BOSTON CLIMATE RESILIENCY

Boston Resilient Building Case Study

Boston Planning & Development Agency

January 2022
Bartlett Station - Lot D
Bartlett Station Drive, Roxbury

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

RESIDENTIAL

RESILIENCY
Extreme Temps

SUSTAINABILITY
Green Building, Carbon Reduction, LEED
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:
  - pCEI (kg CO2e/sf-yr) 2021 2035
    - 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