

BOSTON CLIMATE RESILIENCY

Boston Resilient Building Case Study



**boston planning &
development agency**

January 2022

Bartlett Station - Lot D

Bartlett Station Drive, Roxbury

RESILIENCY
Extreme Temps

SUSTAINABILITY
Green Building, Carbon Reduction, LEED

Team:

Developer: POAH (Preservation of Affordable Housing)

Architect: DREAM Collaborative

MEP Engineer: Petersen Engineering Inc.

Civil Engineer: Devellis Zrein Inc.

Structural Engineer: RJ Farah

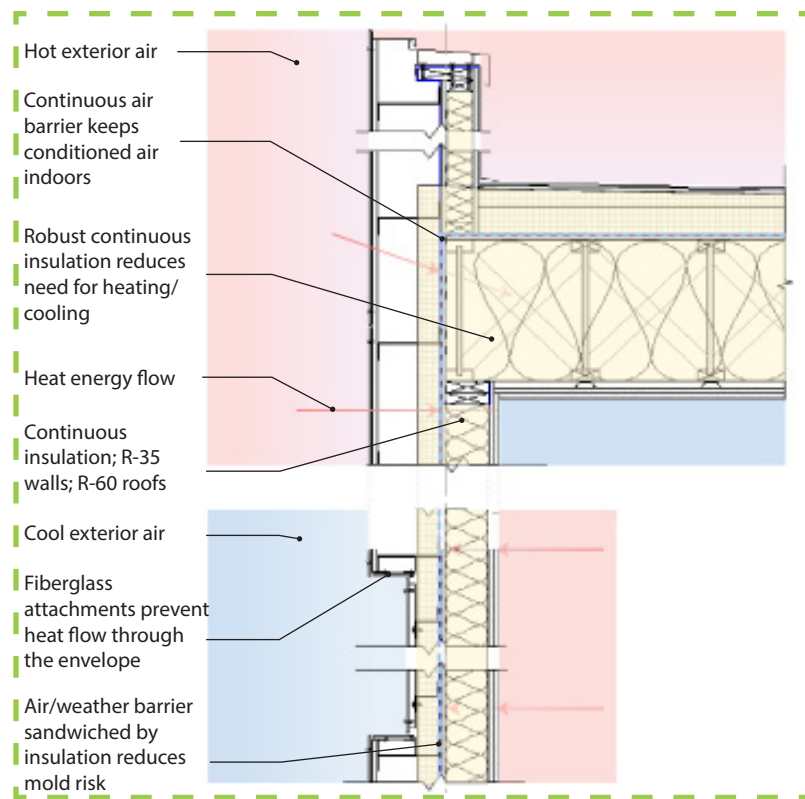
Landscape Architect: Deborah Myers Landscape Architects

Passive House Consultant: Building Evolution Corporation

Contractor: NEI General Contracting

Status: Under Construction



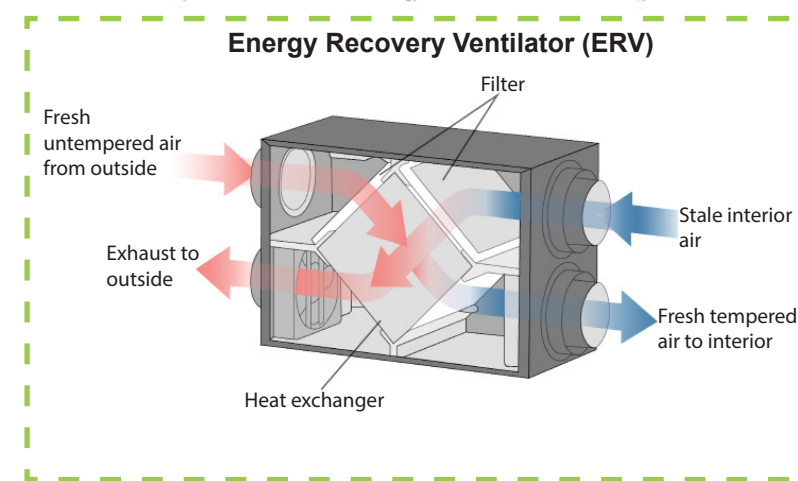
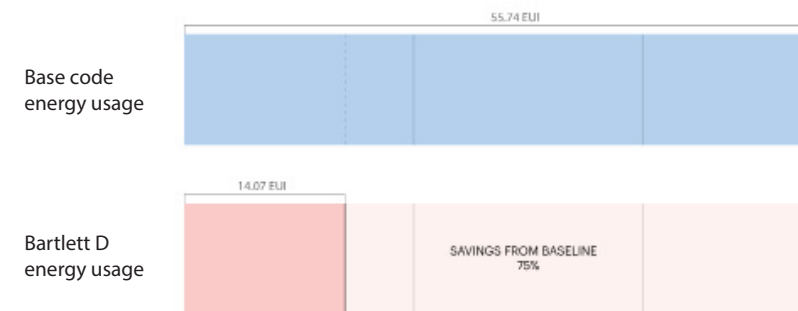


Resilient Infrastructure

- Generator/battery power on roof of building
- Passive House envelope slows any heat loss/gain in the event of a utility outage, allowing the generator/battery to be downsized
- On-site renewables to minimize dependence on external utilities for power
- Rear of site features a bioswale to collect and filter water runoff from adjacent site above

Extreme Temps

- Passive House enclosure mitigates extreme temperature swings and will provide a healthy, efficiently conditioned interior environment.
- Habitable landscaped garage roof mitigates heat island effect, producing an oasis of cooled area on a southern exposure.



Carbon Reduction

- Predicted Building Performance:

	2021	2035
pCEI (kg CO ₂ e/sf-yr)	1.75 kg	1.04 kg
w/o renewables	1.75 kg	1.04 kg
with renewables	1.34 kg	0.80 kg
- pEUI (kBtu/sf-yr) 14.07 kBtu
- 75% reduction in energy use from code baseline.
- 90 kW Solar PV array provides 38% of total building energy and offsets carbon emissions.
- Strategies: Passive House enclosure, high efficiency ERVs paired with air source heat pumps take advantage of existing energy in the air to control interior air and domestic water temperatures.
- See the Article 37 Design Filing on the [project timeline](#)



Carbon Reduction