.*  
**Completion (Anticipated)**

**2022**

**2023**

**2024**

**2025**

**2026**

**2027**

SCOPE &  
TECHNICAL  
OVERVIEW

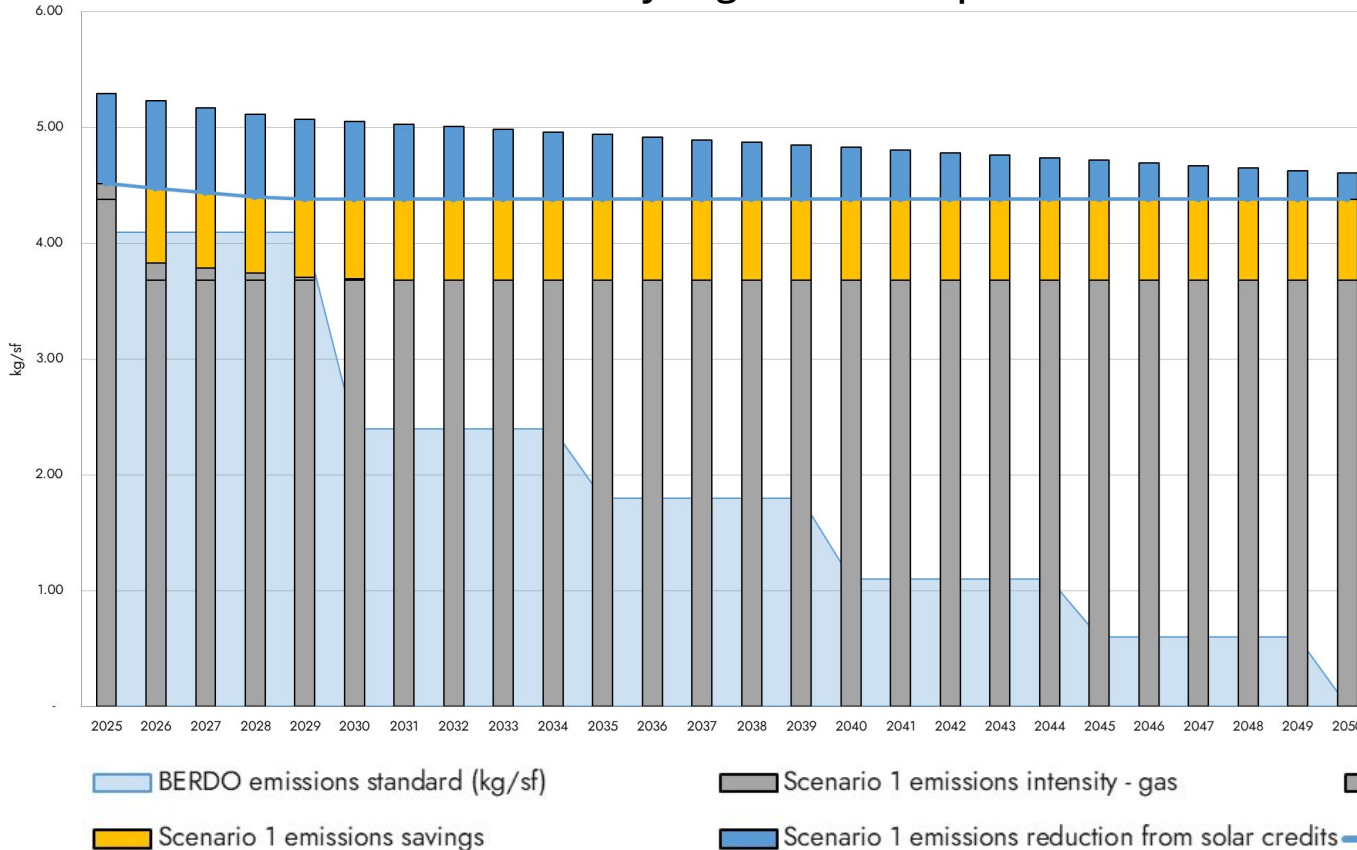
**DRIVERS OF  
DECARB**

FINDING THE  
POT OF GOLD

COPY PASTE  
STRATEGIES

BONUS  
CONTENT

## BERDO Emissions Intensity Regulation Compliance Timeline



### Drivers:

- Boston BERDO performance standards
- Improvement to indoor air quality / ventilation
- Heating system performance
- Solution cost effectiveness

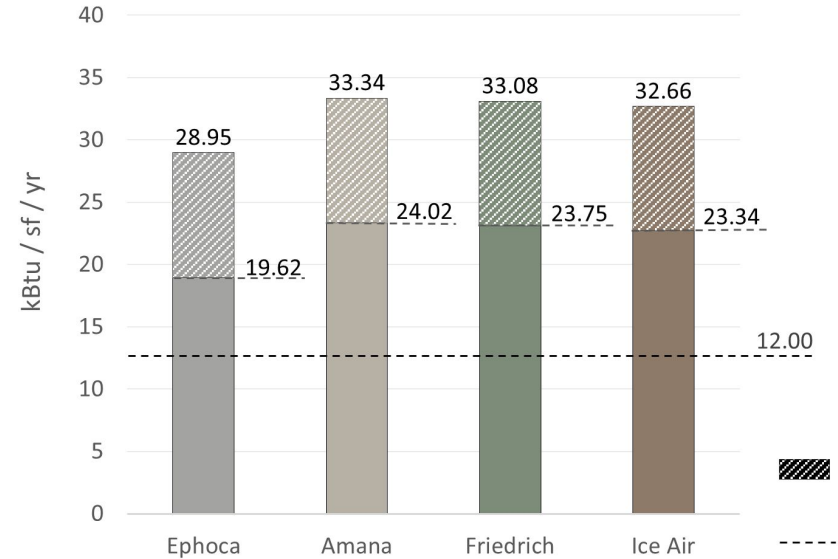
- **Odor Control**
- **High Cost of Mechanical Fans**
- **Verifiable:** Pre and post-seal AeroSeal report
- **Decarbonizing:** vertical exhaust risers, oversized constant-speed fans, buildings with stack effect issues



## SPEC COMPARISON

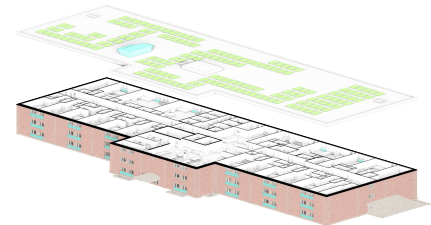
	Amana	PTAC Ephoca
model number	pth 123j**axxx	awp10r3h1-3
voltage	208v	208v
heating type	heat pump	heat pump
electric resistance heat option	yes	yes
erv (cfm range)	n/a	optional (10-30 cfm)
fresh air	optional	optional
cooling capacity (btu/h)	12,000 btu/h	15,000 btu/h
heating capacity (btu/h)	11,000 btu/h	9,100 btu/h
energy efficiency ratio (eer)	11.5	-
coefficient of performance (17° / 47°)	3.3	2.38 / 8.45
noise level	29 stc	27db
warranty	1 - 5y	10y

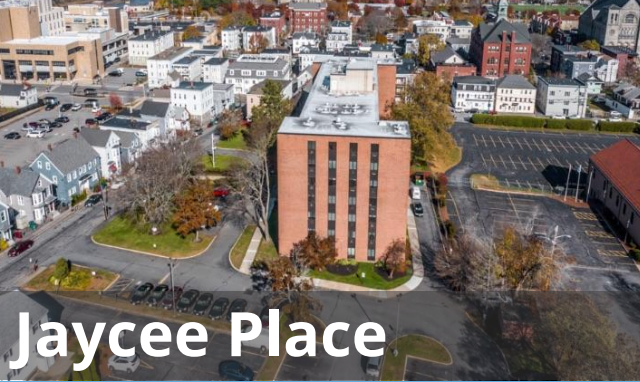
### PREDICTED SITE ENERGY USE INTENSITY (pEUI)



## Drivers

- Adaptive reuse of existing building
- Utilize existing services
- Cost considerations





**Jaycee Place**



**Levinson Tower**



**Attleboro Family Center**

## DRIVERS OF DECARB

- Odor Control
- Cost Savings
- Verifiable

- Emissions and energy strategic planning
- BERDO compliance
- Heating electrification
- Efficiency-as-decarb

- Client driven funding sources
- Existing conditions
- Cost considerations
- Economy performance package

SCOPE &  
TECHNICAL  
OVERVIEW

DRIVERS OF  
DECARB

**FINDING THE  
POT OF GOLD**

COPY PASTE  
STRATEGIES

BONUS  
CONTENT

## Funding Sources:

- **MA Executive Office of Housing and Livable Communities**  
Housing Stabilization Fund, Emergency Assistance Shelter Contract
- **MassDevelopment**  
Underutilized Properties Program, 501c3 tax-exempt bonds
- **MA Department of Energy Resources**  
Affordable Housing Decarbonization Grant Program

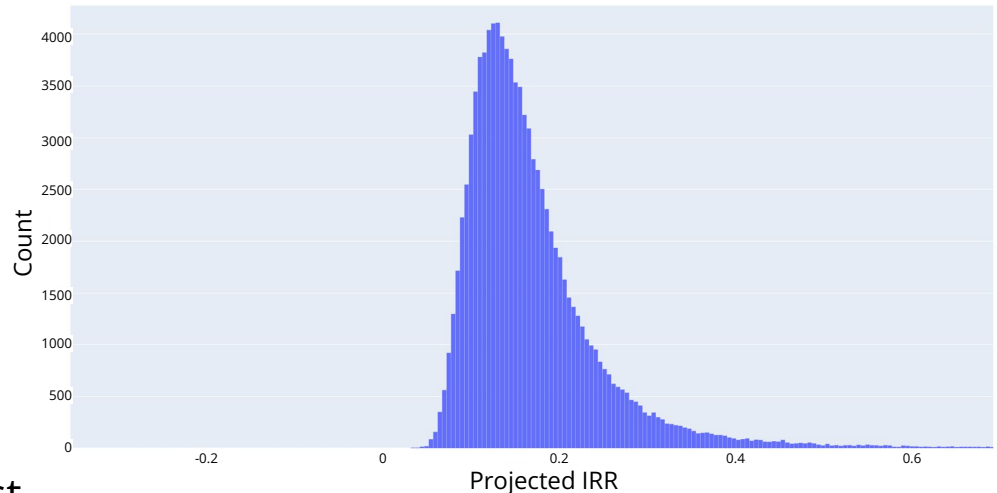


**CITY** *of* **BOSTON**



## Funding sources:

- **City of Boston**  
Equitable Emissions Investment Fund
- **Mass Save / National Grid**  
IEMF Pathway
- **Owner self-funded**  
Project screening based on ROI of OPEX savings and total lifecycle cost



**Monte Carlo analysis of project IRR**

## Energy Efficiency Financial Summary

### NET COST

- \$260,000, after Mass Save LEAN program incentives

### VERIFIED SAVINGS

- \$66,000 - \$69,000 / year

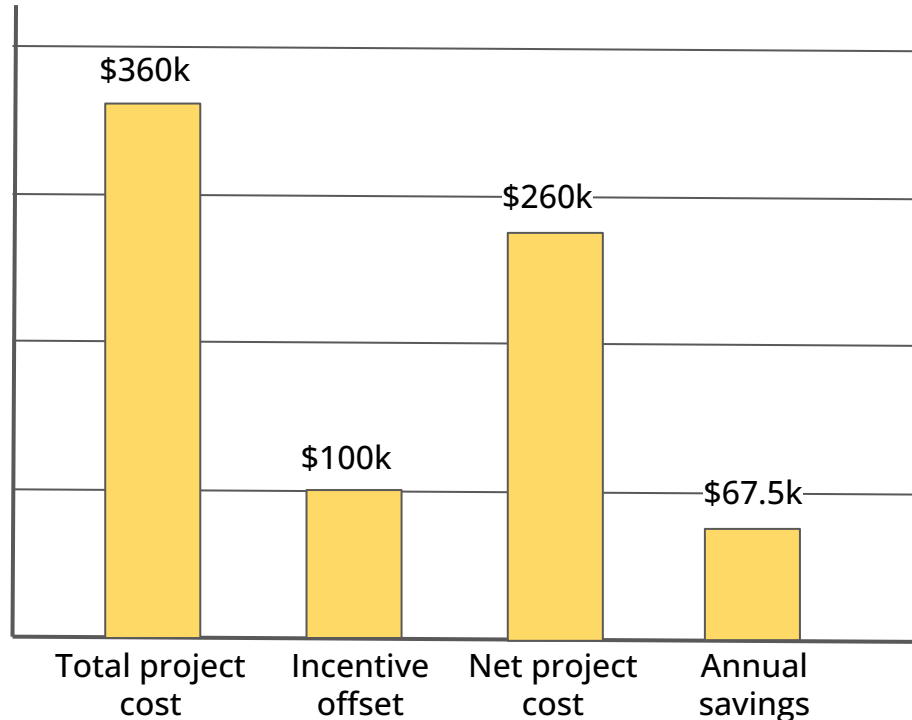
### SIMPLE PAYBACK

- < 4 years

### MEASURE LIFE

- ~20 years

## Cost and Savings Comparison





Jaycee Place



Levinson Tower



Attleboro Family Center

## FINANCING

- Capital modernization budget
  - Mass Save LEAN program
  - Operational savings
  - 4 years payback
- Mass Save LEAN program
  - City of Boston EEIF grant award
  - Owner self-funding through annual capital budget
- MA Executive Office of Housing and Livable Communities
  - MassDevelopment
  - MA Department of Energy Resources

SCOPE &  
TECHNICAL  
OVERVIEW

DRIVERS OF  
DECARB

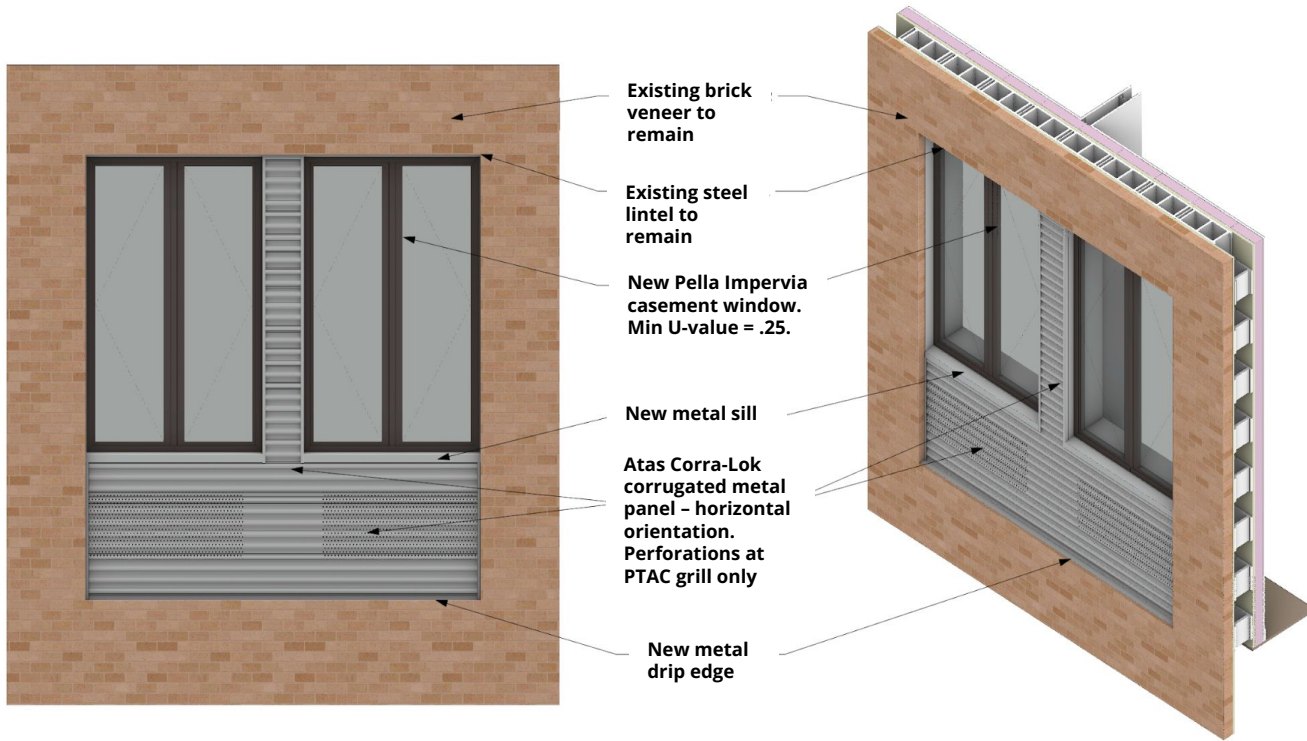
FINDING THE  
POT OF GOLD

**COPY PASTE  
STRATEGIES**

BONUS  
CONTENT

- Building height > 4 stories
- Central exhaust system
- Aging fans
- Rising gas costs
- Electrification plans on horizon





Package terminal units (PTACs/PTHPs) can cost-effectively condition living space, reduce installation time, & approach passive house performance with:

1. Appropriate specification
2. Proper installation
3. Regularly scheduled maintenance

## 11.03.2025 HERS Model Assumptions

Component	Input	Notes	
Envelope	Floor	Adiabatic	A.403
	Ext Wall	R-24: 8"CMU,1.5"HDF, R21 FGB2, 6-16 metal	A.403
	Rim Band	R-30: 4.5" HDF	A.403
	Roof	R-60: 7.5" polyiso + 2" HDF	A.403
	Window	U:0.28; SHGC:0.34	Assumption
Mechanical	PTAC Double	PMH093J: EER: 12.5; COP: 3.6	M0-02
	PTAC Family	PTH123J: EER: 11.5; COP:3.3	M0-02
	DHW	Gas, 99%, 4.5-gal condensing WH	AWH-Sub-06
	DOAS	Balanced Ventilation, 50 cfm/unit, 1.2 cfm/watt	M0-02
Lights & Appliances	Lights	100% LED	E.002
	Fridge	240 kWh (GPE12FGK/FSK)	A.502
	Washer/Dryer	Energy Star	A.503
	Dishwasher	Not Present	A.502
	Stove/Range	Electric	A.502

## HERS Scores

Unit	HERS	Unit	HERS	Unit	HERS
101	42	201	42	301	43
102	42	202	41	302	43
103	41	203	41	303	43



## Strategies that work everywhere:

- **Strategic planning and decarbonization roadmapping**  
Align BERDO compliance strategy, capital renewal schedule, over-time strategies
- **Efficiency first**
- **Recovering waste heat**  
Heat pumps unlock BTU recycling





**Jaycee Place**



**Levinson Tower**



**Attleboro Family Center**

## COPY PASTE STRATEGIES

A streamlined process of:

- Measuring and Estimating
- Sealing and Verifying
- Resizing systems
- Commissioning
- Maintaining transparency

- Strategic planning and decarb roadmapping
- Efficiency first
- Recovering waste heat

- Efficient install
- Cost effective
- Potential to reduce ERV demands

SCOPE &  
TECHNICAL  
OVERVIEW

DRIVERS OF  
DECARB

FINDING THE  
POT OF GOLD

COPY PASTE  
STRATEGIES

**BONUS  
CONTENT**



## What's unique:

- Thermal source/sink proximity
- Combination of flue gas and room air heat sources
- Challenges:
  - Building height
  - Building construction
  - Structural



View from common living space



View from lobby

## Tenant Relationship





**Jaycee Place**



**Levinson Tower**



**Attleboro Family Center**

## PROJECT UNIQUENESS

- Tenant Relationship
- Proximity of source/sink
- Leveraging combustion exhaust + apartment exh.
- High-rise logistics
- Met energy and program goals with limited budget



**Jaycee Place**



**Levinson Tower**



**Attleboro Family Center**

## SCOPE & TECHNICAL STRATEGIES

- Affordable housing, 7 stories, 130 units
- Ventilation system optimization
- Reduce leakage
- Standardize airflow
- Right-size fans

- Affordable housing, 27 stories, 260 units
- Mechanical system retrofit
- Energy recovery from apartment exhaust and boiler flue
- Heat pumps for increased effectiveness

- Transformed family shelter, 3 stories, 50 units
- Whole building retrofit
- Combination of heat pumps and PTAC units
- Keep existing utilities including gas DHW and electric service

# Scope vs. Carbon: Stories of Decarbonizing Multi-Family



**Robert Corsetti**

**Aspen Air Duct Cleaning**  
Principal



**Mike Marotta**

**West Work**  
Senior Associate



**Chris Lewis**

**Greener U**  
VP of Engineering



**Meredith Elbaum**

**Built Environment Plus**  
Executive Director

