

2021

SEATTLE 2030 DISTRICT DESIGN COMPETITION 2021



114 YEARS YOUNG 1907
21,700 SF (29 UNITS)
CURRENT EUI 74.8, BASELINE OF 44.1
BOILER IS DUE FOR FULL REPLACEMENT 2023
LED LIGHTING OPPORTUNITY

Each Energy Conservation Measure (ECM) = Value

"Every btu Matters"

- 1/3 is reduced by moving from gas to electric
- 1/2 of the energy with envelope elements
- 3/4 of the energy with HRV and air sealing
- Net Zero – when PV generation is added

ENVELOPE: R-22 overall walls, triple-pane windows, and R-60 roof

INFILTRATION
Reduce infiltration by 80%

SOLAR OPTIMIZATION
Rooftop

ERV from existing exhaust-based ventilation to high-efficiency

PHASE 1 – PRE-ELECTRIFICATION

ELECTRIC SERVICE
800A currently
Additional service?

ELECTRIC RESISTANCE
from NG fired steam to electric resistance heating

ASHP-DHW
Currently gas heated with low utilization

Ranges are typically 40A or 50A converted to induction cooktop, provides KVA for electric heat. Refrigerators ENERGY STAR

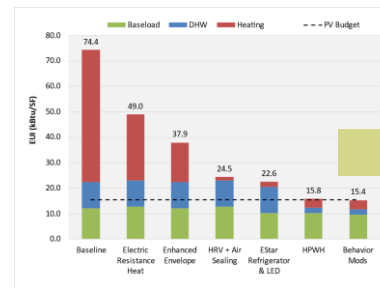
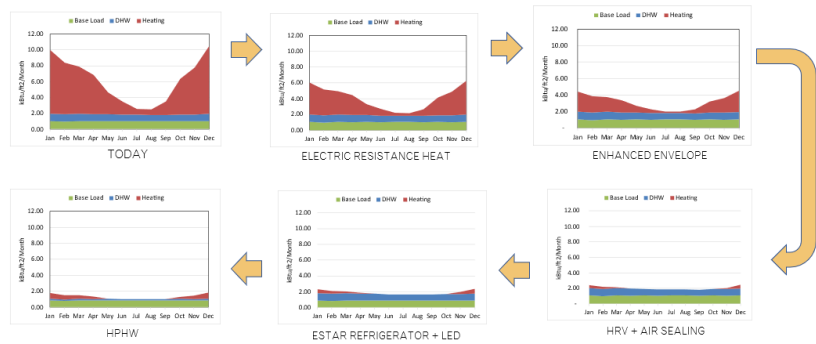
PHASE 2 – ELECTRIFICATION CAPACITY

Human Behavior Change: Realtime Smart Meter Feedback

Community Dashboard

Personal Choices

PHASE 3 – HUMAN BEHAVIOR DE-ELECTRIFICATION

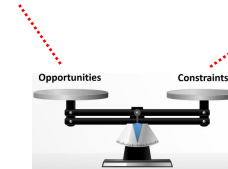


ZERO OVERTIME

TEAM GOALS:

- UNIQUE BUILDING OWNER
- HIGHLY VISIBLE LOCATION
- LEADING BY EXAMPLE
- PRESERVING CHARACTER
- LOW MAINTENANCE
- HIGHEST VALUE
- REASONABLE OVER EXTREME
- STRENGTHENING COMMUNITY

PROVIDE 50-75+ YEARS OF BUILDING LIFE
DEMONSTRATE PATH(S) TO NET ZERO
PUBLIC FUNDS (LEAD BY EXAMPLE)
BOILER 2023, LIGHTING
DOMESTIC WATER SYSTEM FAILING
LOWER TENANT ENERGY COSTS



PUBLIC – PDA (BREAKEVEN IS A WIN)
TENANT DISRUPTION
FUNDING AND COST TO RELOCATE
NOT A HISTORIC BUILDING – TODAY
BUSINESS AS USUAL (BAU) – VIABLE
DISPOSITION OF THE BUILDING FROM
CRH

- ALTERNATIVE CONSIDERATIONS:**
- AIR SOURCE HEAT PUMPS ASHP
 - DISTRICT ENERGY (WOULD REPLACE ASHP)
 - UPGRADE ELECTRICAL CAPACITY

