



**Buildings of
Excellence**
Award Winner

- History
- Community
- Environment





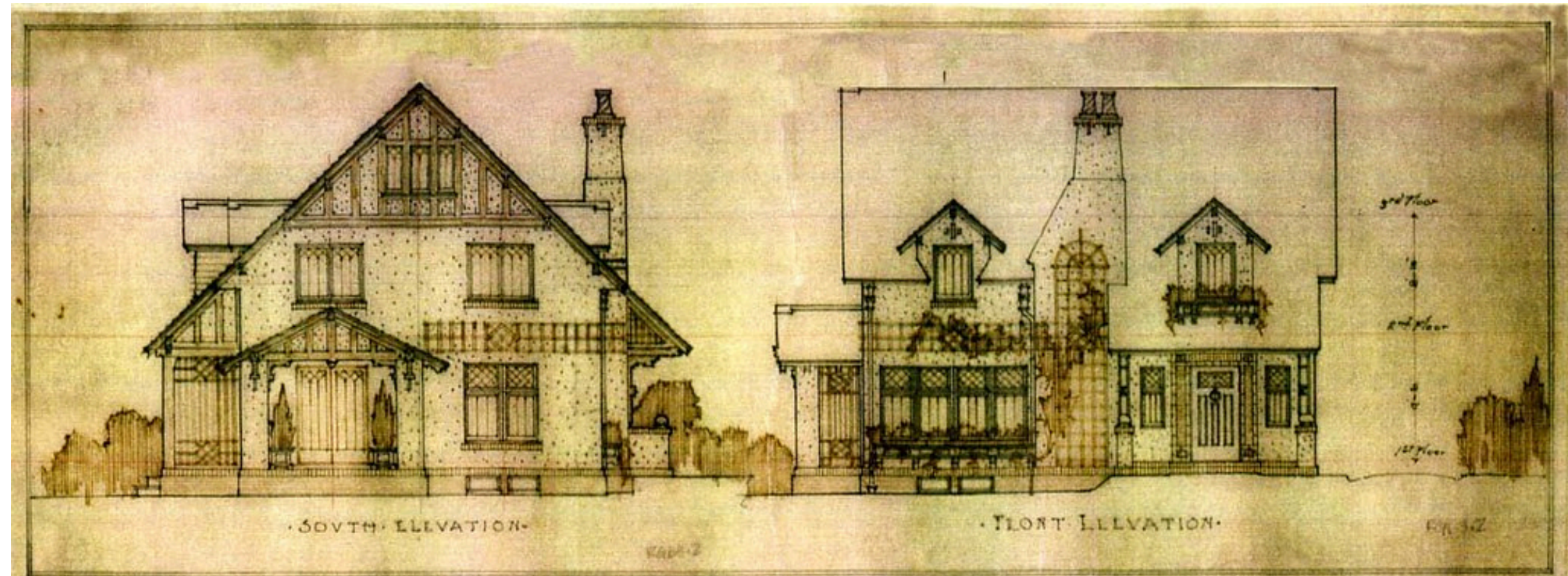
**Buildings of
Excellence**
Award Winner





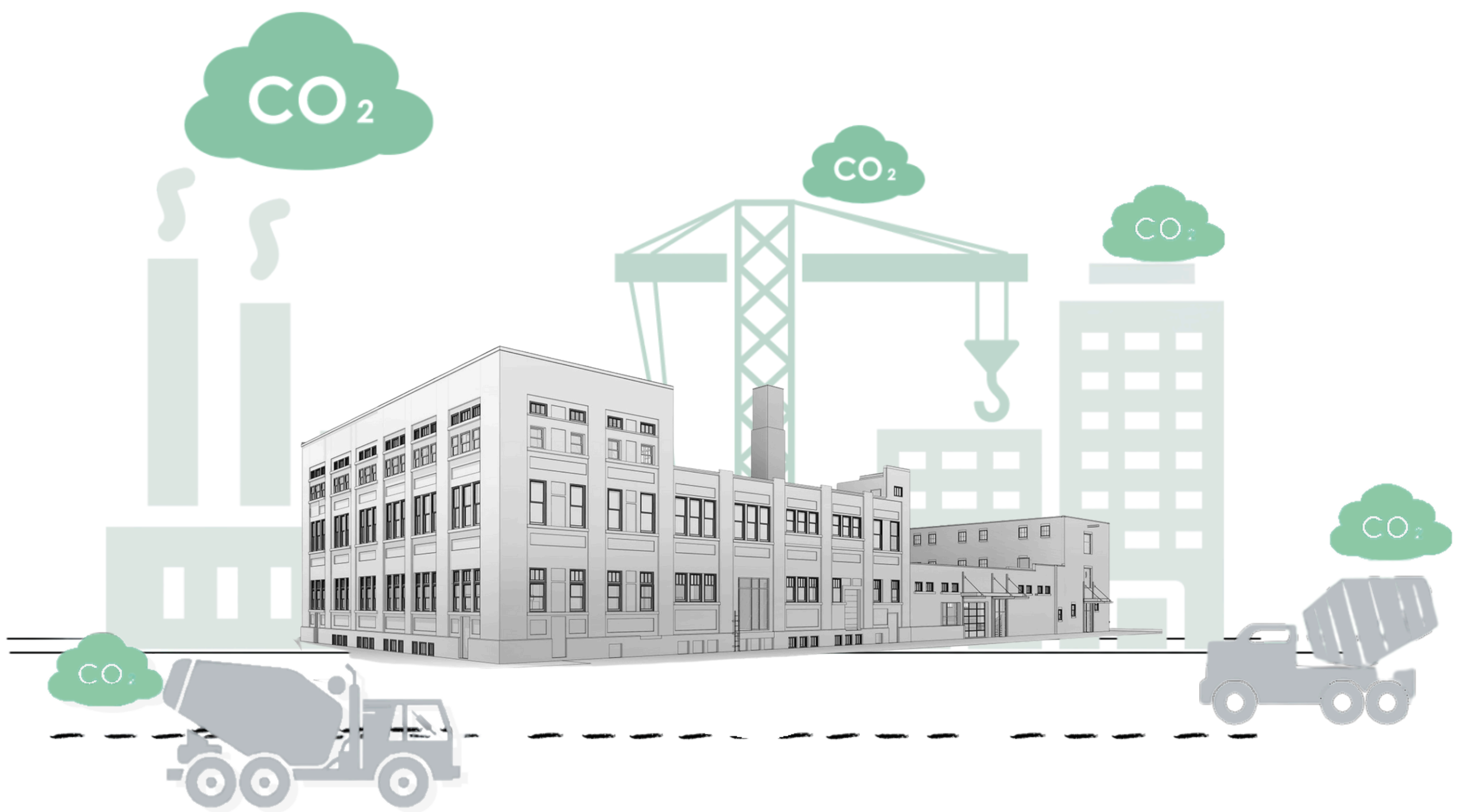
WARD WELLINGTON WARD

Prolific local architect
who was a pioneer of
the arts and crafts
movement









EMBODIED CARBON



ADDING TO PROJECT POTENTIAL



LINK TO: NYSERDA Early Design Support

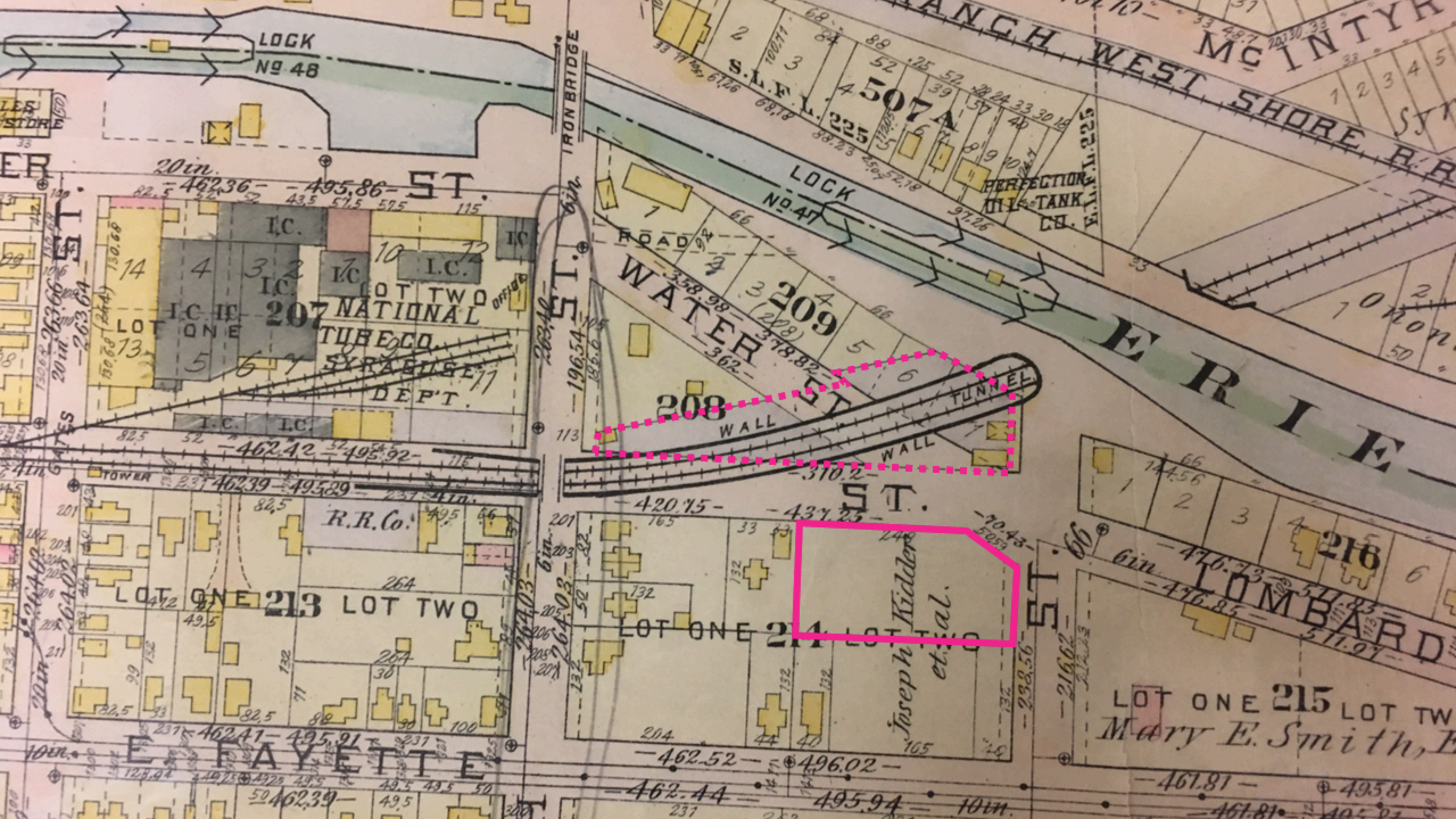
*Tunnel on the
N. Y. C. R. R. Syracuse, N. Y.*



SYRACUSE BREAD FACTORY









ENERGY GOALS

PUSH BEYOND THE CONVENTIONAL

AIM FOR NET ZERO

STRIVE FOR CARBON NEUTRAL

INNOVATE + SHARE

RESIDENTIAL

A mix of 19 modern studio, one- and two-bedroom lofts priced for the neighborhood

COMMERCIAL

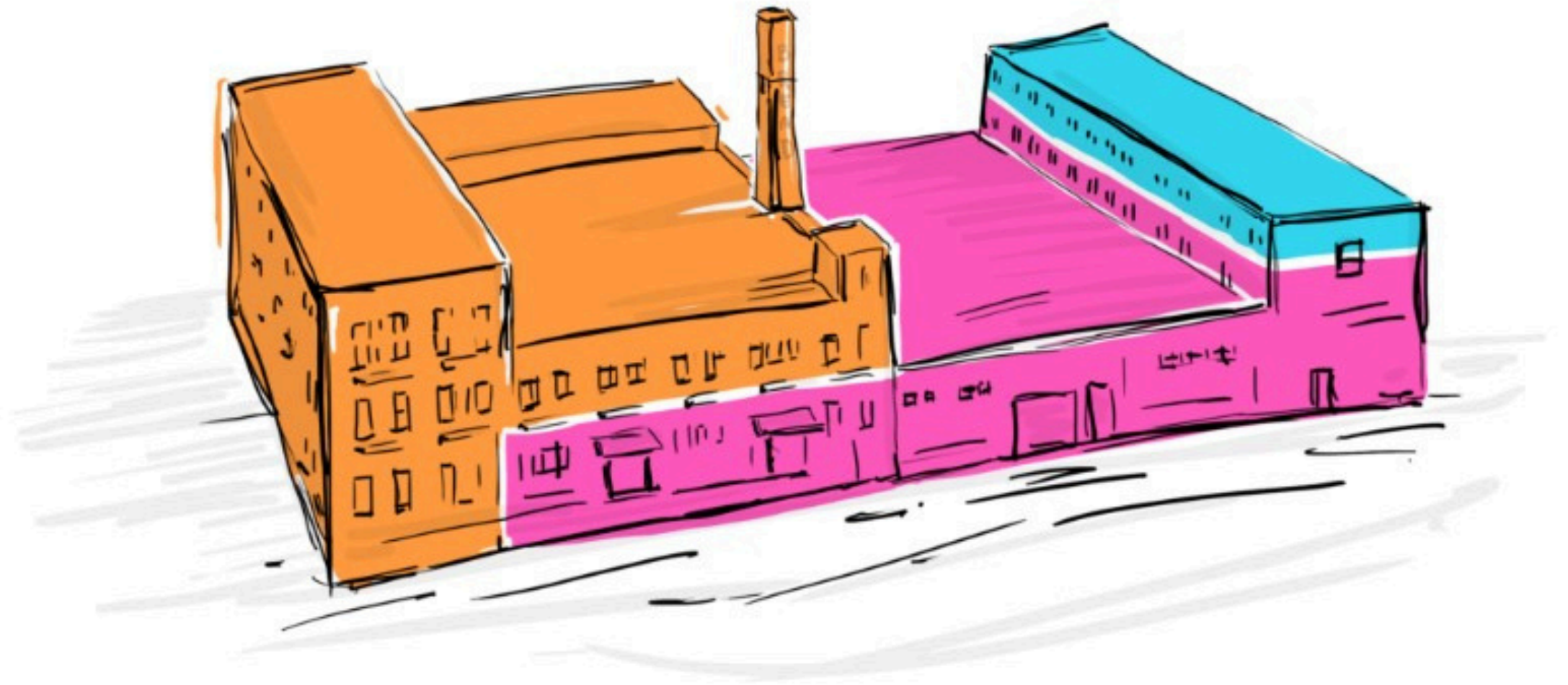
23,500 SF of commercial space with a mix of food, retail, and community anchor

ART SPACE

Dedicated studios for artists and creatives.

SHARED SPACE

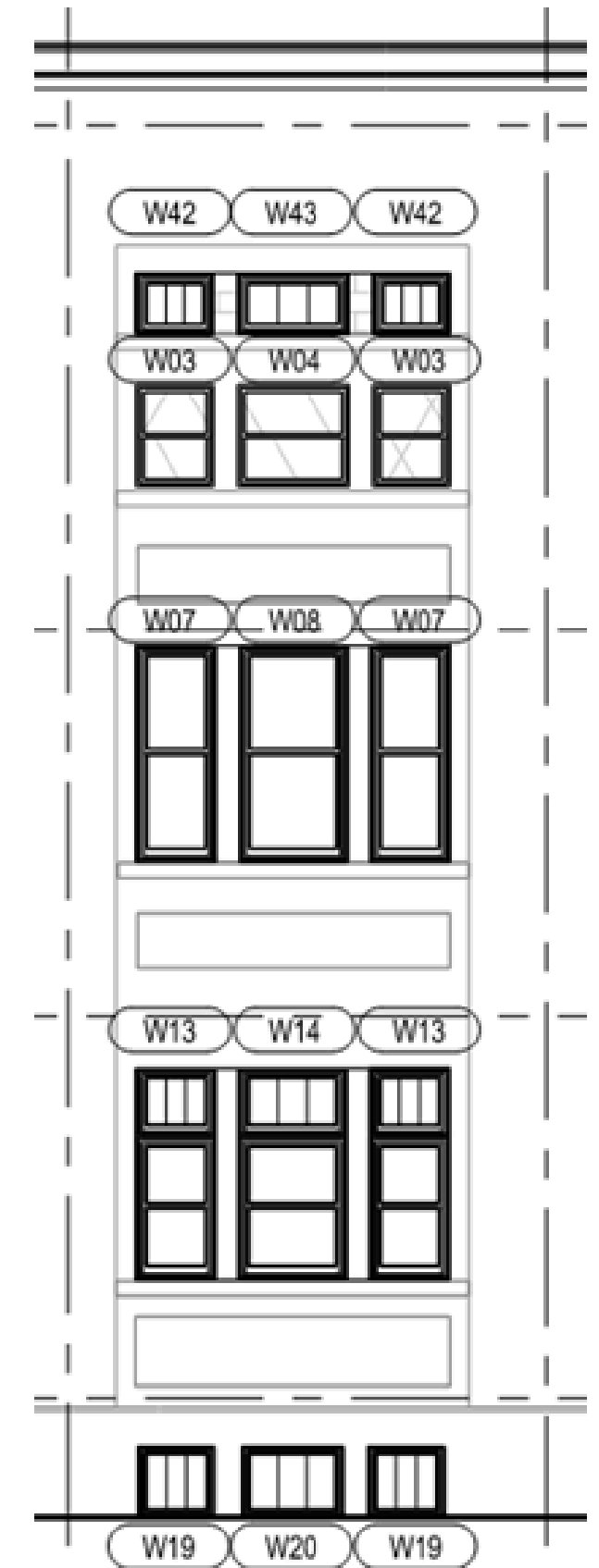
Courtyard, lobby, mailroom, circulation, mechanicals, and storage.



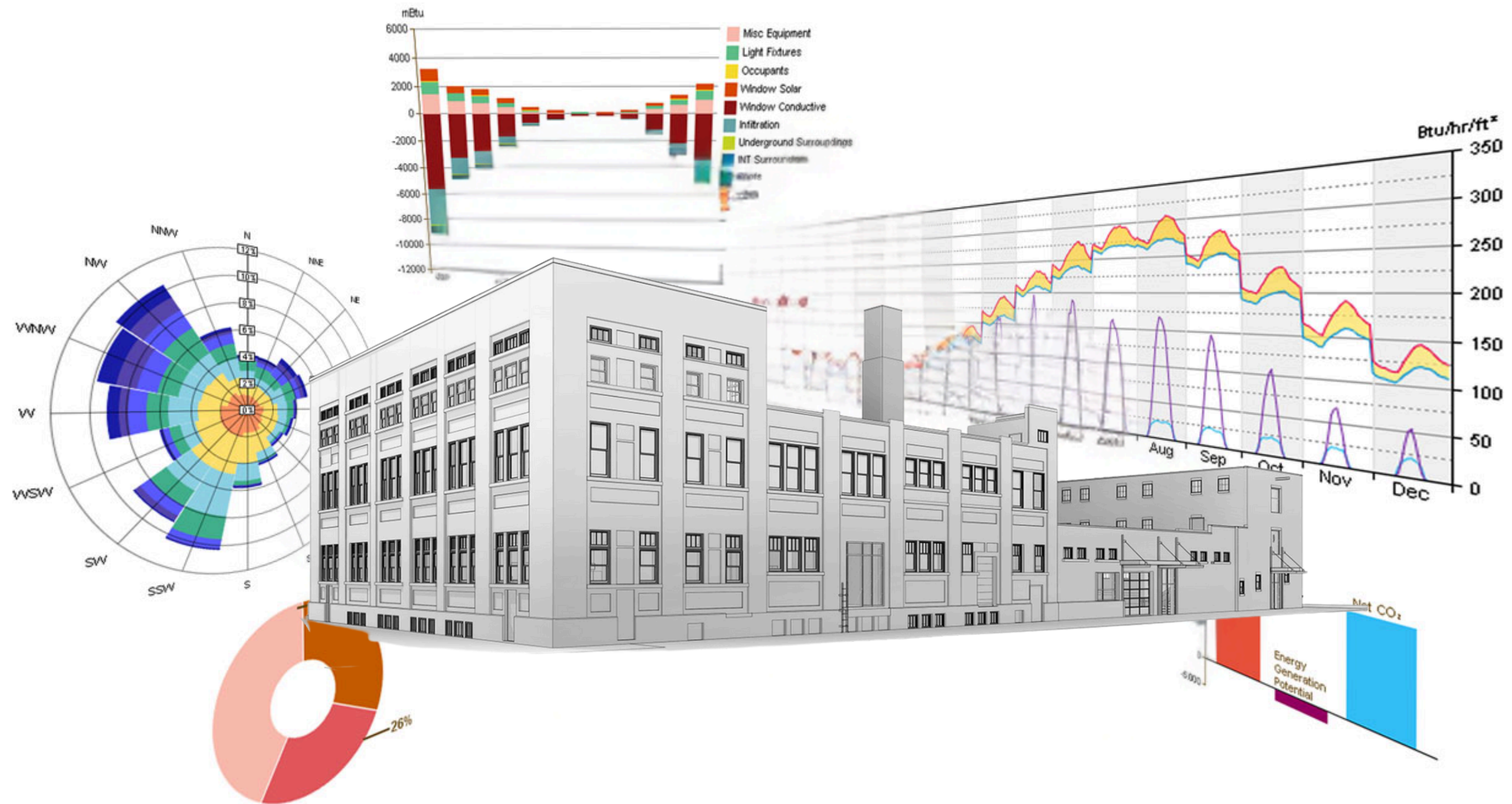
HISTORIC ACCURACY + HIGH PERFORMANCE



Façade as seen from Maple Street in April 1913.



window and wall sections here



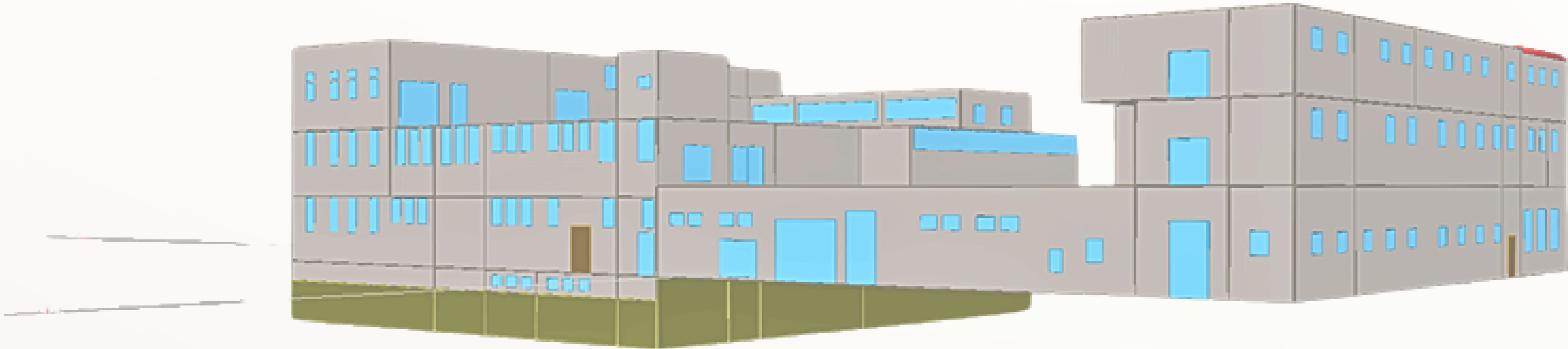
ENERGY MODELING

EARLY DESIGN STAGE ANALYSIS

Energy Efficiency Measures

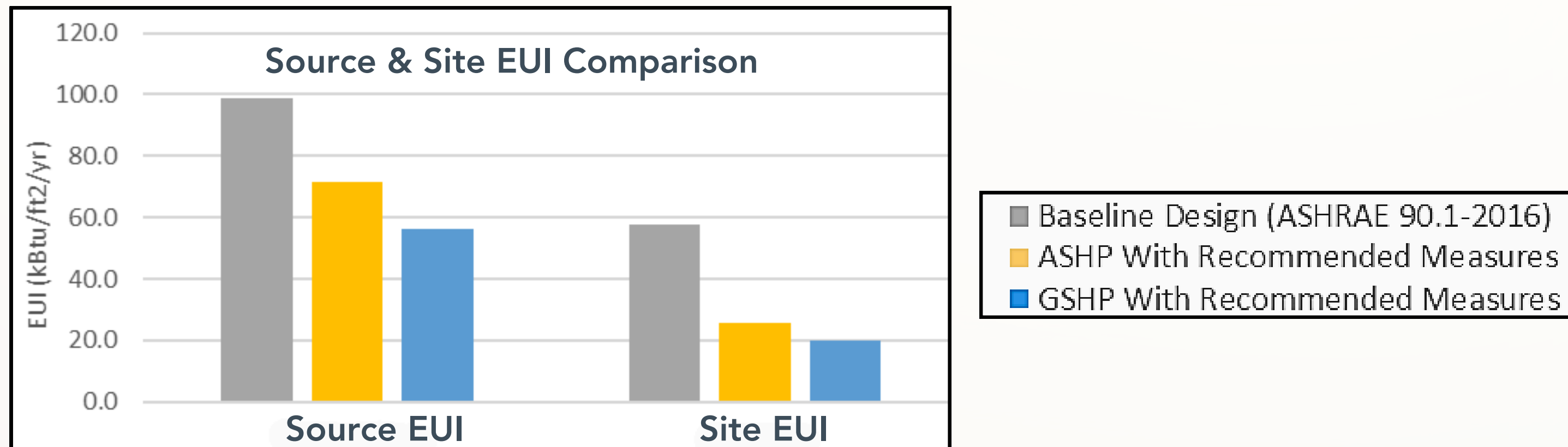
Recommended Package

DCV (Only for Commercial Spaces)
ERV 76% effectiveness
LPD Reduction - 50% better than ASHRAE 90.1-2016 with daylighting controls & occupancy/vacancy sensor controls
Infiltration Reduction - 0.35CFM/sf, 0.264 ACH
Low Flow Plumbing Fixtures
Roof Insulation – Assembly U-0.020
Above Grade Wall – Assembly U-0.045
Windows - Assembly U-0.20/SHGC-0.26
ASHP CO2 DHW heater/GSHP DHW Heater*



Energy & Cost Savings Overview

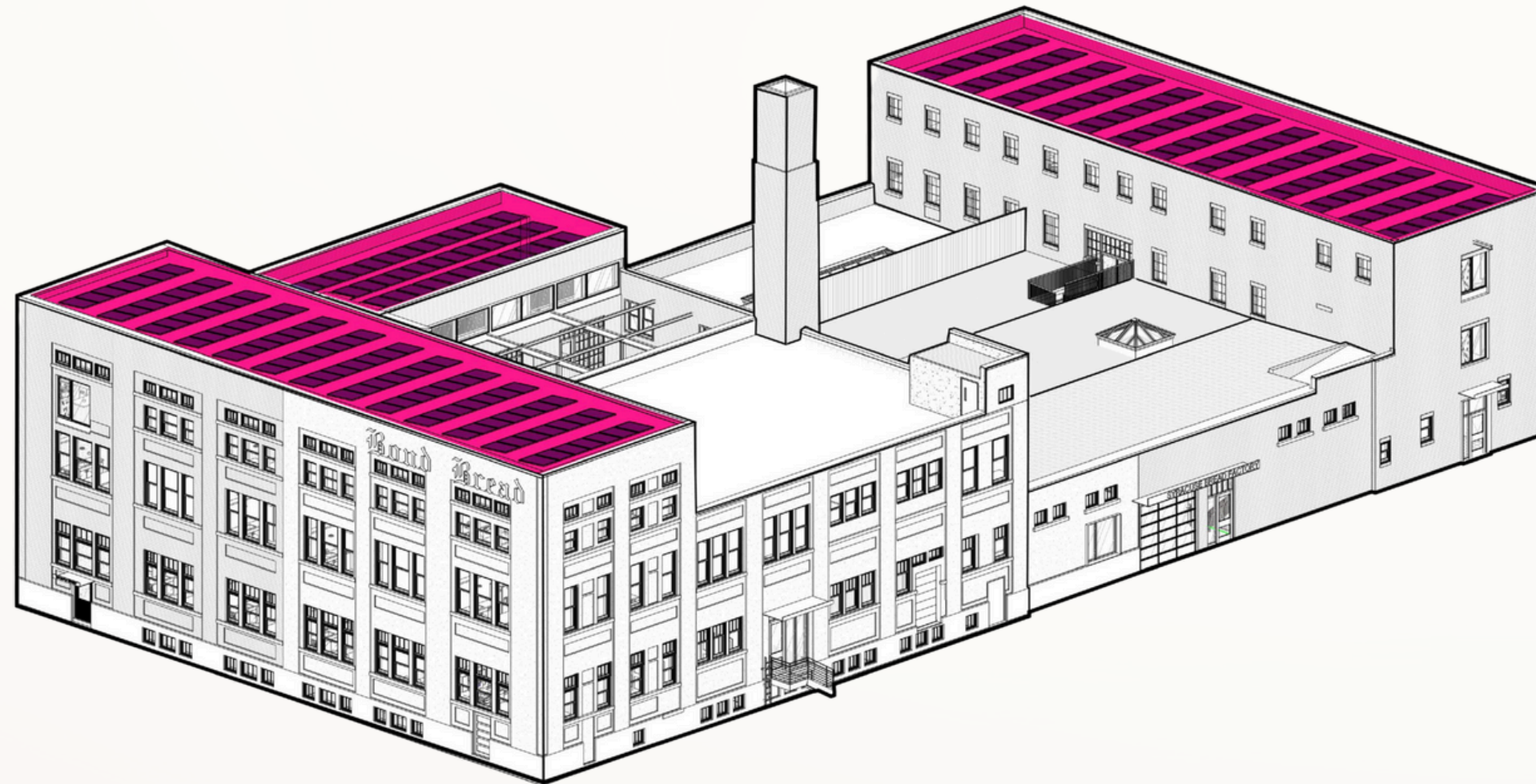
Package	Energy Costs (\$/yr)	Energy Cost % Savings	Site EUI (kBtu/ft2/yr)	Source EUI (kBtu/ft2/yr)*	Source EUI % Savings	GHG Emissions (mtCO2e/yr)**
Baseline Design (ASHRAE 90.1-2016)	\$98,417	-	57.9	98.7	-	160.26
ASHP With Recommended Measures	\$98,699	0%	25.5	71.5	28%	55.2
GSHP With Recommended Measures	\$75,792	23%	20.1	56.3	43%	43.5



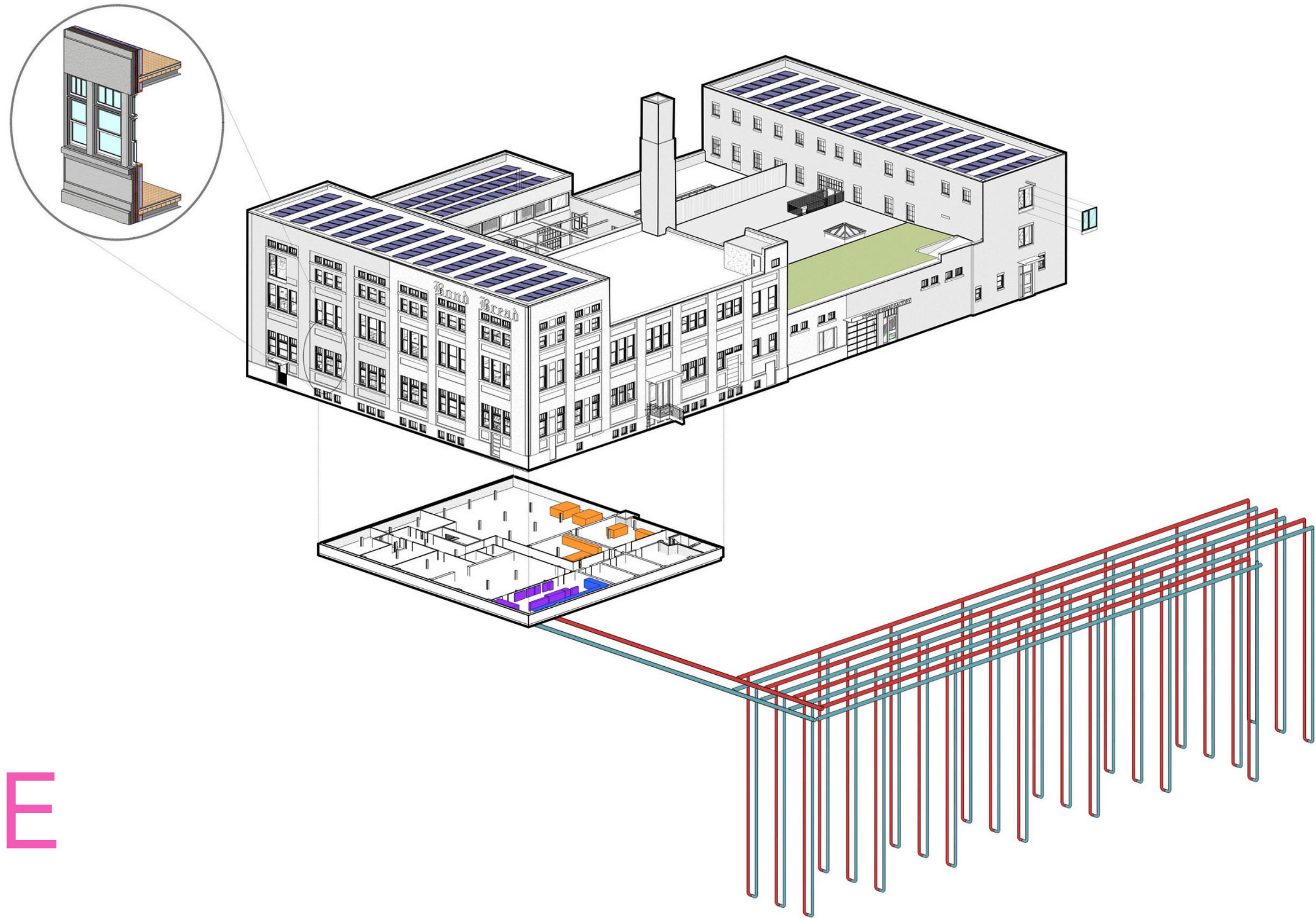
Solar PV Capacity Estimates for Net Zero Energy

- ASHP Package → ~368 kW Solar PV Capacity Required
- GSHP Package → ~290 kW Solar PV Capacity Required

☀️ Solar PV capacity is a rough estimate and can be either on-site or off-site.



TEST
AND
ITERATE



Concepts that align with the project goals

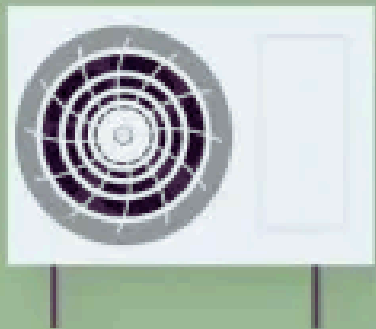
Goals for building performance

- High performance
- Maintain historical aesthetic
- Building resiliency

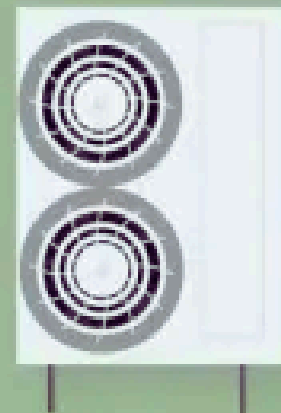
Goals for system performance

- Near-Net-Zero
- 20% above baseline NYS code 2020
- Passive House “Inspired”

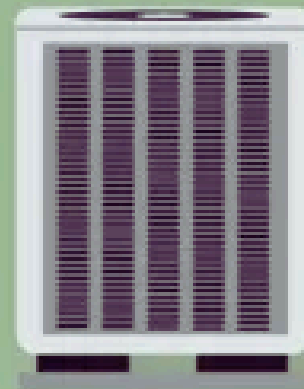
Mini-Split
Heat Pump



Multi-Zone
Air Source
Heat Pump



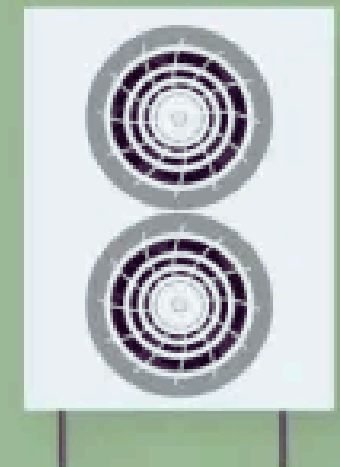
Central Heat
Pump



Geothermal
Heat Pump
Ground Loop

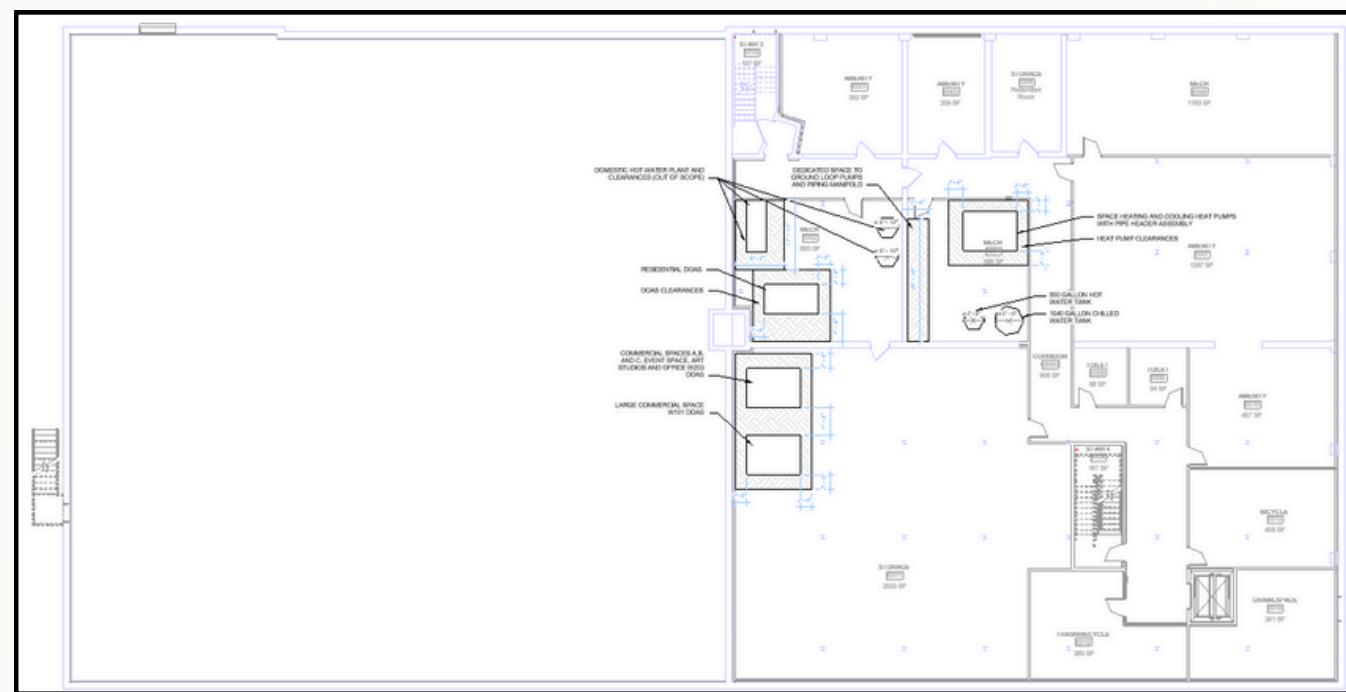
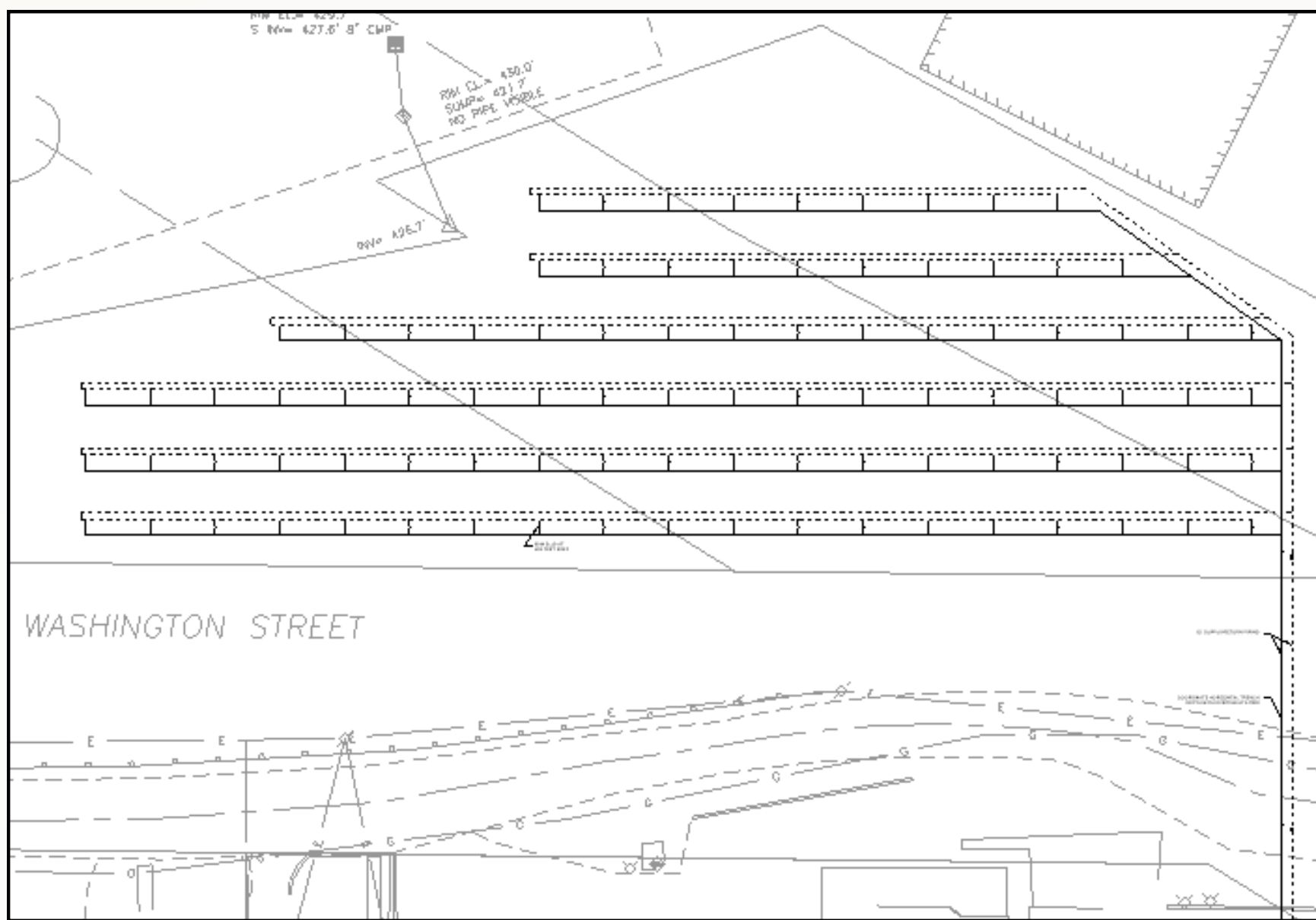


Air-to-Water
Heat Pump

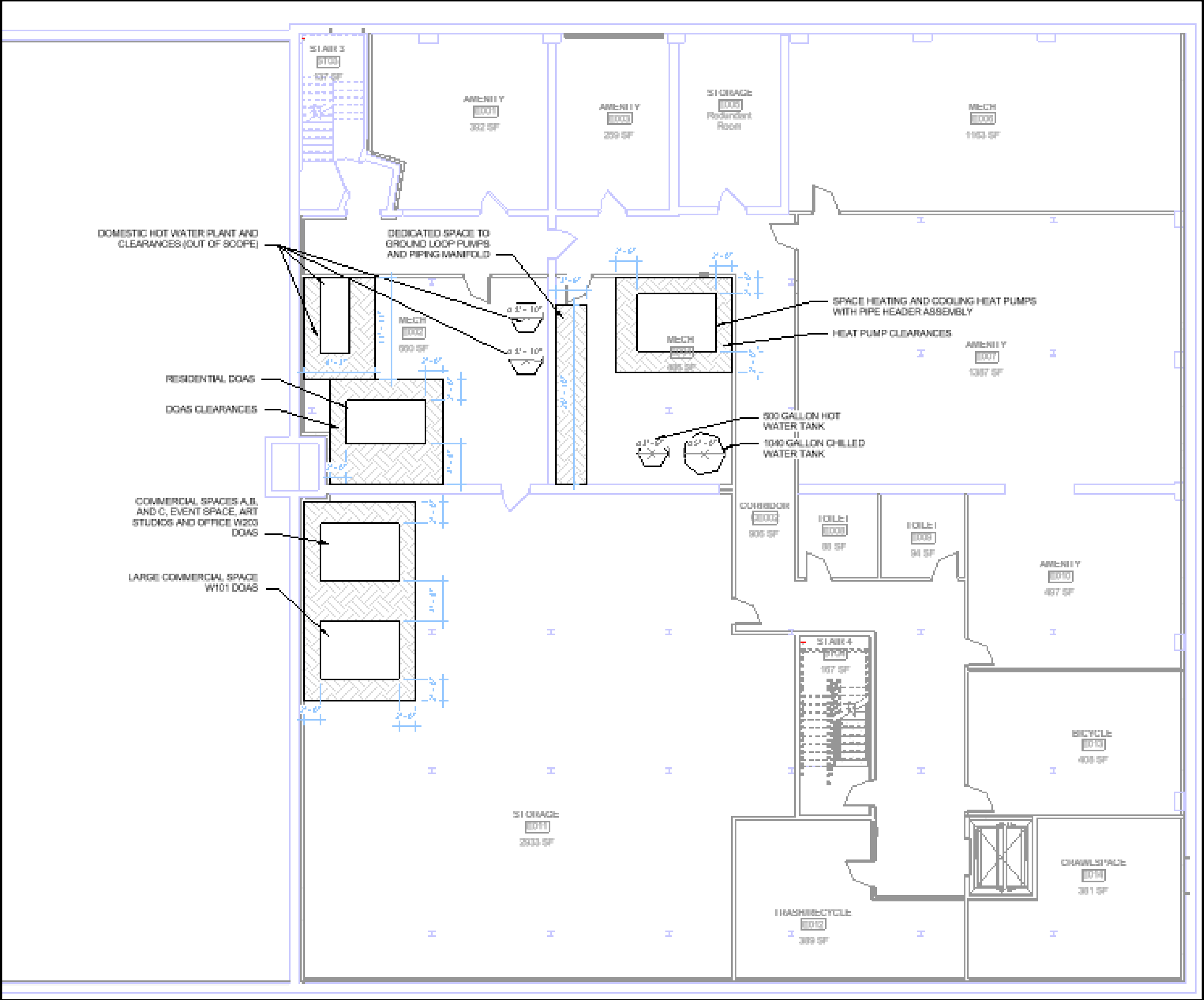


Selected system

Ground-source heat pump



slide of proposed basement equipment layout





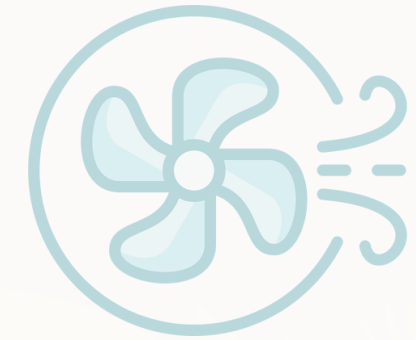
SPACE HEATING AND COOLING



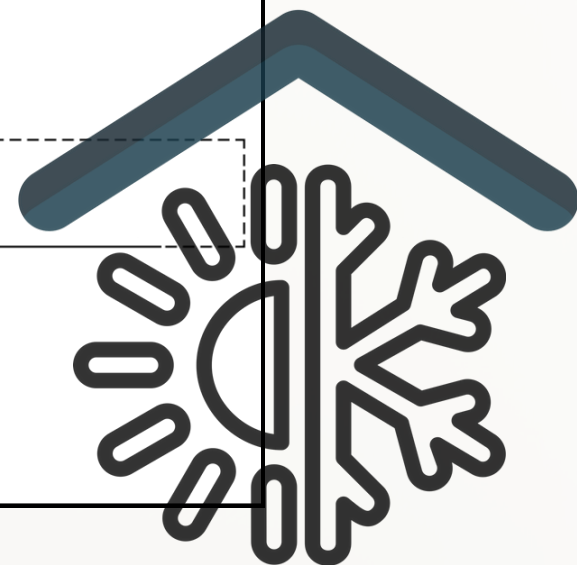
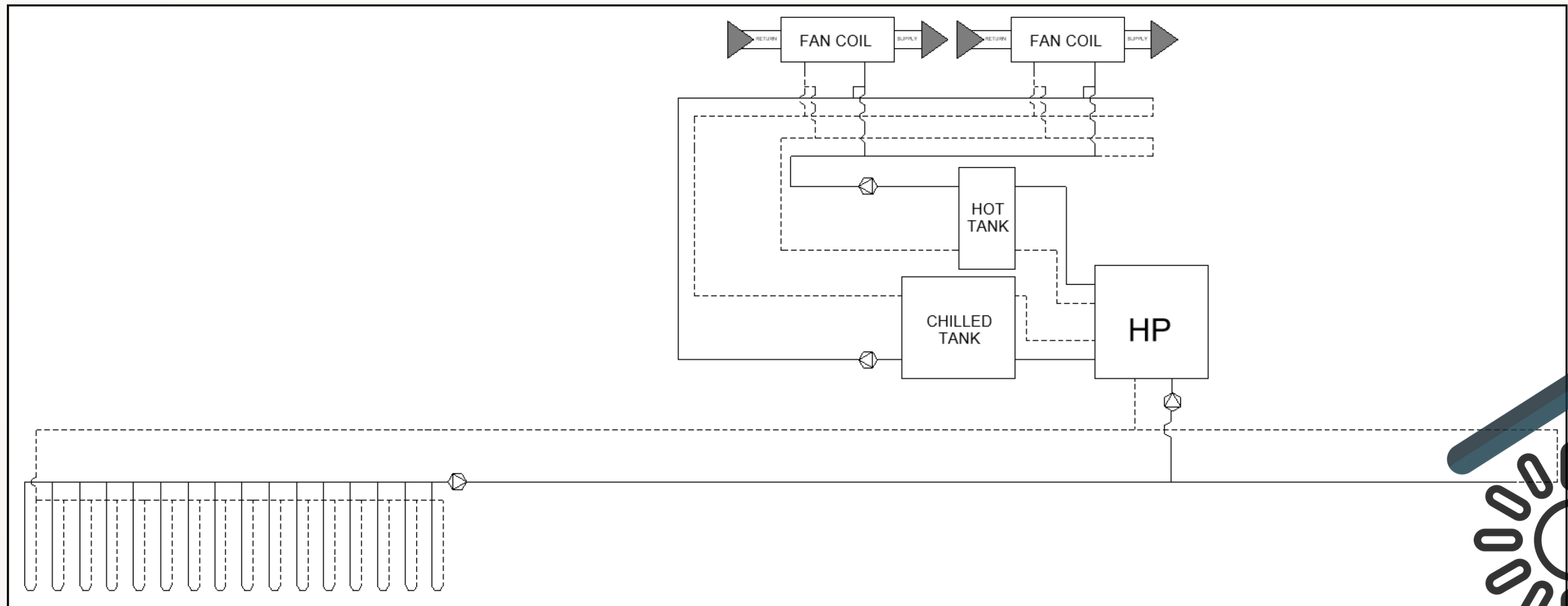
Domestic hot water



HEATING AND COOLING



Ventilation





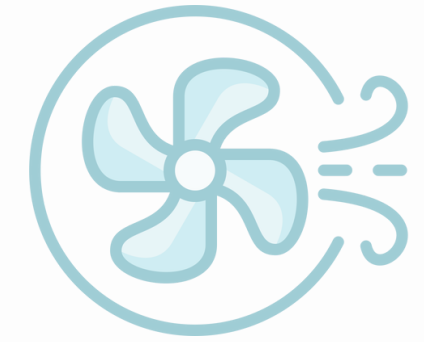
DOMESTIC HOT WATER



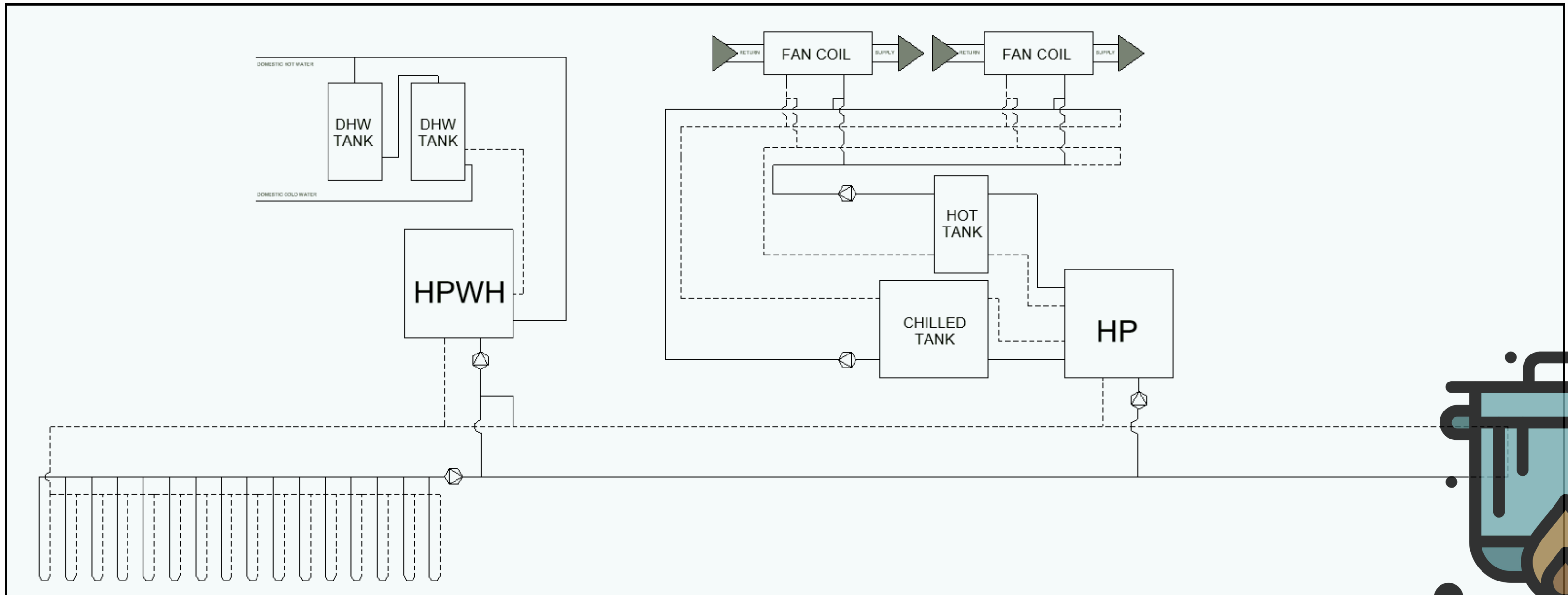
DOMESTIC HOT WATER

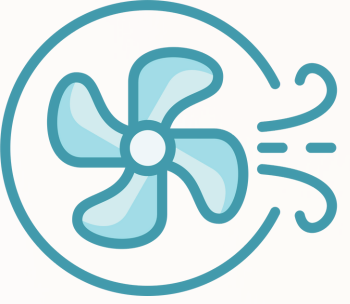


HEATING AND COOLING



Ventilation





SPACE VENTILATION



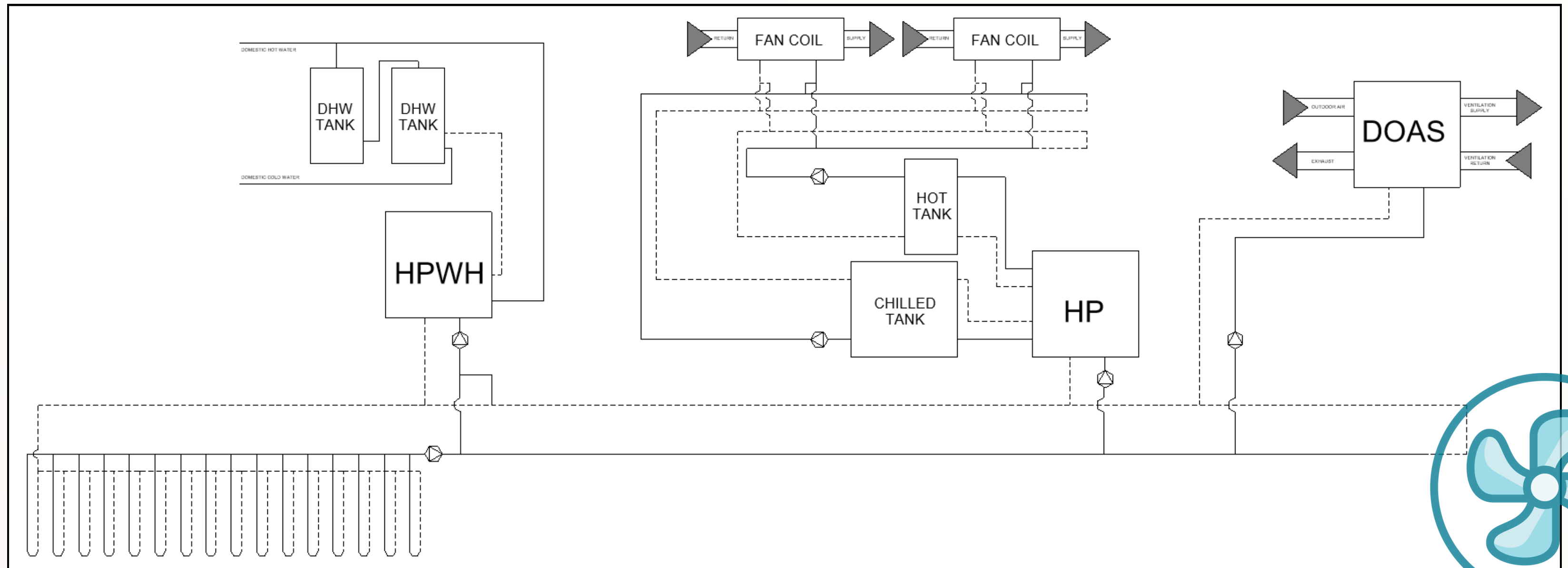
DOMESTIC HOT WATER



HEATING AND COOLING



VENTILATION



SUMMER



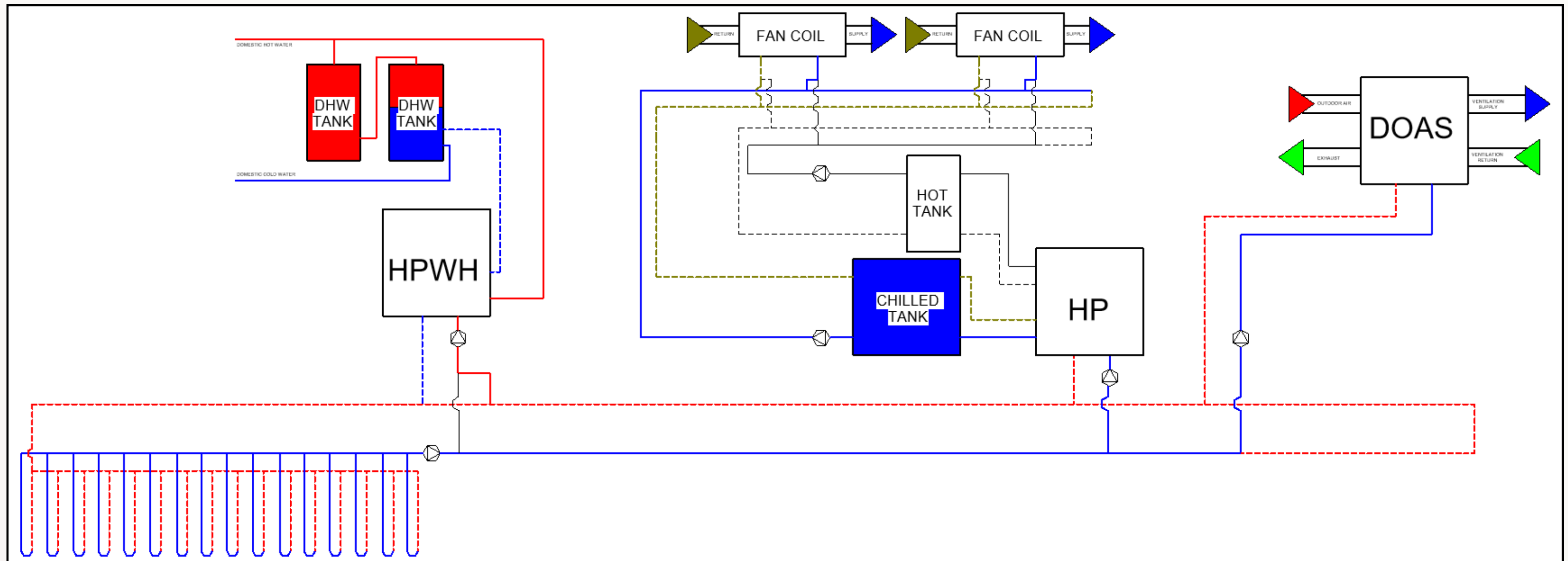
DOMESTIC HOT WATER



HEATING AND COOLING



VENTILATION



WINTER



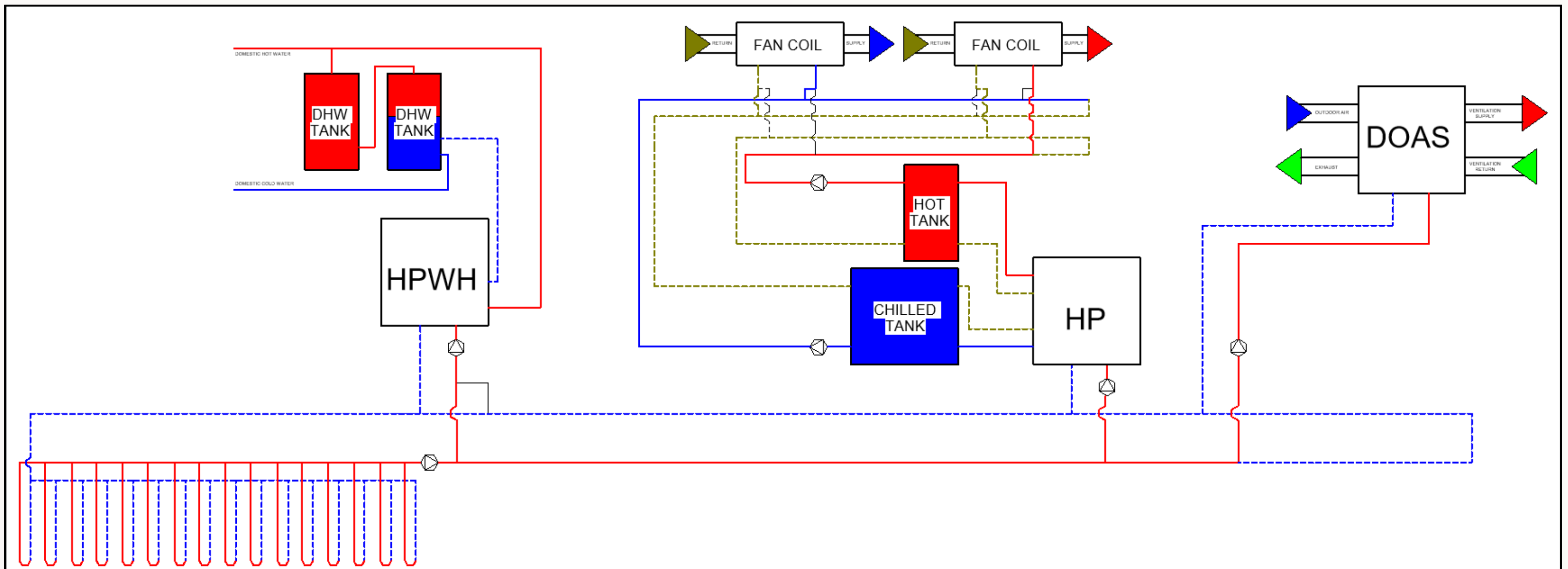
DOMESTIC HOT WATER



HEATING AND COOLING



VENTILATION



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The great project team

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Taitem Engineering, DPC

