The synergy between energy efficiency and occupant health.

Presentation for IREC- November 21, 2025

By

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BERDO (Building Energy Reporting and Disclosure) requirements-

- **Non-residential buildings** that are 20,000 square feet or larger (excluding parking).
- **Residential buildings** with 15 or more units.
- **Parcels** with multiple buildings that collectively meet the above criteria.

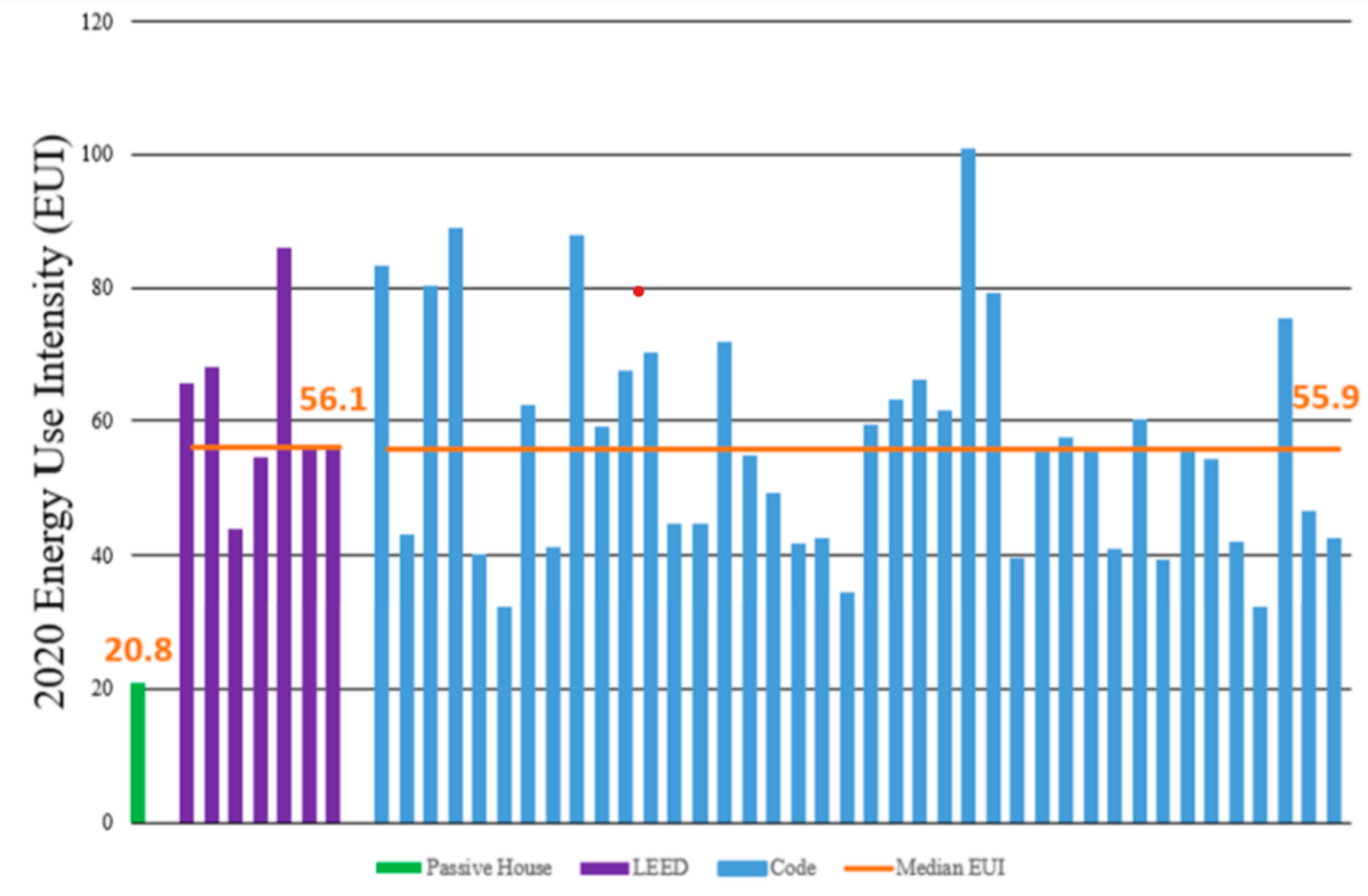
The Distillery Block

Three buildings on 1.74 acres

Energy performance

- For heating and cooling-90% less energy than average home
- For all electric power – 60% less energy than average home

Our building compared to LEED



Stovetop garlic in oilive oil

Health effects of MICRO_PARTICULATE air pollution

- Cancer
- Stroke
- Heart attacks / heart disease
- Asthma / lung diseases / lung cancer
- Auto-immune diseases
- Shortened life expectancy & death
- Dementia
- For children: Autism, IQ impairment, birth defects.
- Etc.- skin disease, kidneys, eye disease,

Data on micro-particles due to cooking.

- A follow-up study was conducted in which indoor air quality was monitored in passive and tightly constructed homes in Colorado. Cooking tests resulted in 20-min average PM2.5 concentrations between 100 and 500 μg/m3, while no significant PM2.5 reduction was found between default ventilation and short-term boost.
- The by Shelly Miller at the Univ. of Colorado.
- Also see Lawrence Livermore Laboratory report and the EEEC.
- From my apartment– study by the BU Physics department. Average PM2.5 of 20 mg/cu liter.

Relation to mortality.

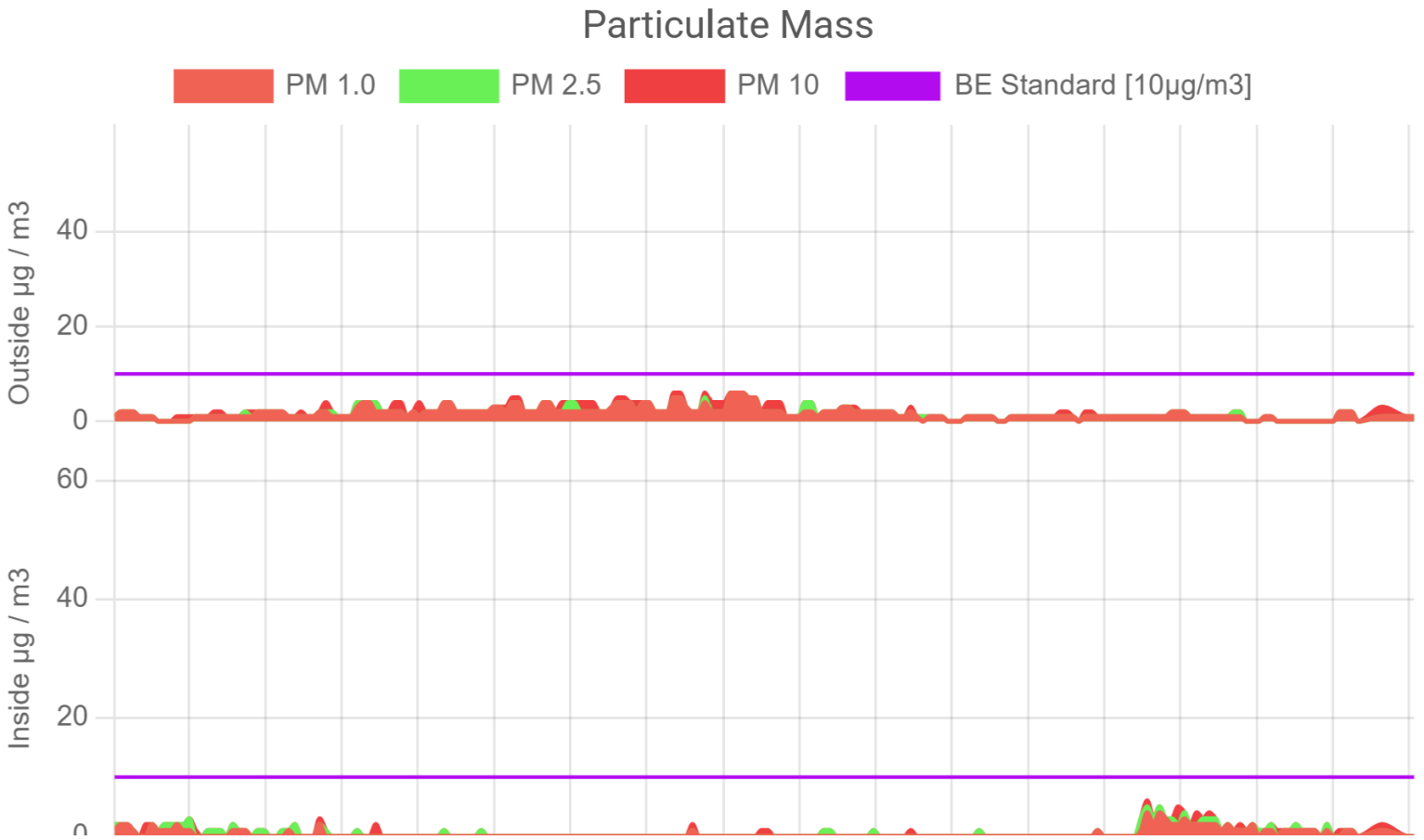
Every 10 micrograms per m^3 causes a 7.3% increase in mortality over a 10 year period in a Medicare Population of 61 Million.

- “In a large longitudinal study reported in the New England Journal of Medicine, researchers found that “each increase of 10 micrograms per cubic meter in particles smaller than 2.5 microns, or PM 2.5, was associated with a 7.3 percent increased mortality…” https://www.nejm.org/doi/full/10.1056/NEJMoa1702747
- These findings converge with those of a large European study which found similar levels of mortality per each 10 microns, and concluded that there is no safe level for micro-particles. Typical Boston levels are 10-15 ppm, meaning that consequent mortality over the study’s seven year period is 14 – 21%.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2719864/

https://www.nytimes.com/2017/06/28/well/even-safe-pollution-levels-can-be-deadly.html

Some of the measurements from CERV2



New building desined with good IAQ specs.

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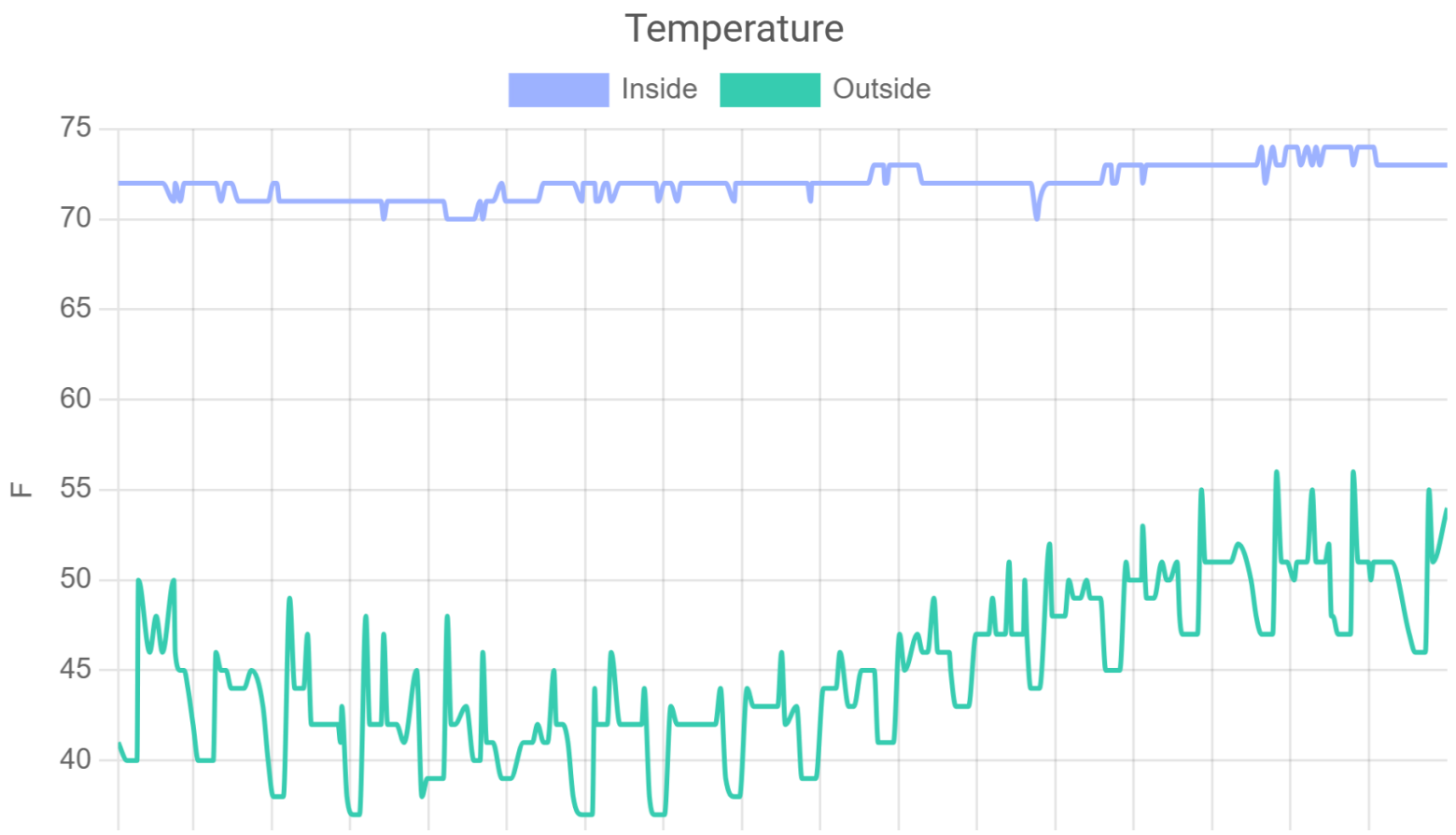
Interior and exterior temp on 1/3 Ton heat pump



Health analytics in my apartment

Analytics

Personal Metrics

This Week
11/12/25 - 11/19/25

Health	Cognition	Sleep Quality
+89%	**+93%**	**+100%**
Better Than at current IAQ standards	**Better** Than at current IAQ standards	**Better** Than at current IAQ standards
CERV Community +49%	CERV Community +83%	CERV Community +100%

Health Cognition Sleep Quality CERV Community

Thank you.

Questions?