# Climate Week Showcase:
# Smart Buildings & Emerging Tech

Join Building Energy Exchange for an engaging showcase spotlighting exciting developments in high-performance building and retrofit technologies. Hear from subject matter experts regarding advanced solutions like smart sensors, building management systems, insulation innovations, heat recovery strategies, and more.

In addition to brief presentations from leading solution providers, the evening will feature informational displays, remarks from our event sponsor — Energy by 5—networking, and refreshments.

opening remarks:
Ryan Baxter, Carbon Strategist, Energy by 5

presenters:
Todd Kimmel, US Senior Manager , Sustainable Solutions, Rockwool
Zeid Harb, Co-Founder, CEO, Carbon Clear
Ellinor Granstrom, Program Manager for North America, URBS
Chris Colasanti, Partner, JB&B
Doug Kafka, Sales Director, Commercial, Lutron Electronics, Inc

be ex
building energy exchange

5

31 Chambers Street
New York, NY

September 23, 2025
5:30 - 7:30pm

# ROCKWOOL Smartrock®

Introducing a high-performance interior continuous insulation solution for masonry and concrete projects.

ROCKWOOL®

09-23-2025

ROCKWOOL delivers insulation products that help customers and communities tackle sustainability challenges, from **energy consumption**, **decarbonization**, **fire resilience** to **noise pollution.**

Our decarbonization efforts are focused on three key areas:

**Energy efficiency**; **Technology innovation**; and **Circularity**.

ROCKWOOL actively contributes to **10 of the 17 Sustainable Development Goals.**

## SDG-related

**Baseline year 2015 (goal 2030)**

Scope 1 and 2 $CO_2$ emission intensity (per tonne of stone wool produced) — Ahead of target
23% | 20%

Water use intensity (per tonne of stone wool produced) — On track
17% | 20%

Countries offering recycling service for our products — On track
24 | 30 countries

Energy efficiency in own office buildings — Progressing
39% | 75%

Waste to landfill from stone wool production — Progressing
40% | 85%

## SBTi-related

**Baseline year 2019 (goal 2034)**

Absolute Scope 1 and 2 GHG emissions ($CO_2e$)
18% | 38%

Absolute Scope 3 GHG emissions ($CO_2e$)
19% | 20%

Strong progress

Net-zero GHG emissions ($CO_2e$) by 2050 — Progressing
9% | 90%

# Retrofitting Buildings

ROCKWOOL®


ONE WAY
DO NOT ENTER
ONE WAY

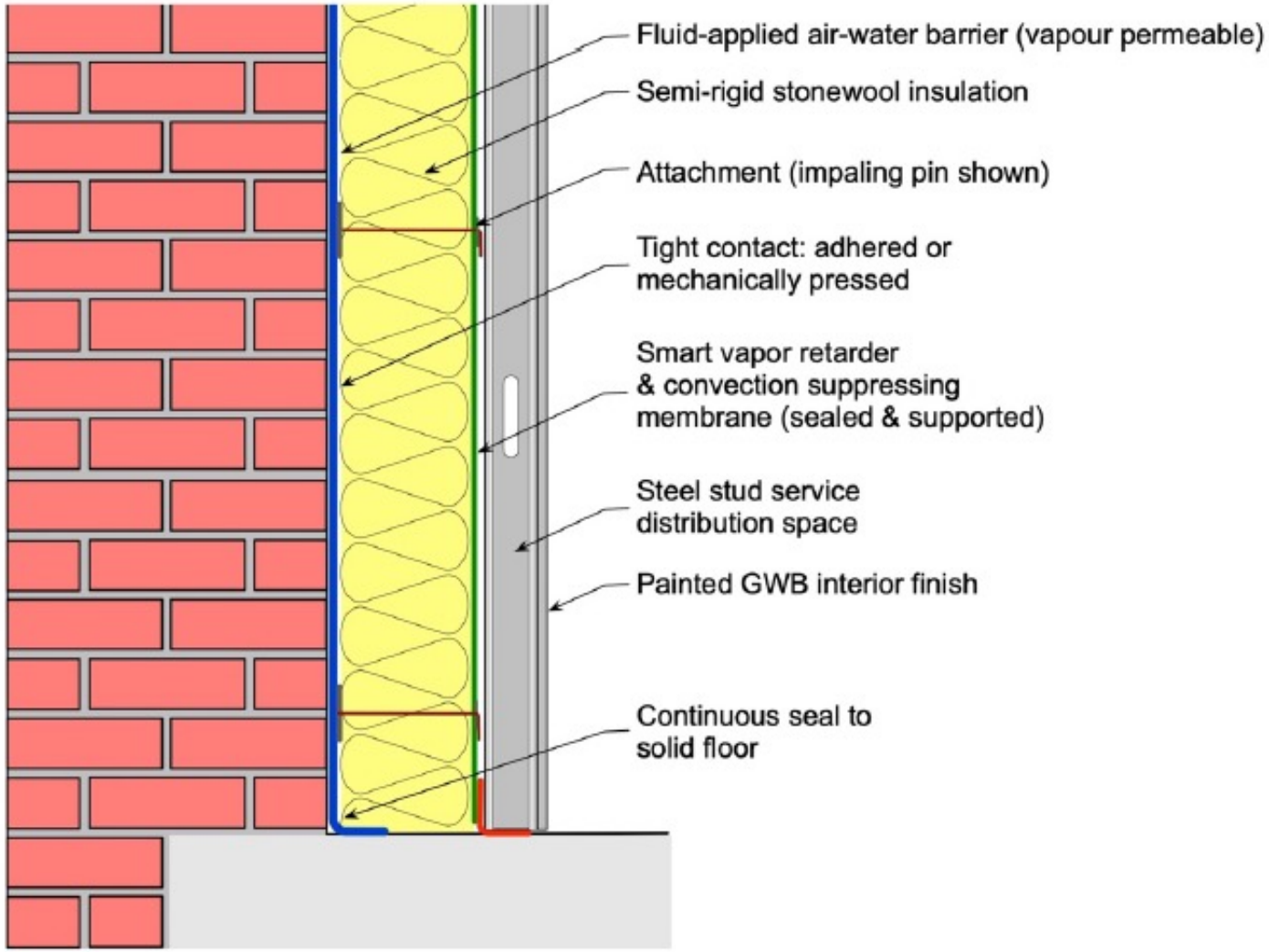



Figure 11: Interior retrofit using mineral fiber insulation

Flatbush Brooklyn

Greenpoint Brooklyn

ROCKWOOL

# Introducing ROCKWOOL Smartrock®

- Class A fire-rated per ASTM E84 makes it suitable in IBC Type I through V buildings
- Durable solution that allows a high degree of drying potential for the wall assembly
- Faster installation with integrated membrane reduces labor vs. two-step installation
- Combines insulation install and interior smart vapor control layer in a single step
- Stable long-term thermal performance to meet and exceed energy codes


Bushwick
Brooklyn



Gowanus Brooklyn

ROCKWOOL



Flatiron Manhattan

Pittsburgh Pennsylvania


ROCKWOOL

Mid-Town Manhattan

Downtown Brooklyn

Downtown Manhattan

Cincinnati Ohio

# Thank you

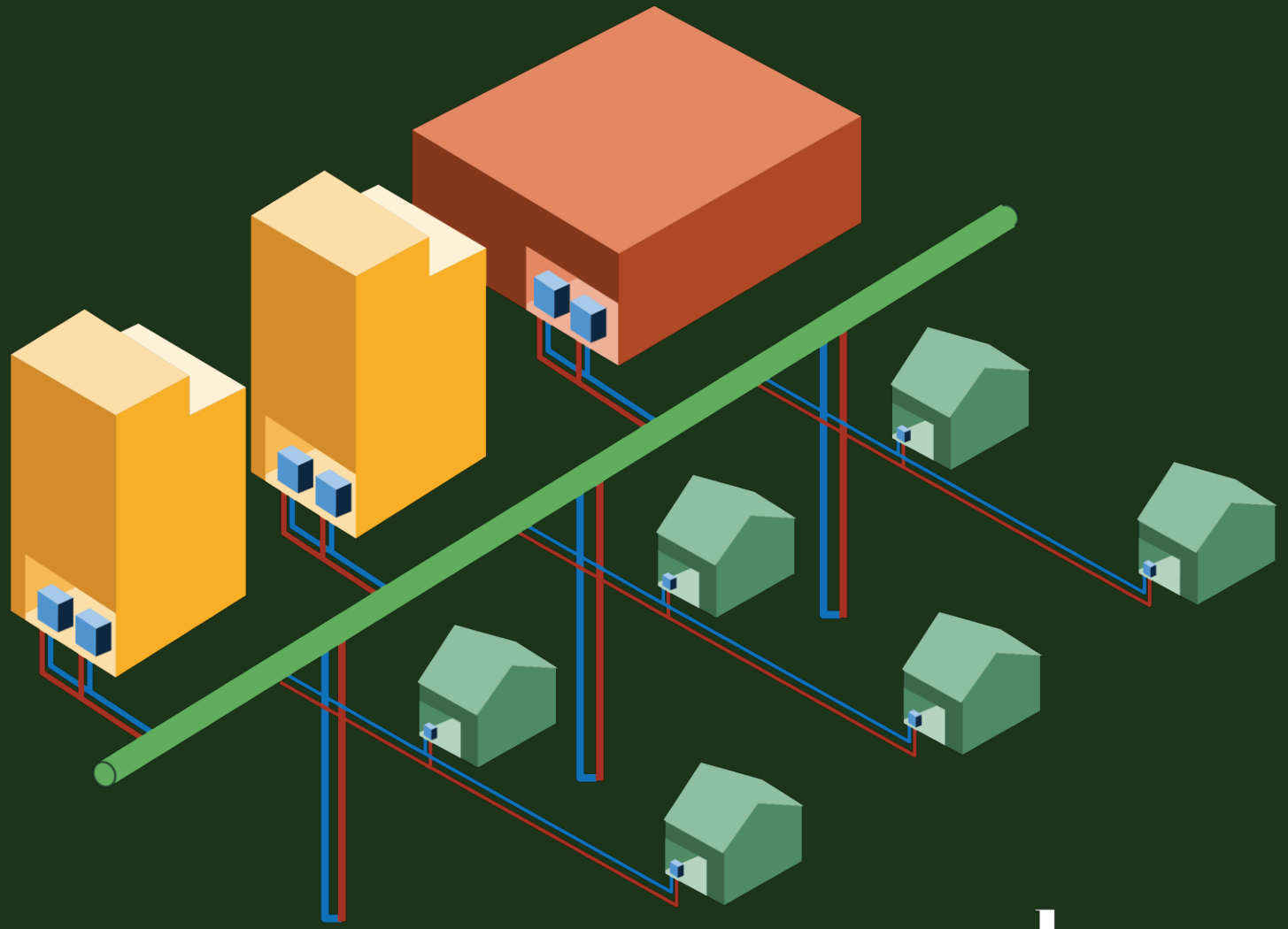
**Todd Kimmel**

US Senior Manager – Sustainable Solutions

ROCKWOOL®

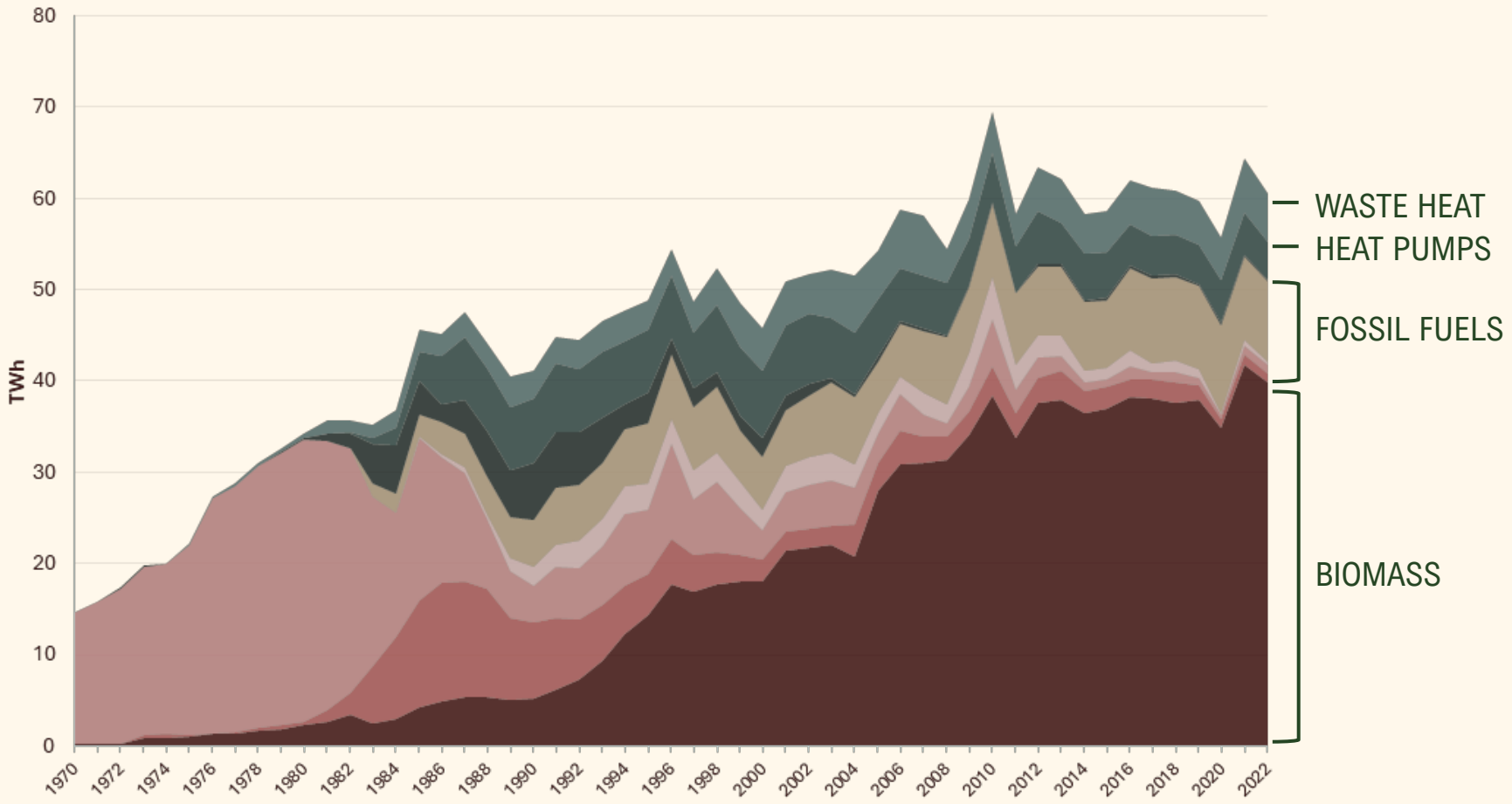
# THERMAL ENERGY NETWORKS

ELLINOR GRANSTRÖM
Program Manager, North America



urbs.
URBAN SYSTEMS

# Learnings From The Nordic District Systems



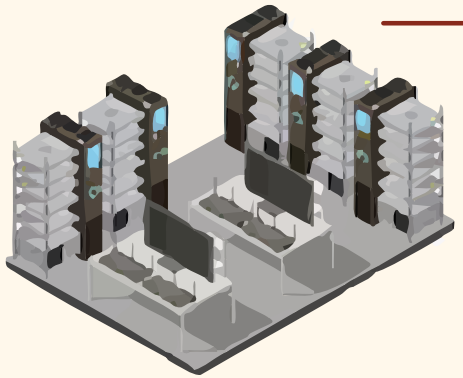

**BIOMASS AS THE MAJORITY INPUT FUEL IN SWEDEN'S DISTRICT HEATING NETWORK, AND ITS INCREASING USE OVER THE PAST SIX DECADES**

# Danfoss Innovation - Harnessing Hospital Waste Heat

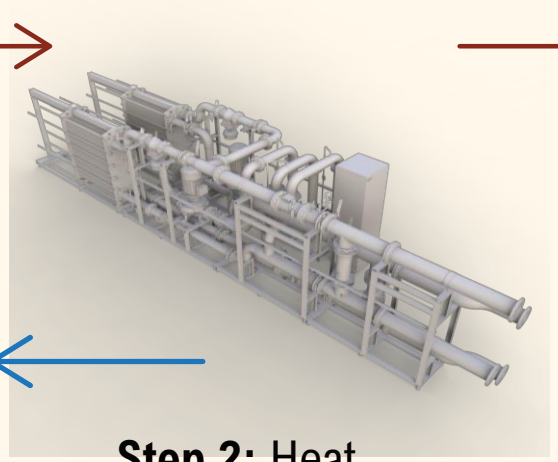
## Sønderborg, Denmark

- 15,800  MWh excess heat → district grid
- Heats 930+ households
- 12,500 MWh annual energy savings

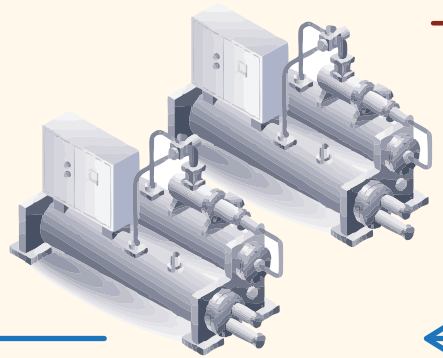

# Danfoss Innovation - Harnessing Data Center Waste Heat



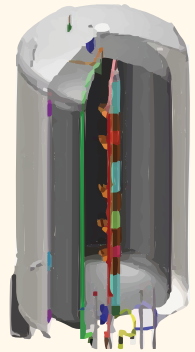
**Step 1:** Data center liquid cooling



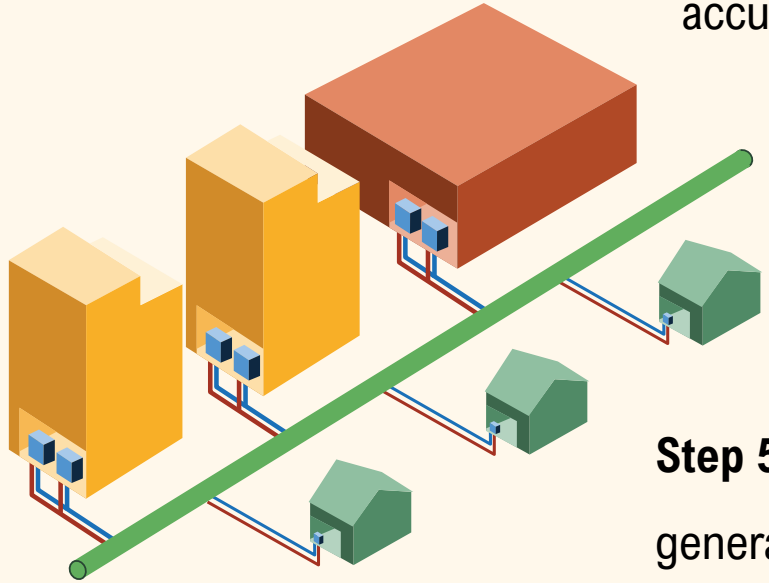
**Step 2:** Heat Recovery Loop



**Step 3:** Heat Pumps



**Step 4:** Heat storage in accumulator tanks



**Step 5:** Supply to 4th generation district heating

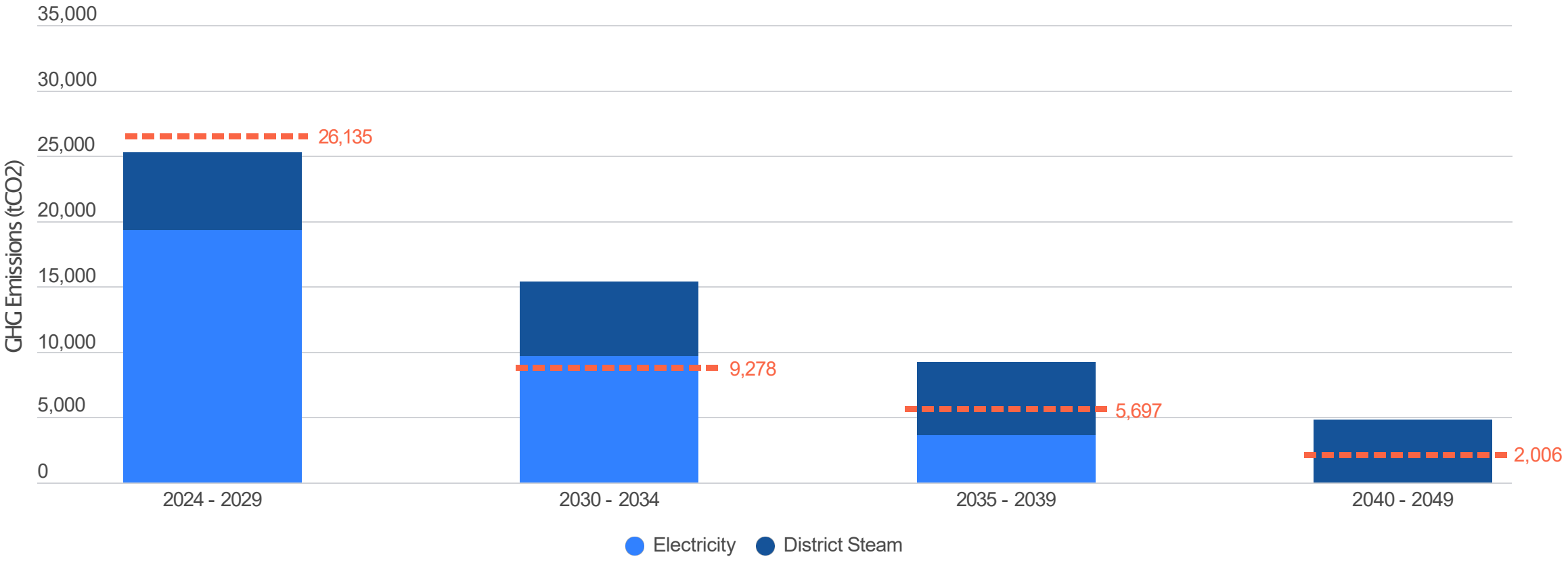
- System COP of 6.8
- 24/7 reliable heat with consistent baseload heat
- Symbiotic operation - cooling servers while heating district networks, turning waste into resource

# Heating 55 Water Street with Ice!

JB&B
DEEP
CARBON
REDUCTION

# LOCAL LAW 97 CARBON PENALTIES

## 40% of emissions in 2030 from steam



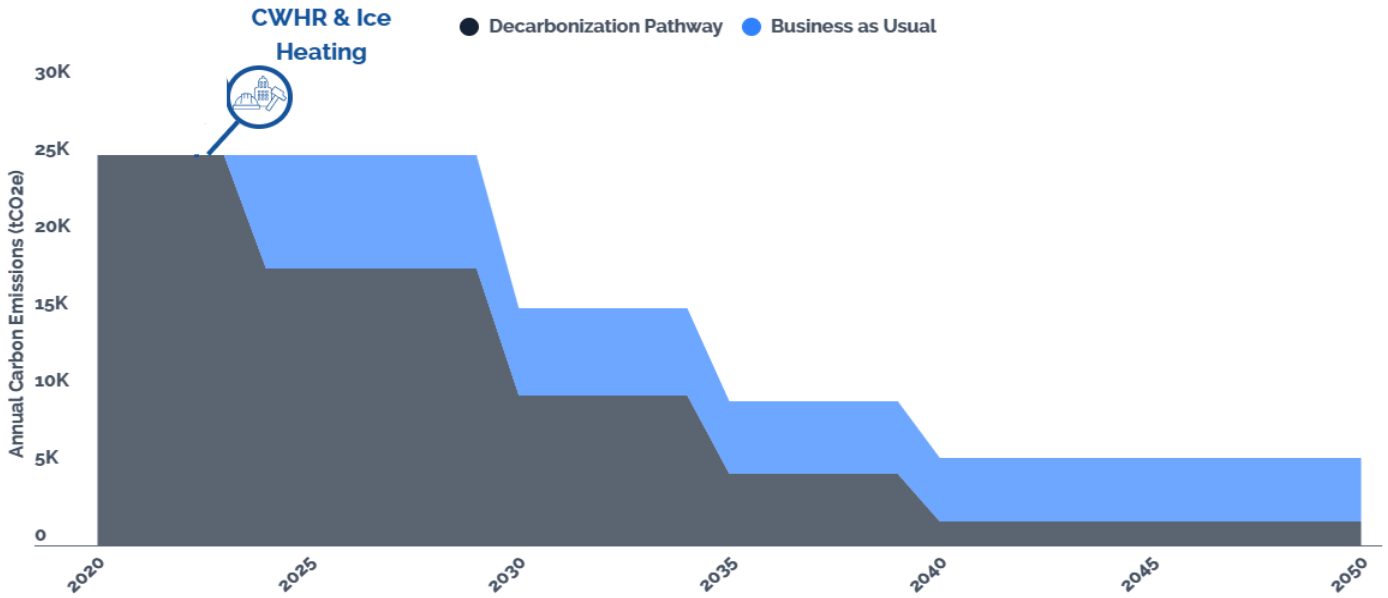

| Reporting Period | 2024-2029 | 2030-2034 | 2035-2039 | 2040-2049 | Cumulative |
|---|---|---|---|---|---|
| Annual Penalties | - | $1.6M | $0.8M | $0.09M | $13.3M |

Note: This analysis assumes electric grid decarbonization in accordance with the CLCPA

JB&B DEEP CARBON REDUCTION

# DECARB ROADMAP

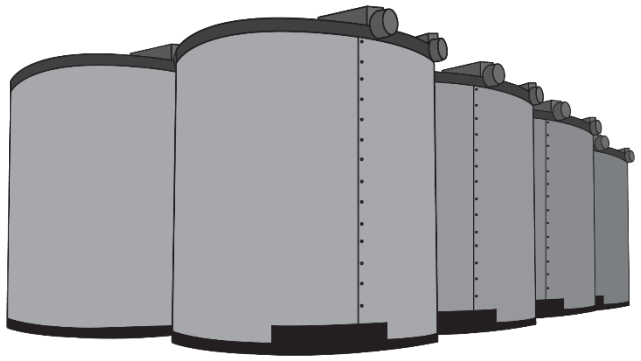
| Energy Conservation Measure | Estimated Annual Energy Cost Savings | Project Cost ($) | Simple Payback |
|---|---|---|---|
| Runaround Airside Heat Recovery | 2.3% | $6.9M | 23 |
| Free Cooling PFHXs | 1.5% | $800k | 4 |
| VAV Induction Units | 3.2% | $1.3M | 3 |
| Window Inserts | 2.5% | $5.1M | 19 |
| Controls Optimization and DCV | 10.2% | $100k | 1 |
| Condenser Water Heat Recovery + Ice Heating | 6.7% | $33.9M | 12 Years |
| ASHPs | 2% | $8M | 40 |




JB&B DEEP CARBON REDUCTION

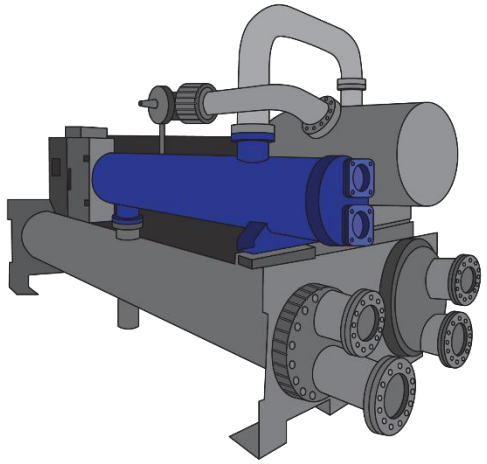
# HOW TO USE ICE TO HEAT A BUILDING

**Energy Storage Tank**



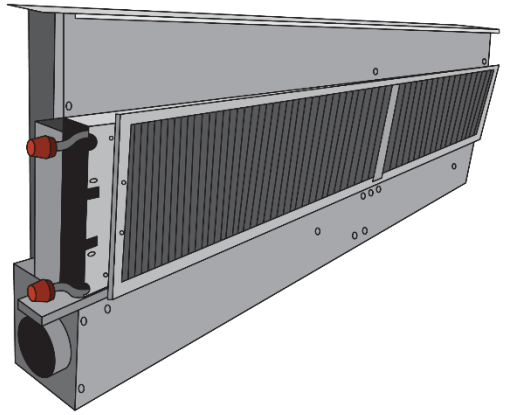
Ice is essentially liquid water with the heat removed from it

**Chiller / Heat Pump**



A chiller extracts heat from ice tanks

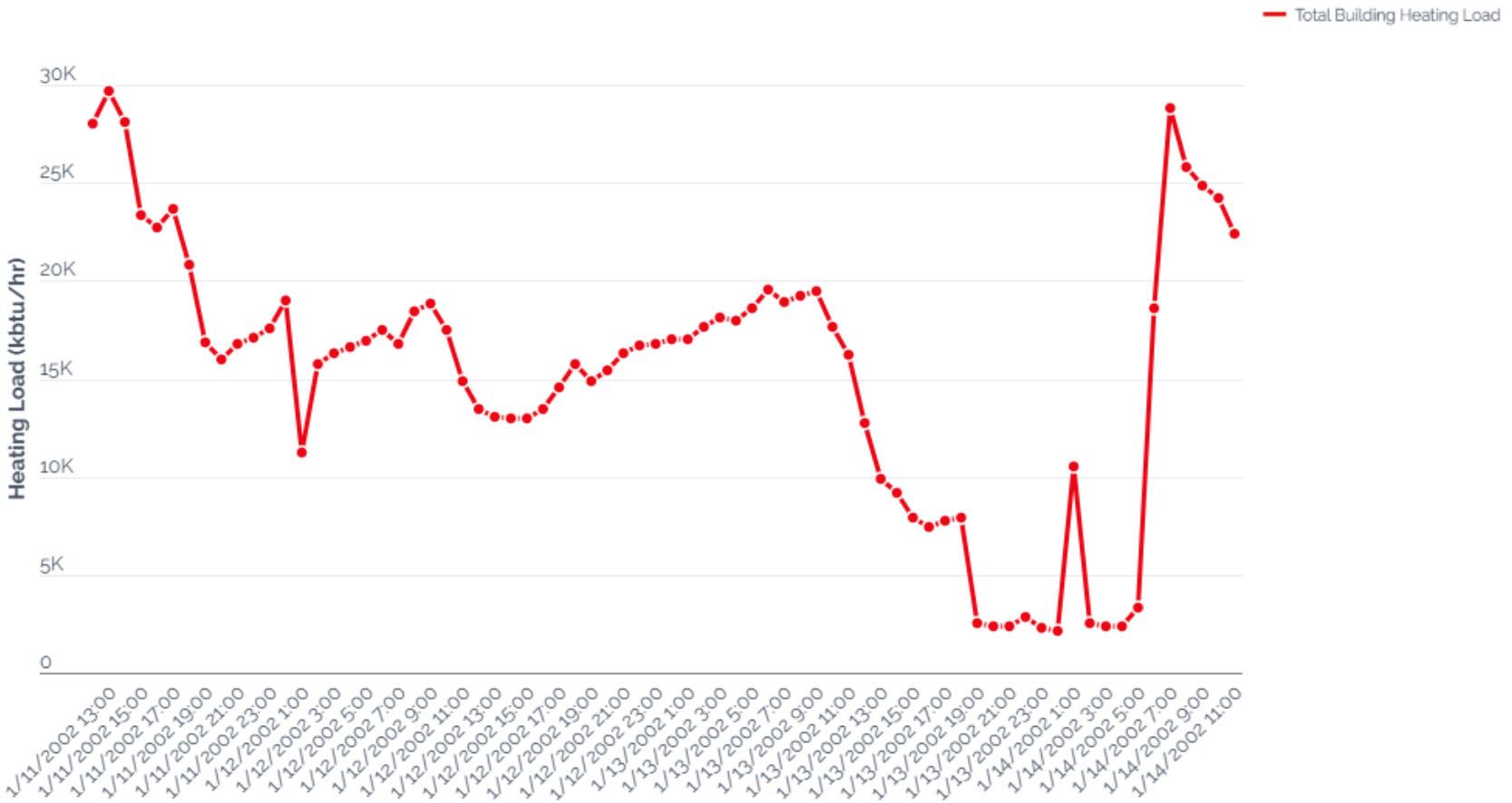
**Heating Load**



The ice tanks become a **source of heat** for the building

JB&B DEEP CARBON REDUCTION

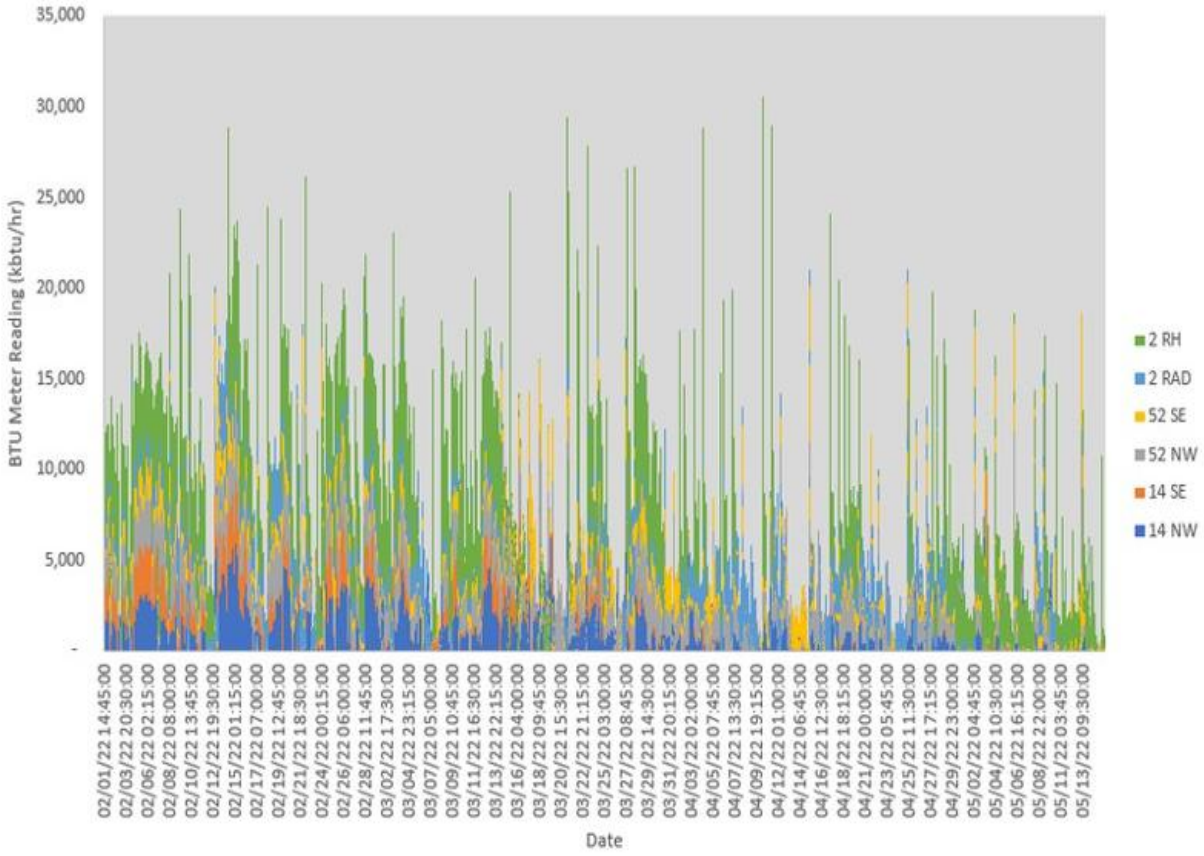
# 55 WATER HEATING PROFILE



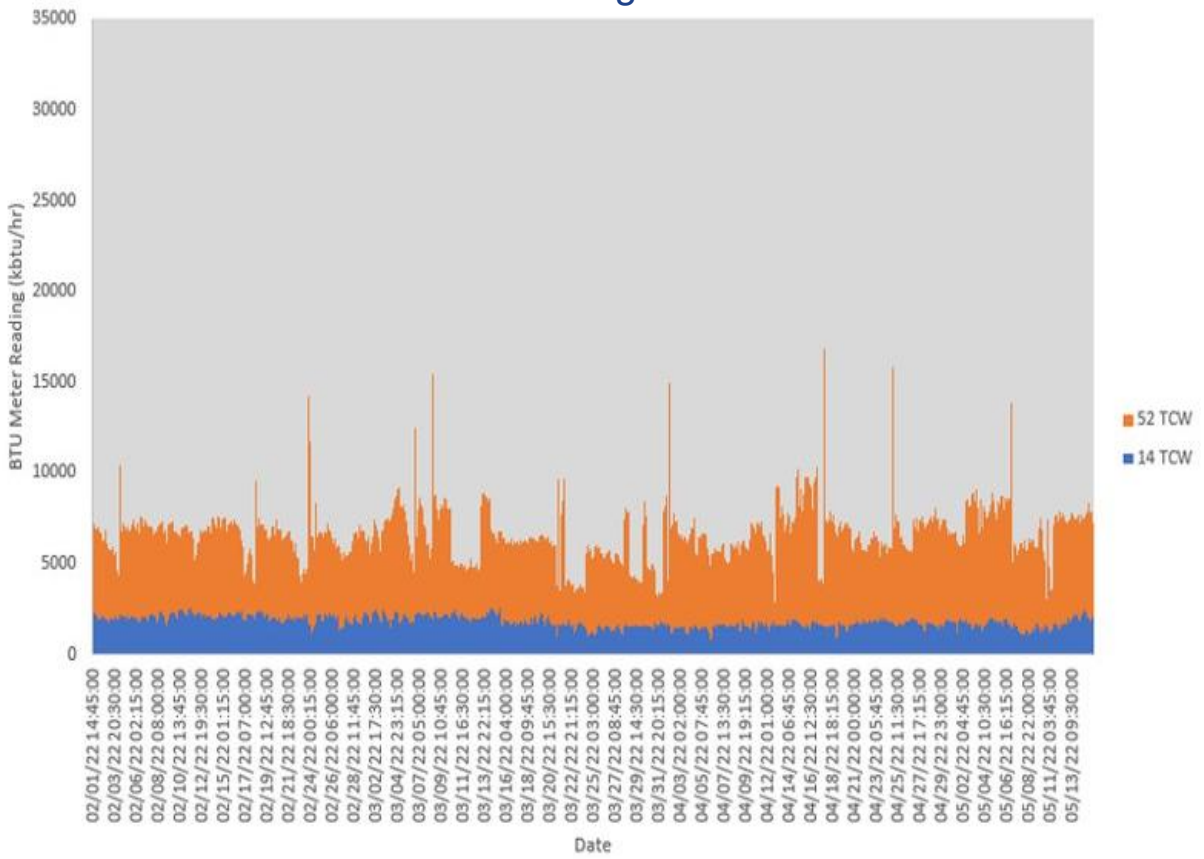

JB&B DEEP CARBON REDUCTION

# HEAT RECOVERY IS CRITICAL STEP

## Winter Heating Loads

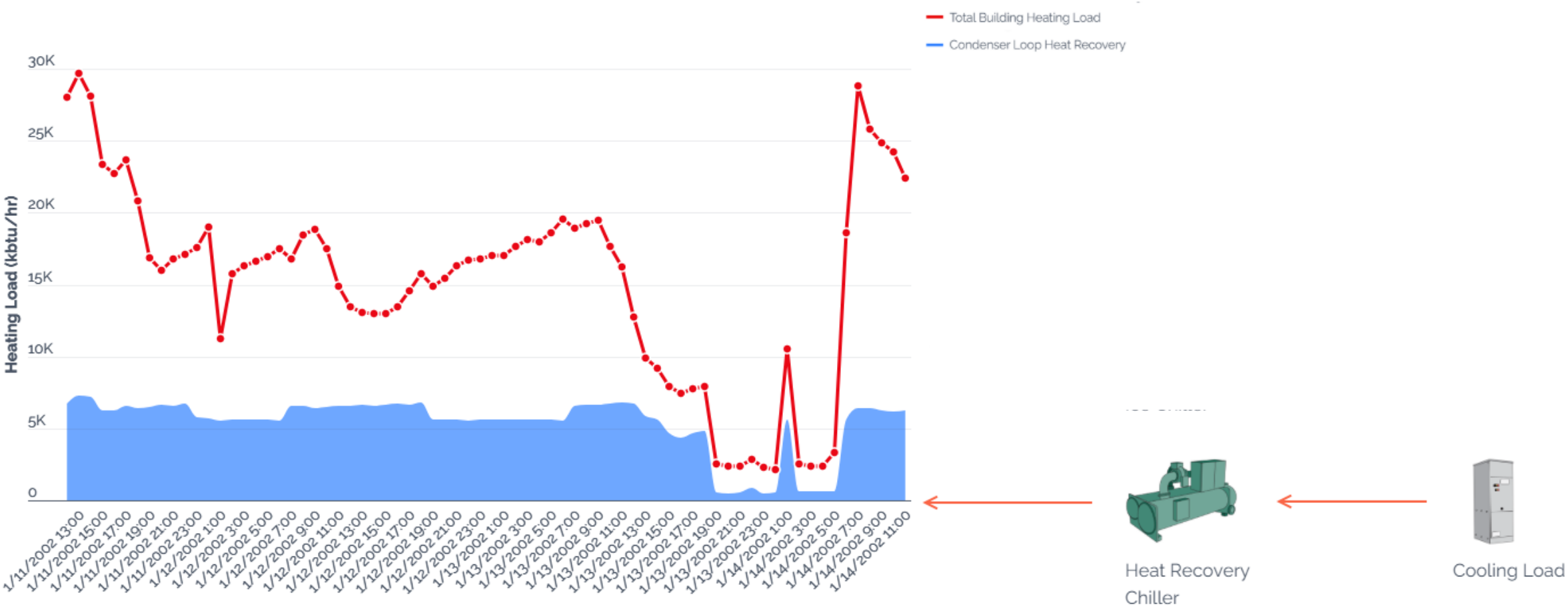



## Winter Cooling Loads



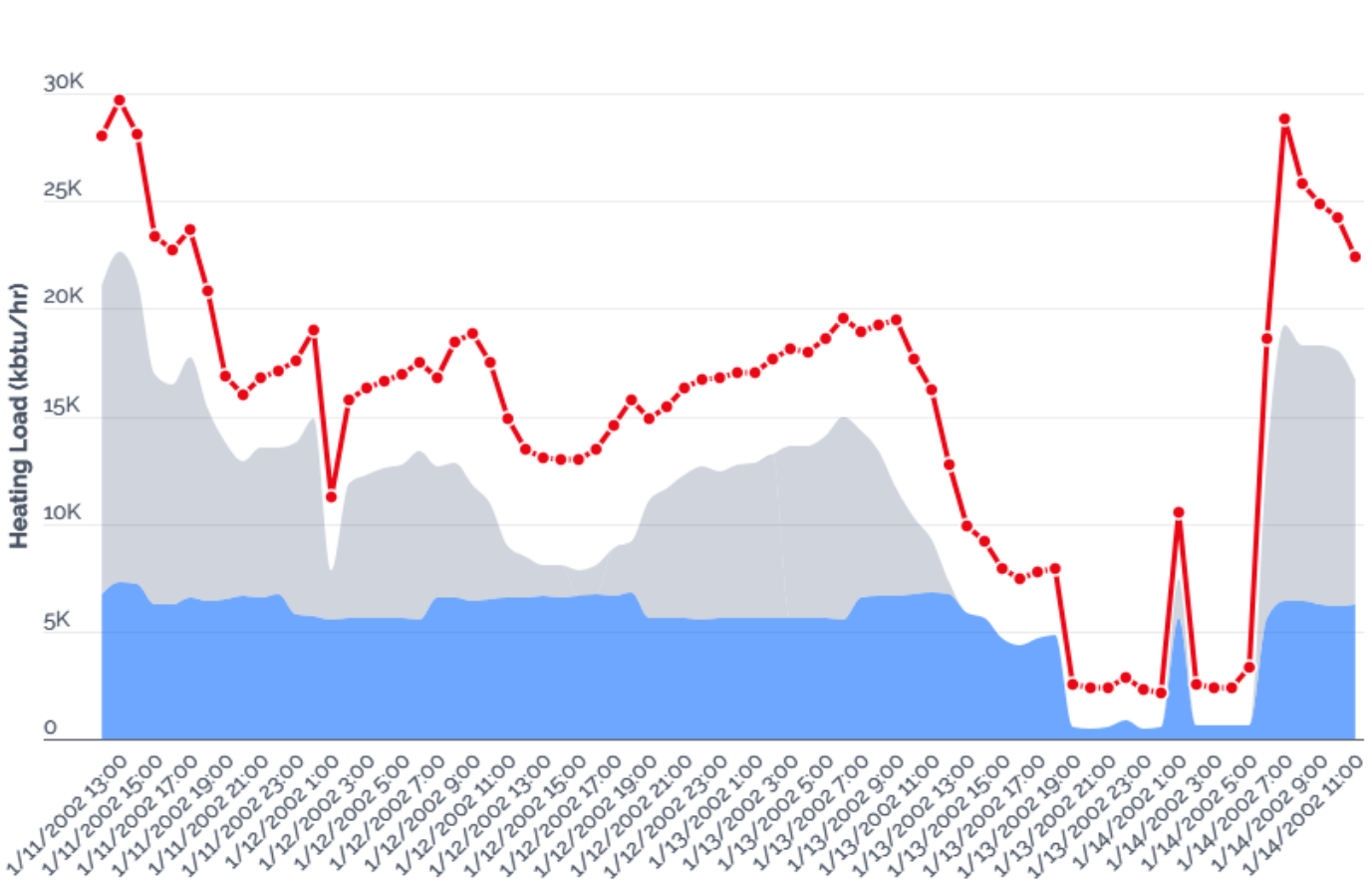

JB&B DEEP CARBON REDUCTION

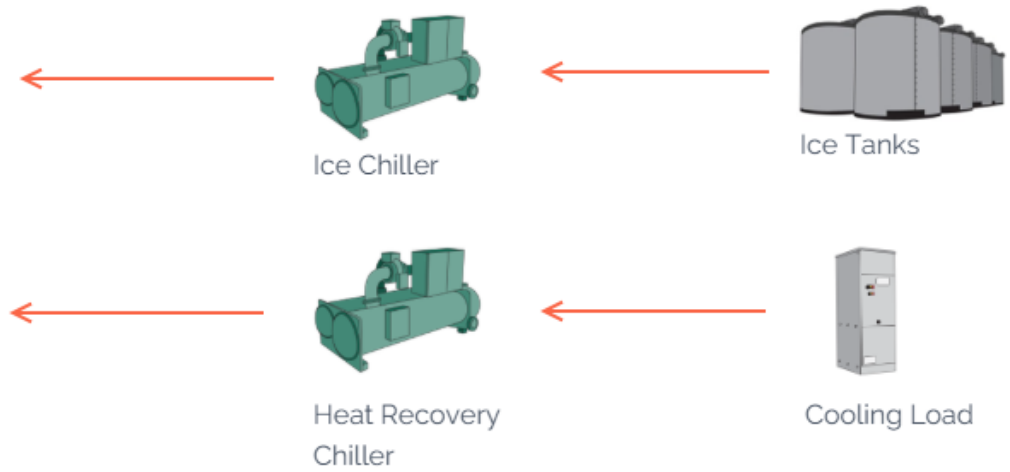
# HEAT RECOVERY FROM DATA CENTER




JB&B DEEP CARBON REDUCTION

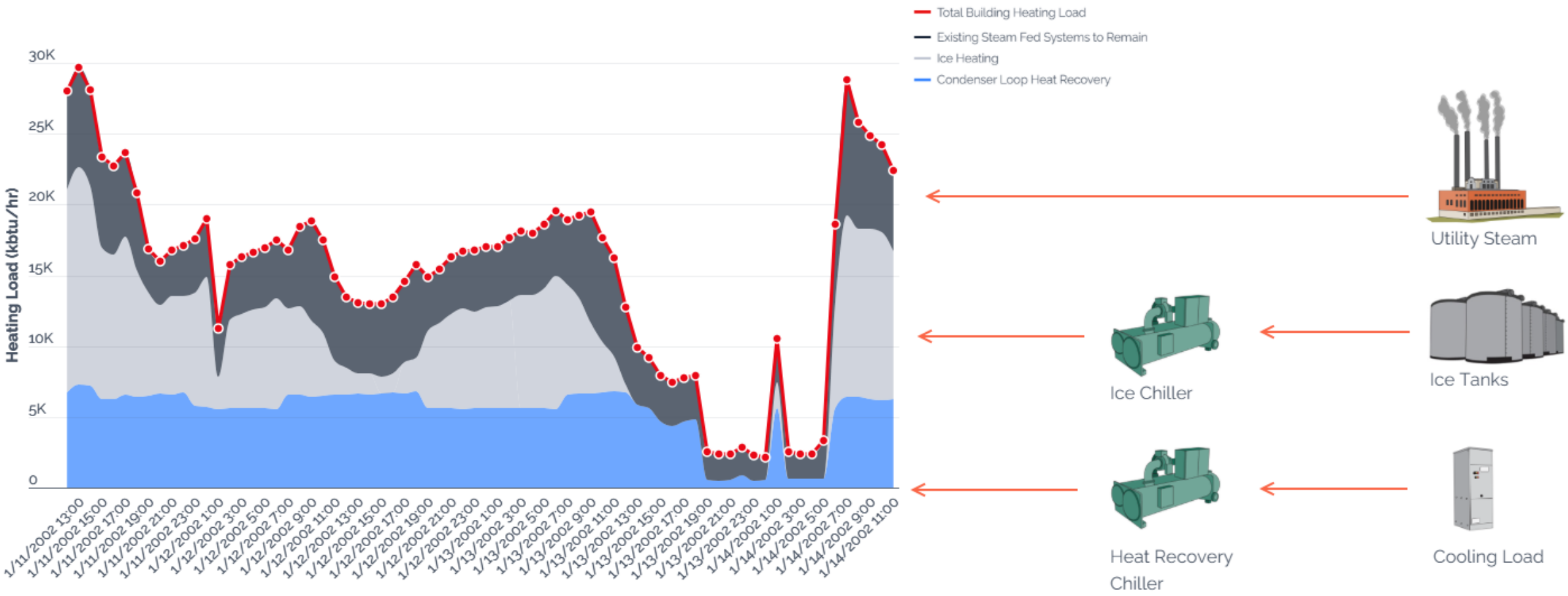
# ICE HEATING



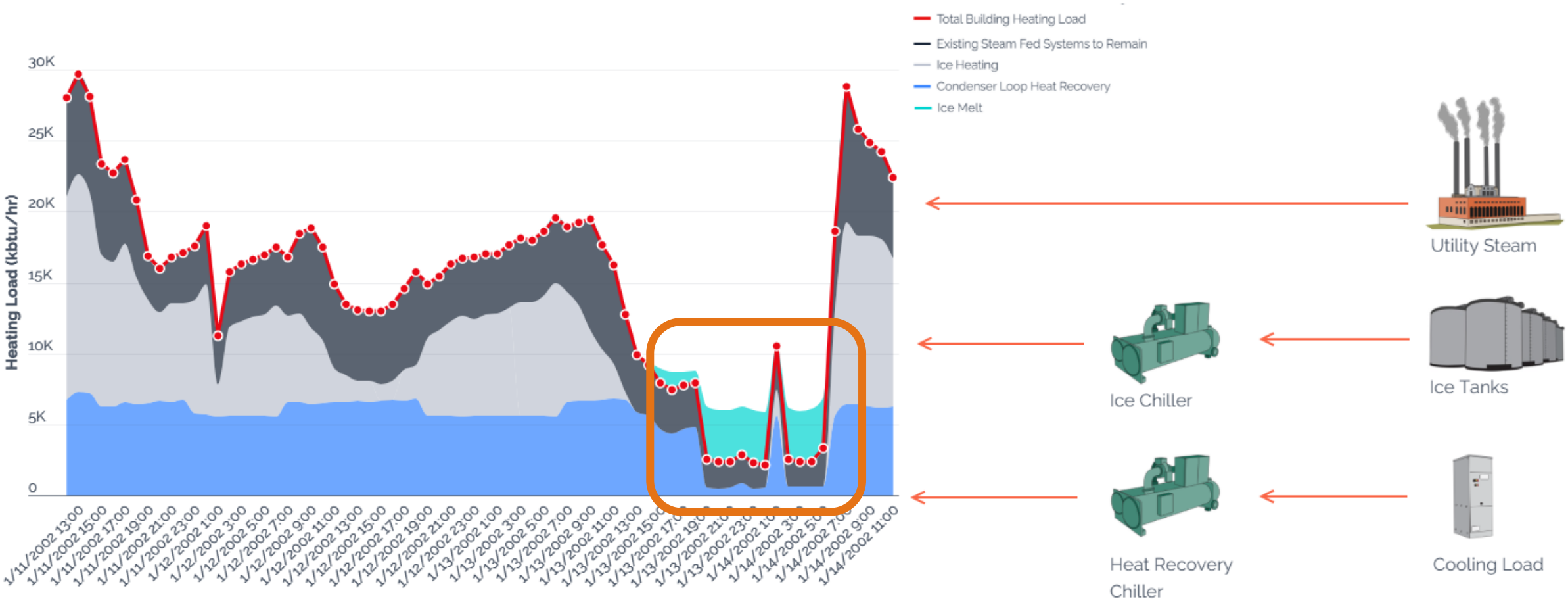

JB&B DEEP CARBON REDUCTION

# LAST: UTILITY STEAM




JB&B DEEP CARBON REDUCTION

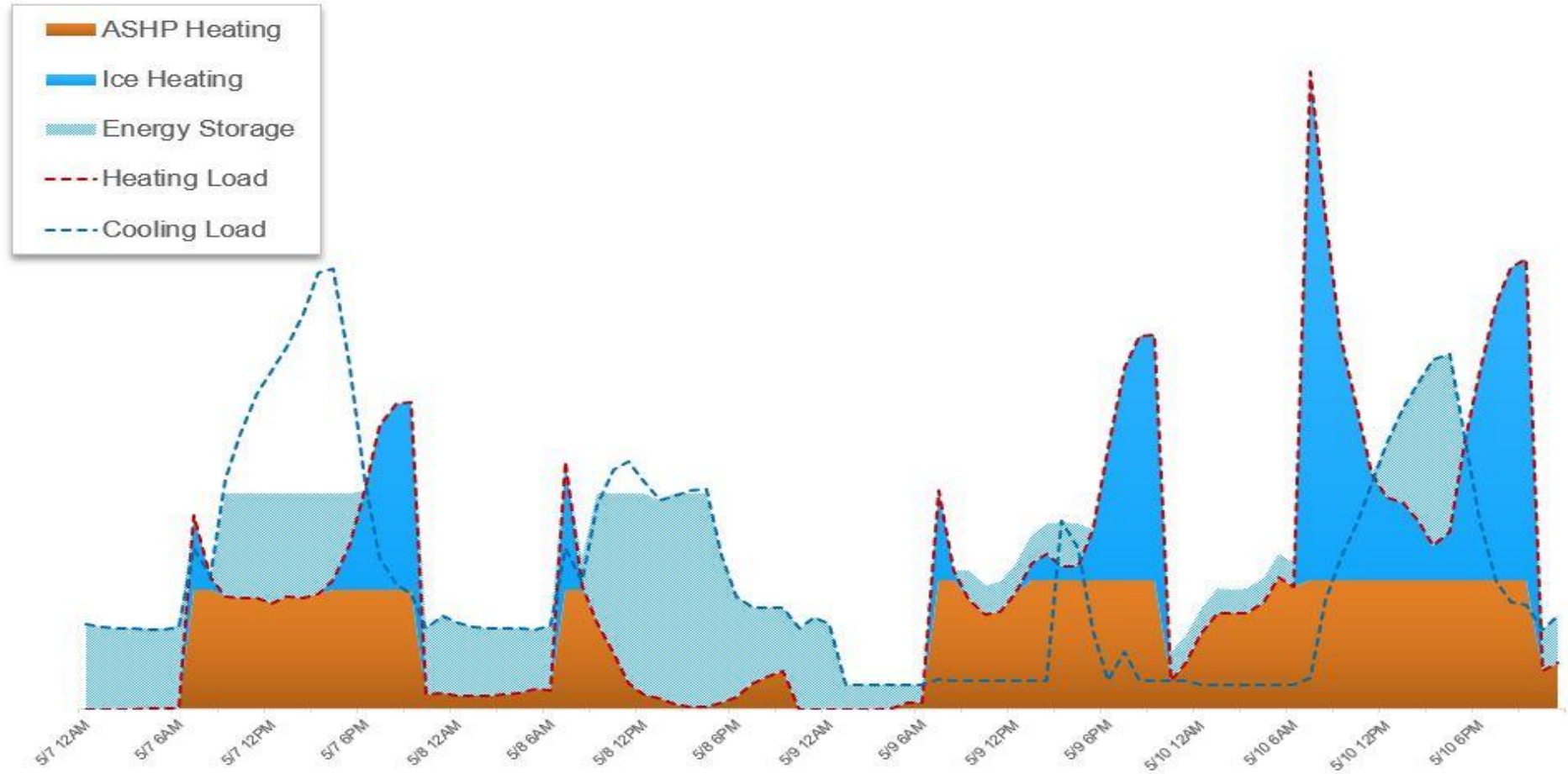
# RECHARGE WHEN OFF PEAK




JB&B DEEP CARBON REDUCTION

# SHOULDER SEASONS BENEFITS

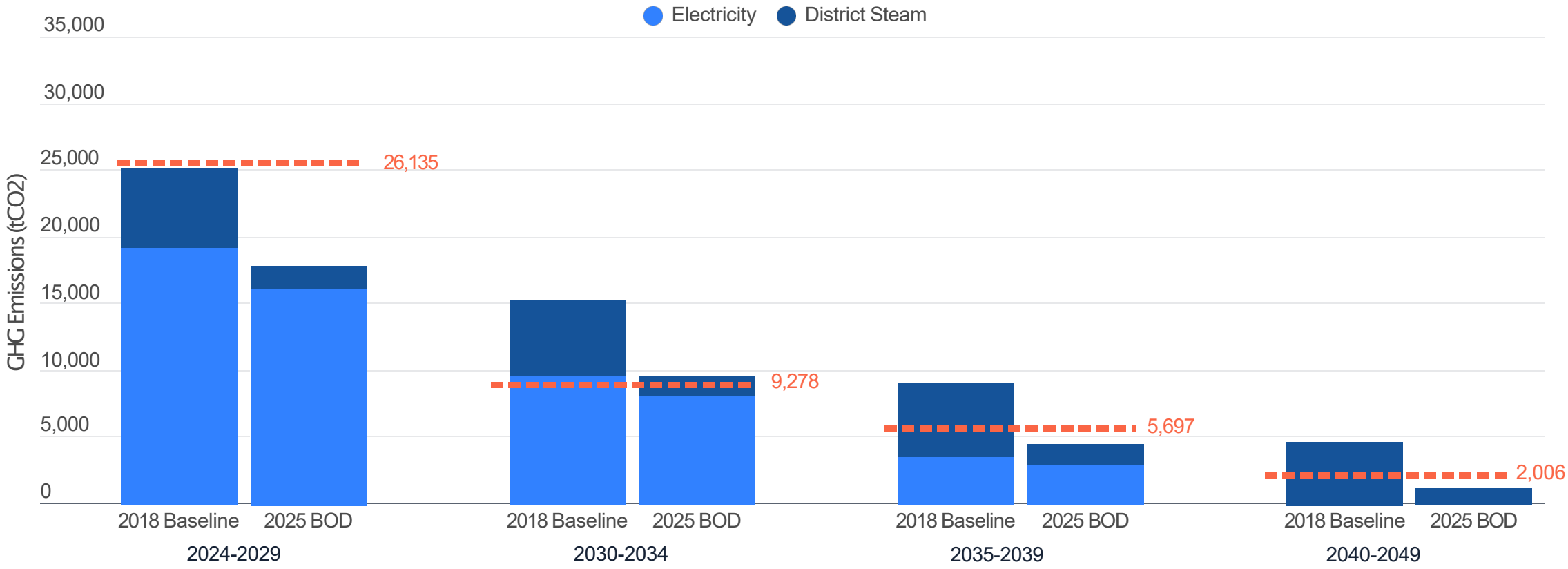
## Day/Night Thermal Battery in Action




JB&B DEEP CARBON REDUCTION

# LL97 PENALTIES REDUCED BY 12.7M!

# 130,000 TONS CO2 AVOIDED




| Reporting Period | 2024-2029 | 2030-2034 | 2035-2039 | 2040-2049 | Cumulative |
|---|---|---|---|---|---|
| Baseline Annual Penalties | - | $1.6M | $0.8M | $0.09M | $13.3M |
| BOD Annual Penalties | - | $0.1M | - | - | $0.6M |

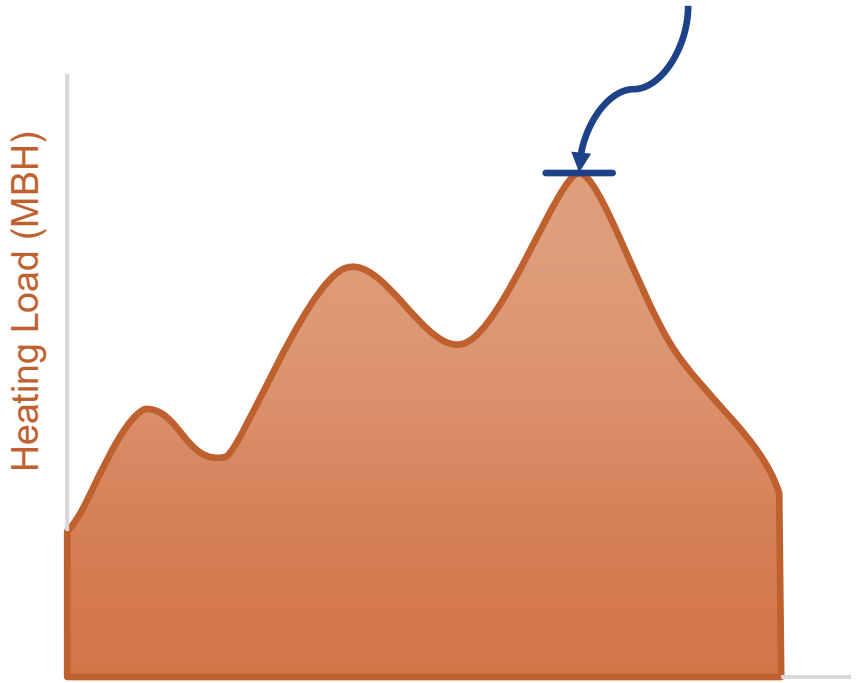
Note: This analysis assumes electric grid decarbonization in accordance with the CLCPA

JB&B DEEP CARBON REDUCTION

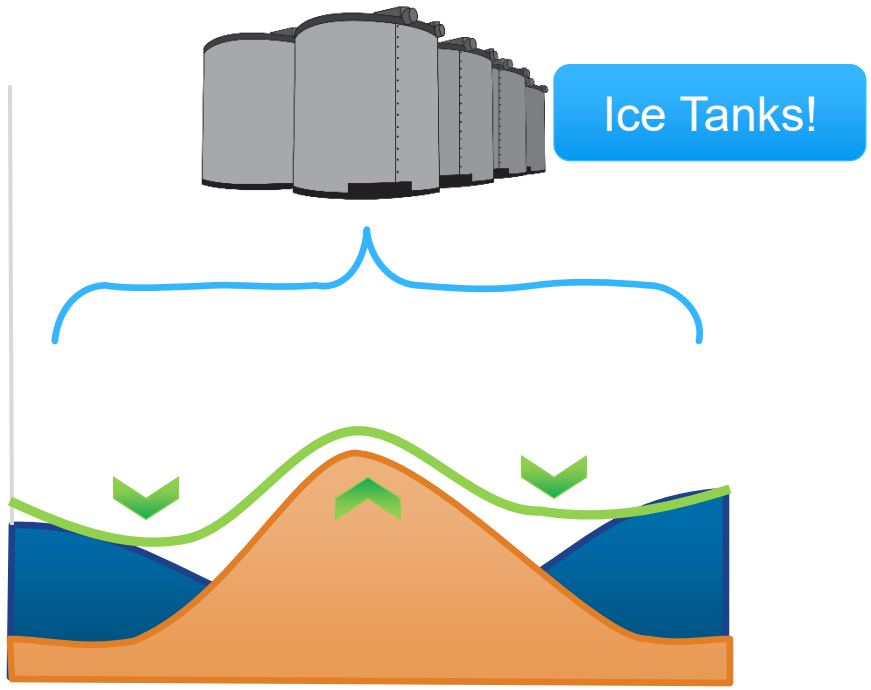
# IT REALLY WORKS!


JB&B DEEP CARBON REDUCTION

# BONUS POINTS: RIGHT SIZING




Old Way: Equipment Sized
for Worst Case



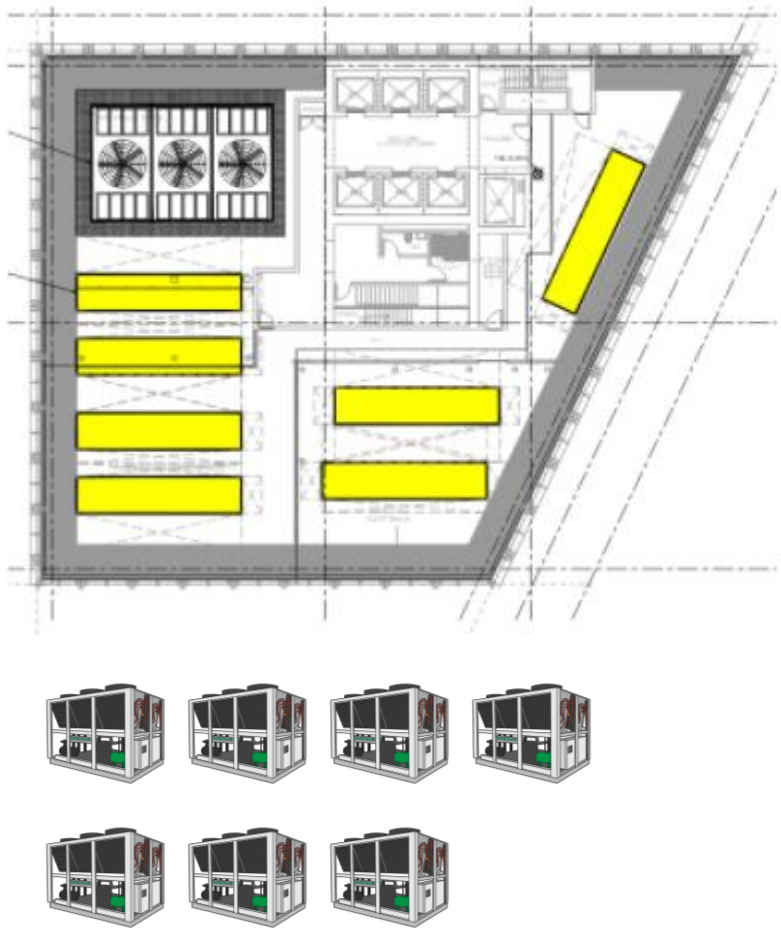

New Way: Equipment
Sized for “Average Load”

JB&B DEEP CARBON REDUCTION

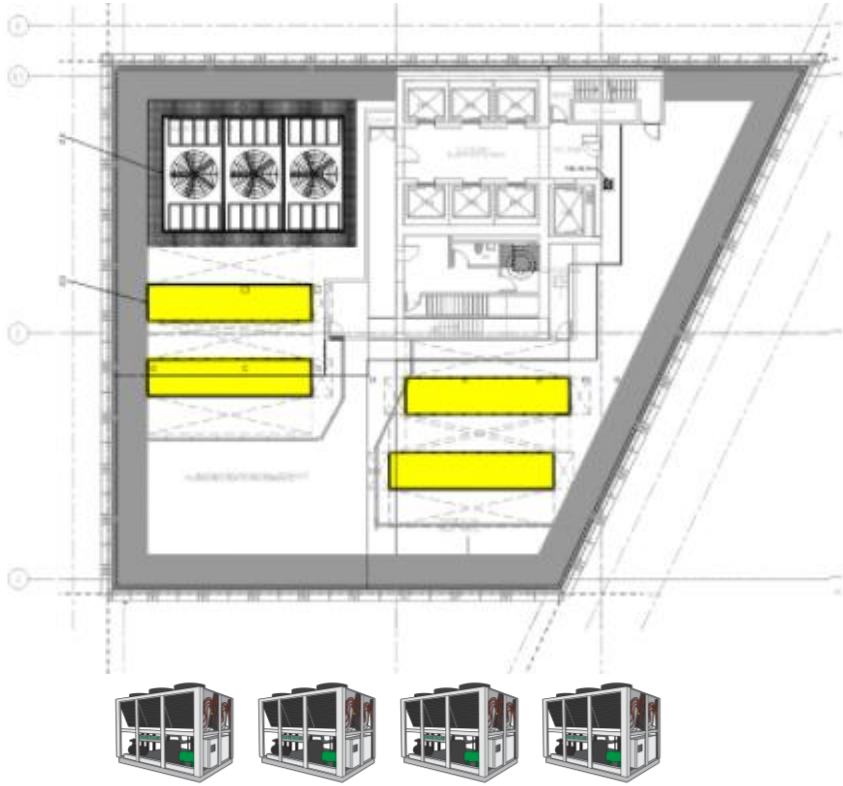
# SAVES ON VALUABLE ROOF SPACE

**Space and capital cost savings**: 40%-50% reduction in ASHP capacity

Typical Design

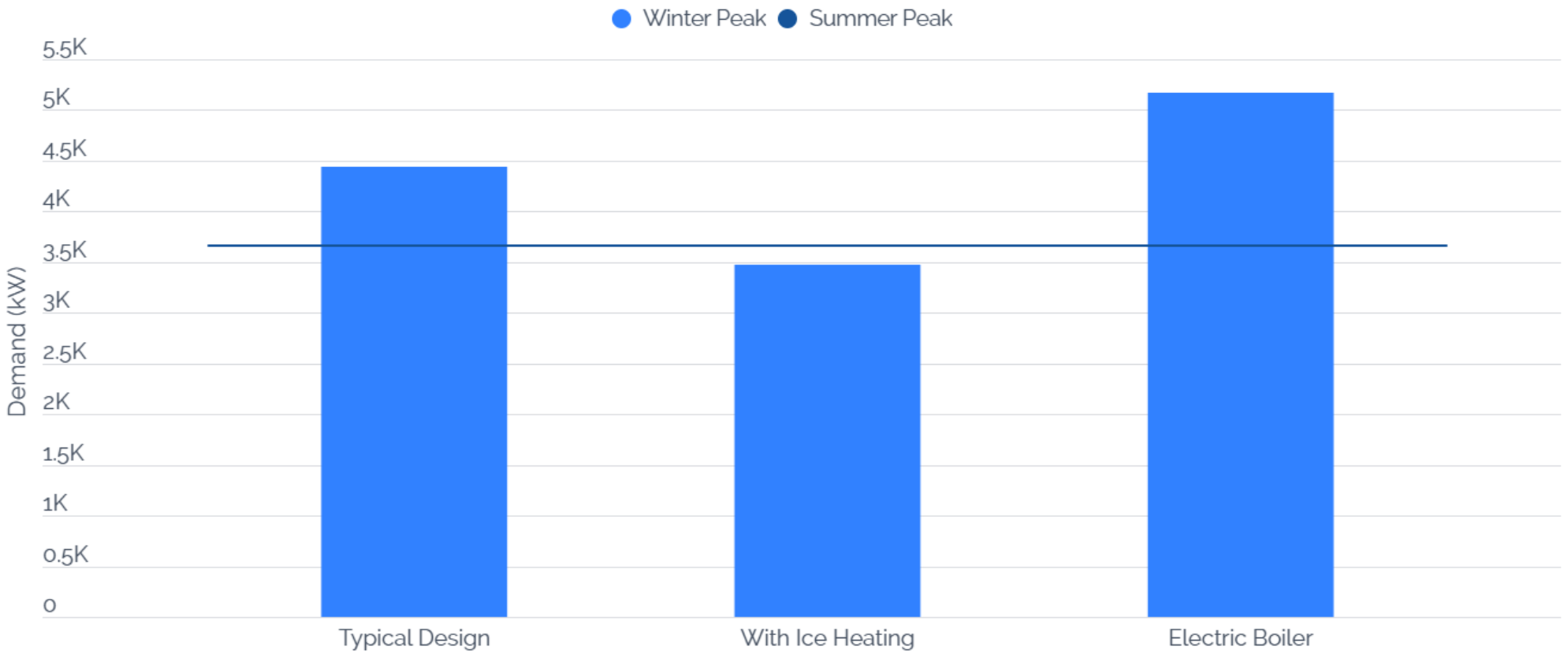


With Ice Heating



JB&B DEEP CARBON REDUCTION

# ELECTRICAL: NO WINTER PEAK!

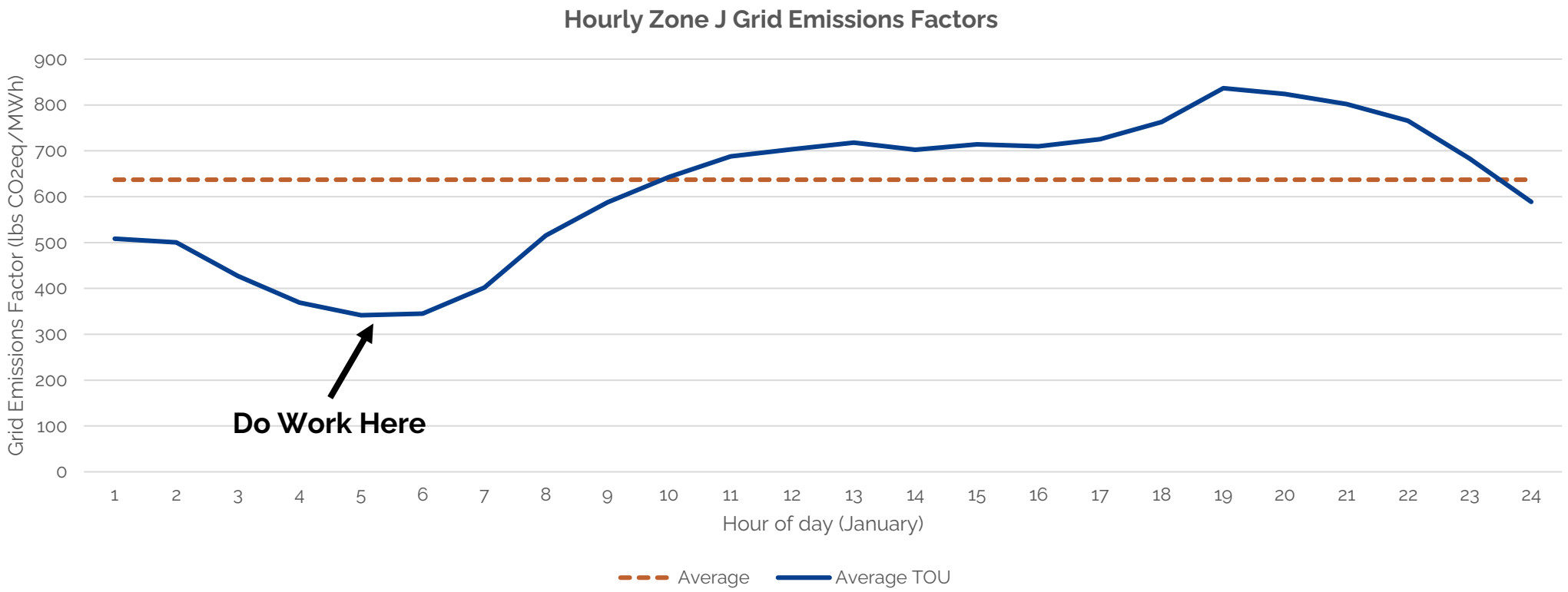



JB&B DEEP CARBON REDUCTION

# LOAD SHIFTING AND TIME-OF-USE COST/CARBON

**Time-of-use** carbon coefficients unlock the value of energy storage.

**Carbon Trading** allows monetization of carbon savings.




JB&B DEEP CARBON REDUCTION

LUTRON | be ex building energy exchange

# Climate Week Showcase: Smart Buildings & Emerging Tech

# Who is Lutron?



## Harness the power of light

Be inspired. Get focused. Feel relaxed. From inventing the commercial dimmer to 15,000 products and 190 patents.

## Established Reputation

In the world's most iconic buildings, such as the New York Times Building in New York and the Guggenheim in Bilbao.

## Trusted Partner

Peace-of-mind from world class reliability. 60+ years of engineering and support you can count on.

LUTRON | be ex building energy exchange

# The Opportunity of Existing Commercial Space

- 43.2M $ft^2$ of new office space was delivered in 2024, the lowest number since 2013.
- 52% all commercial buildings still have fluorescent systems.
- NYC Local Law 134 requires that lighting systems in existing buildings meet NYCECC 2010 standards
- Renovations and retrofits represent a substantial market need and opportunity.

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Sources: Commercial Edge January 2025 National Office Report &
Department of Energy 2020 U.S. Lighting Market Characterization Report

# What does a renovation look like?

- Typical commercial office space
- Power wired for convenience, not control zones
- A fluorescent to LED upgrade would be part of this project
- We will focus on the larger open office area

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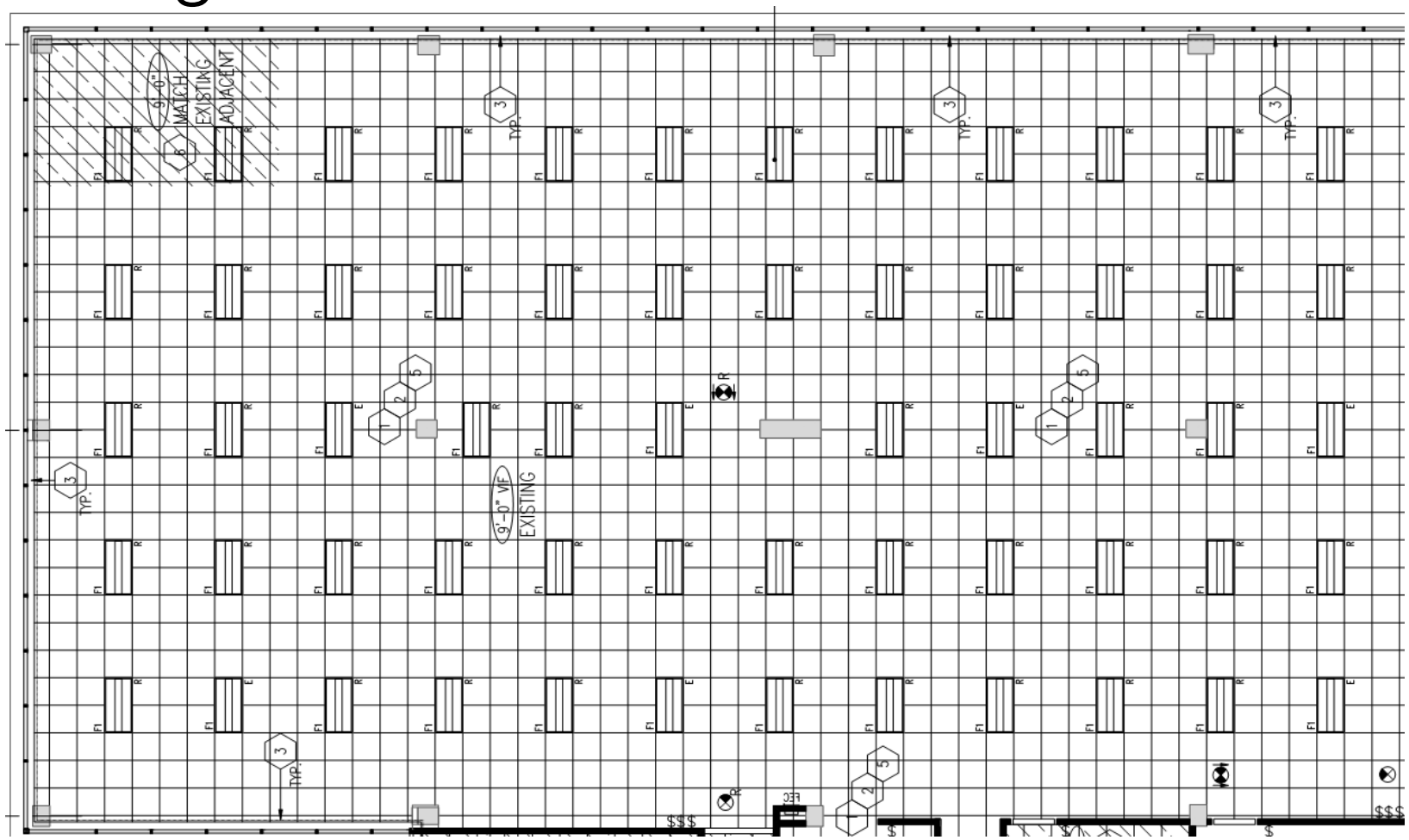
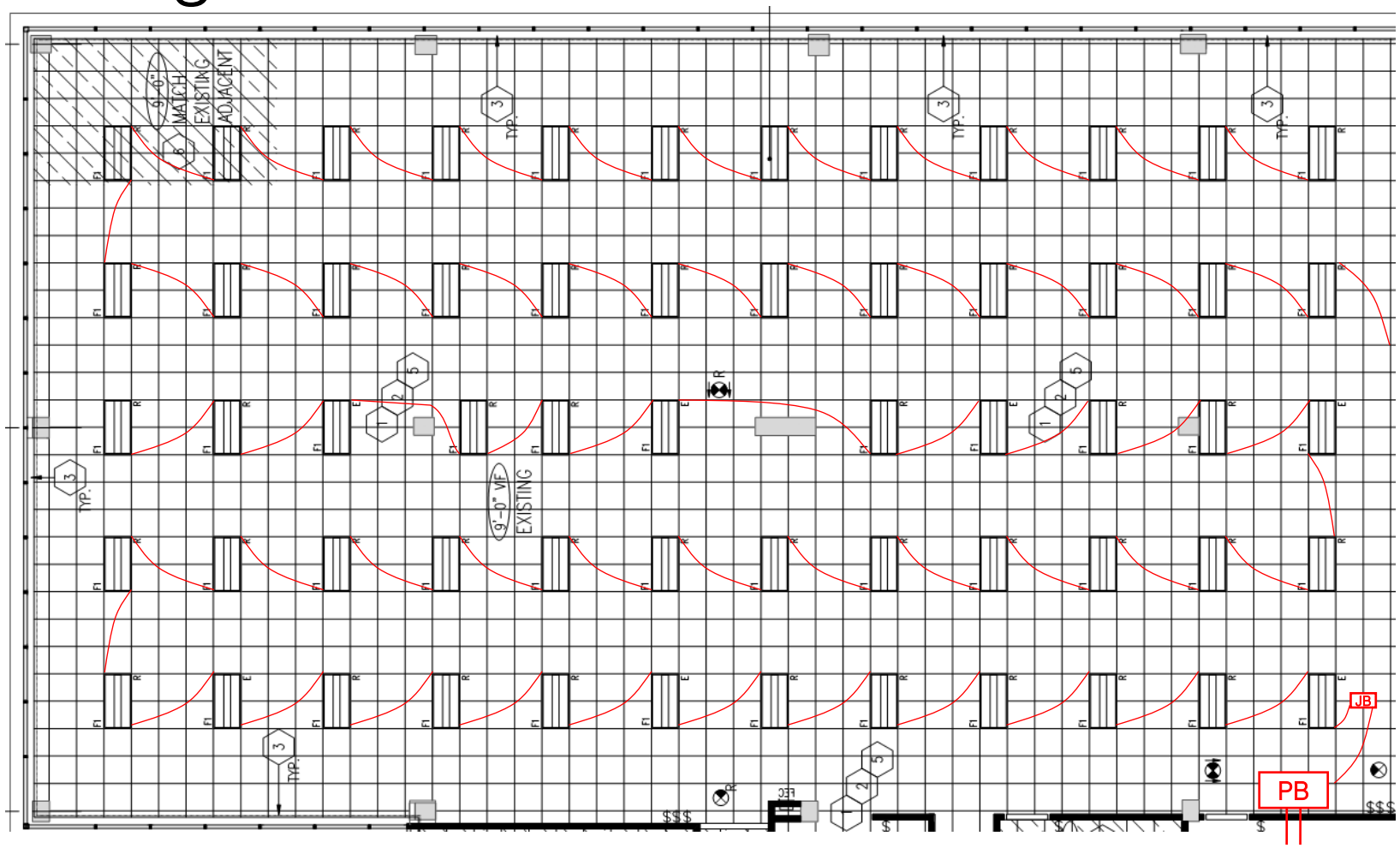
# Open office example –How many power circuits do you think are existing?



# Open office example –How many power circuits do you think are existing?

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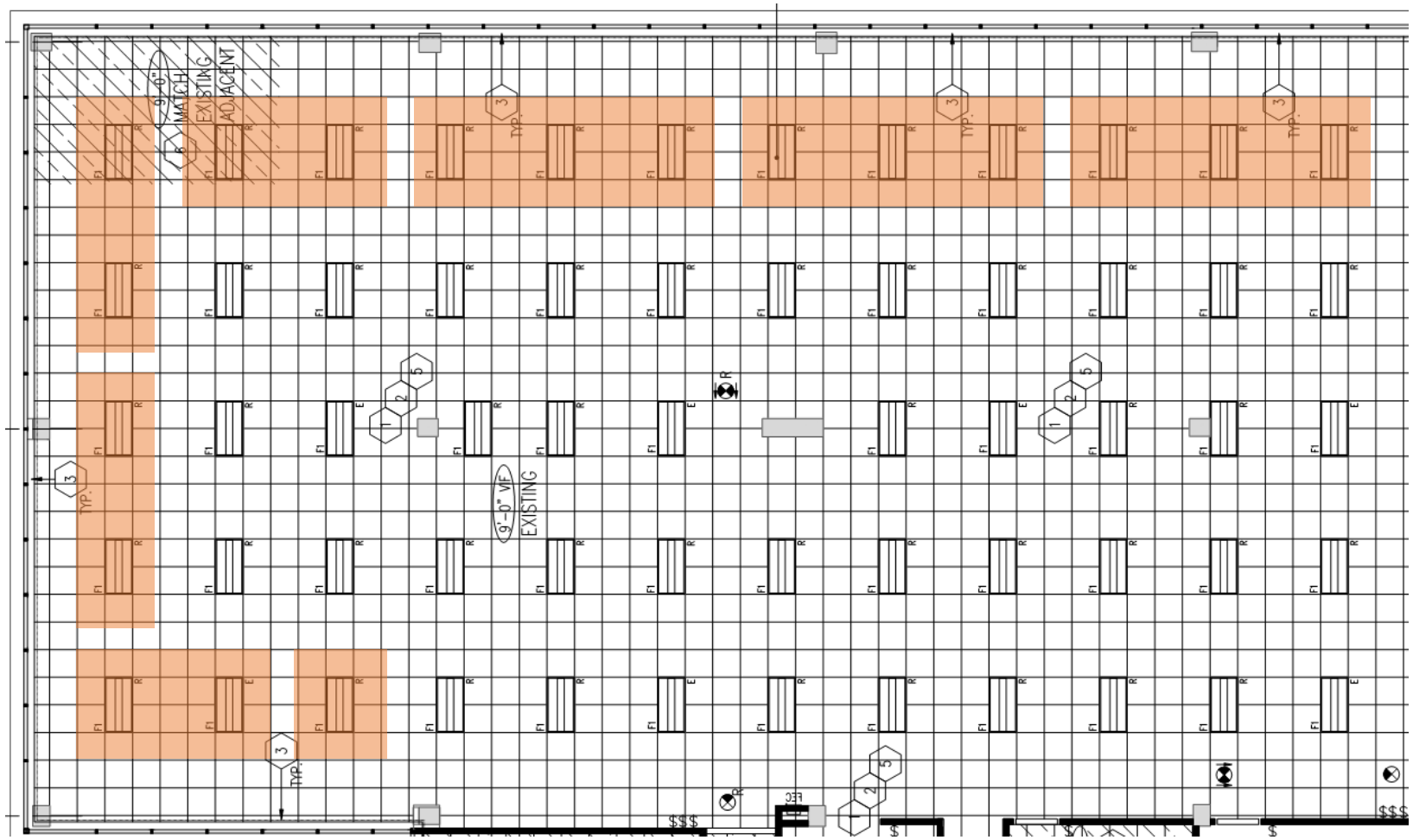
# Open office example – control zones

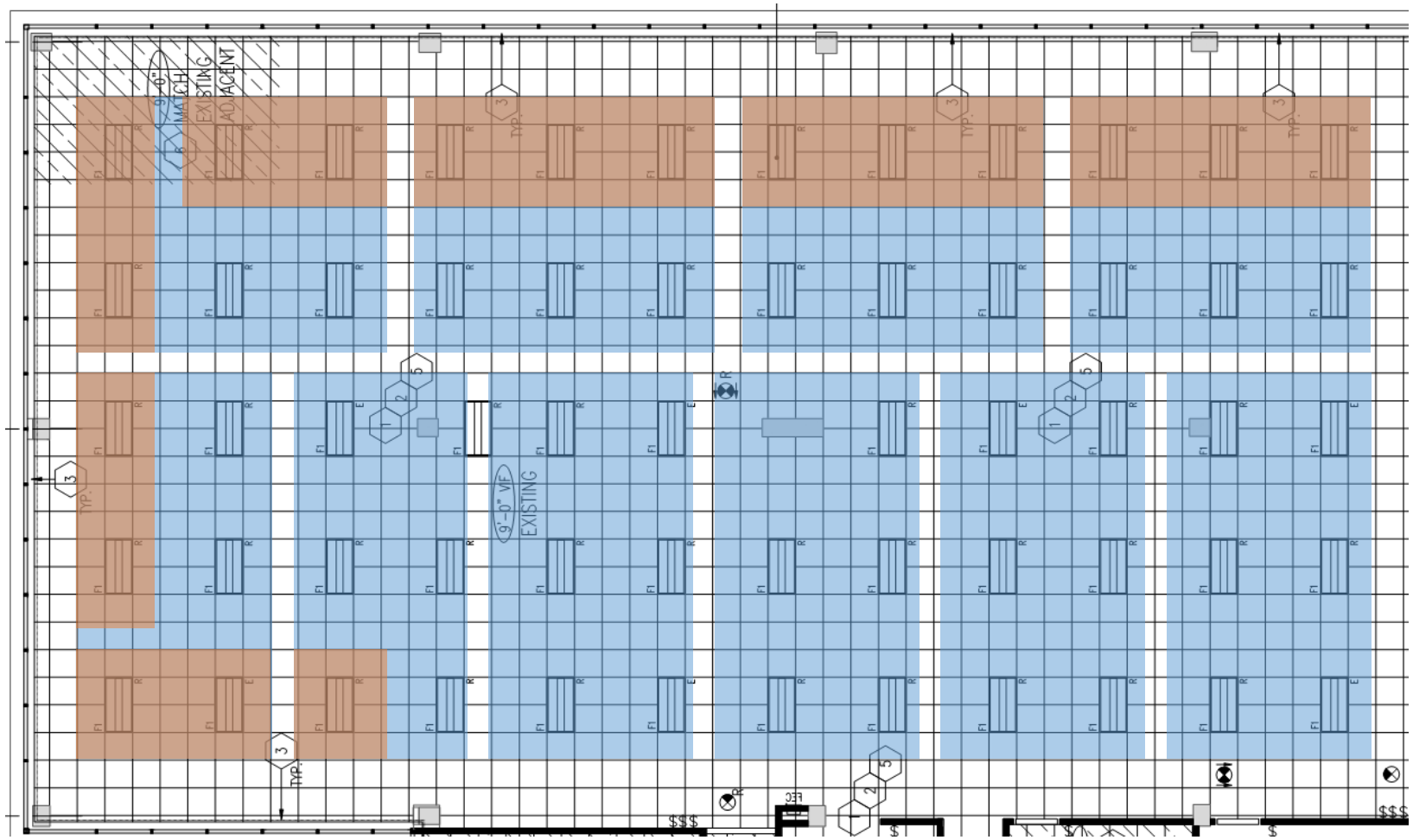
Daylight areas (8)



# Open office example – control zones

Daylight areas (8)

Occupancy areas (10)



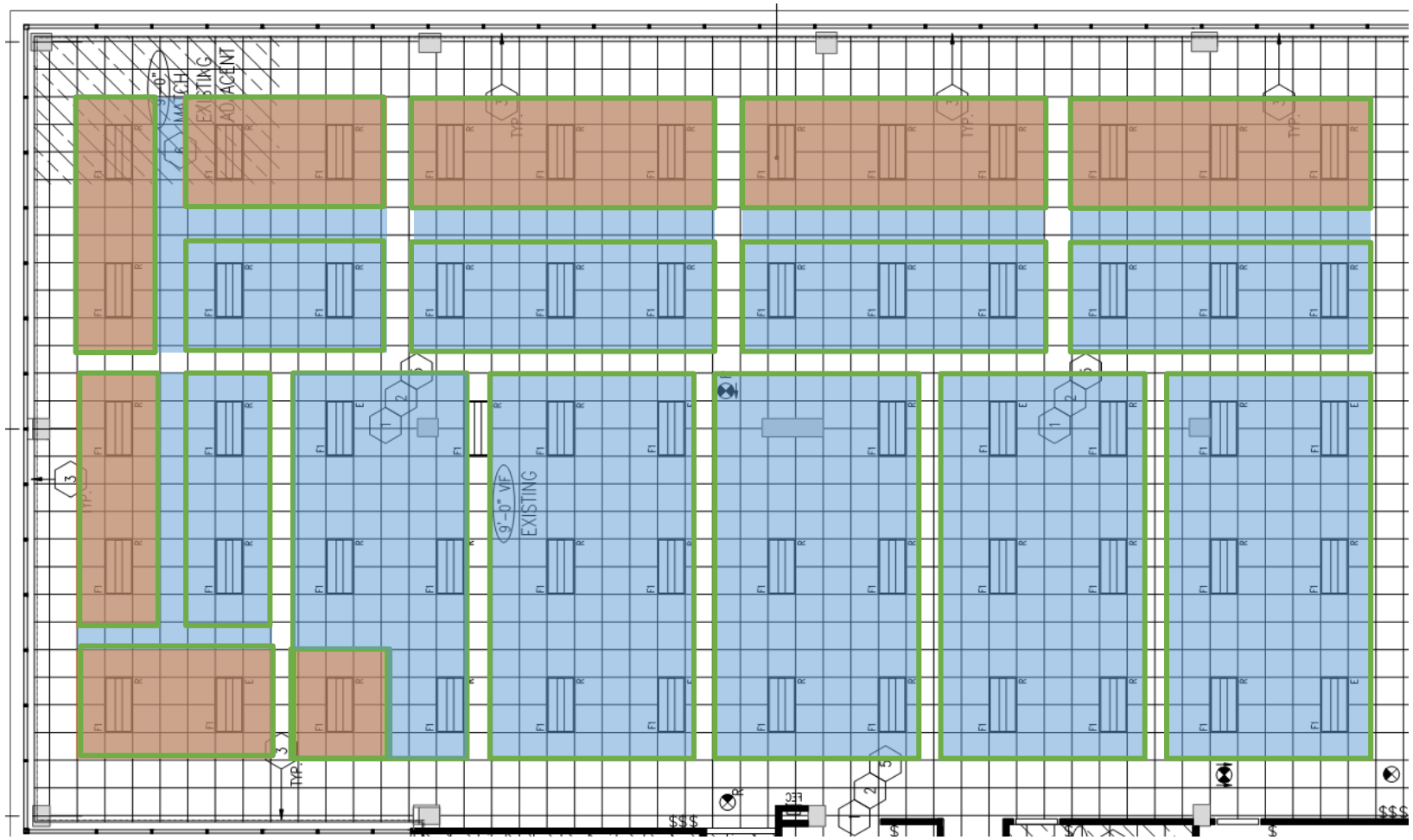

LUTRON | be ex building energy exchange

# Open office example – control zones

Daylight areas (8)

Occupancy areas (10)

Control zones



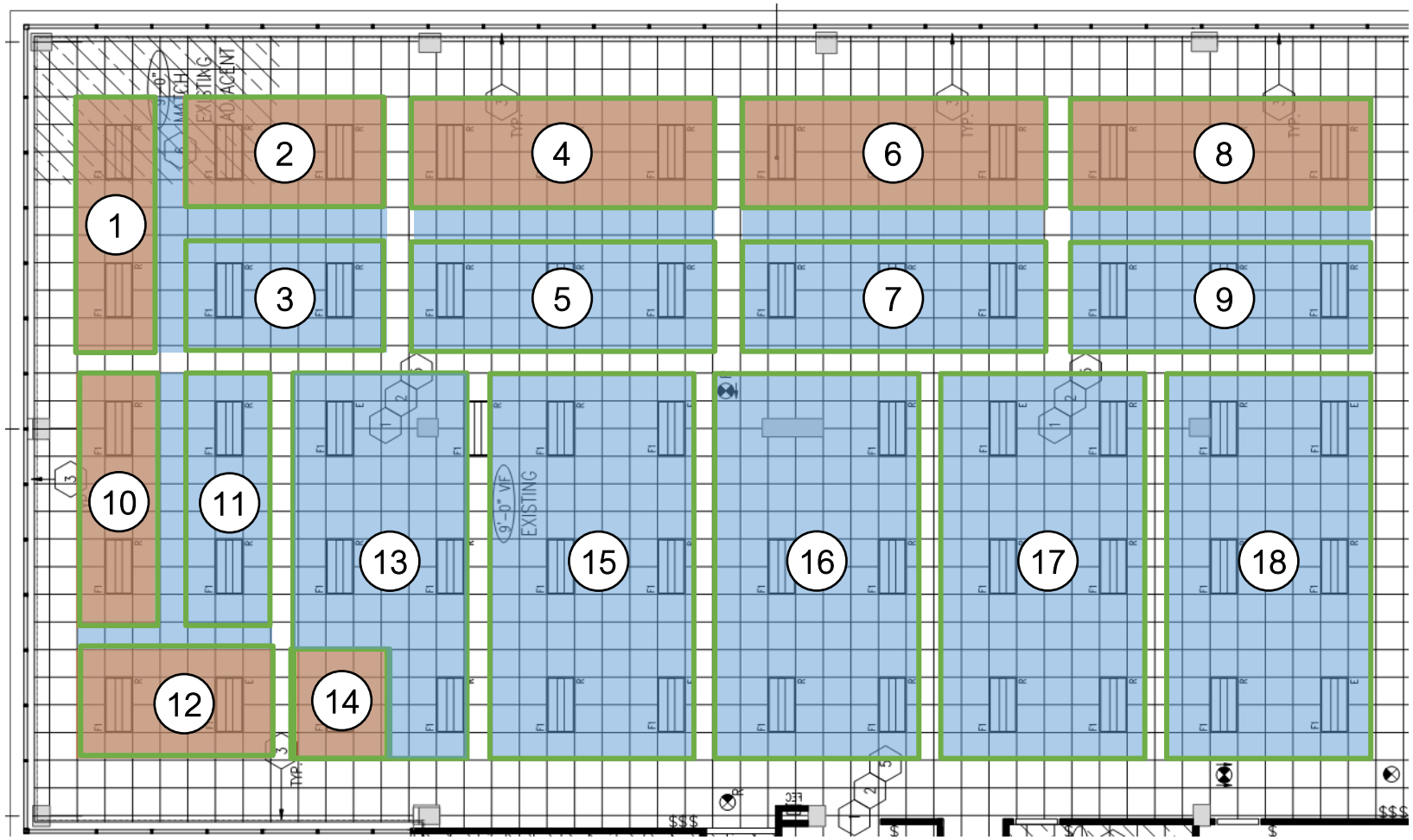

LUTRON | be ex building energy exchange

# Open office example

Daylight areas (8)

Occupancy areas (10)

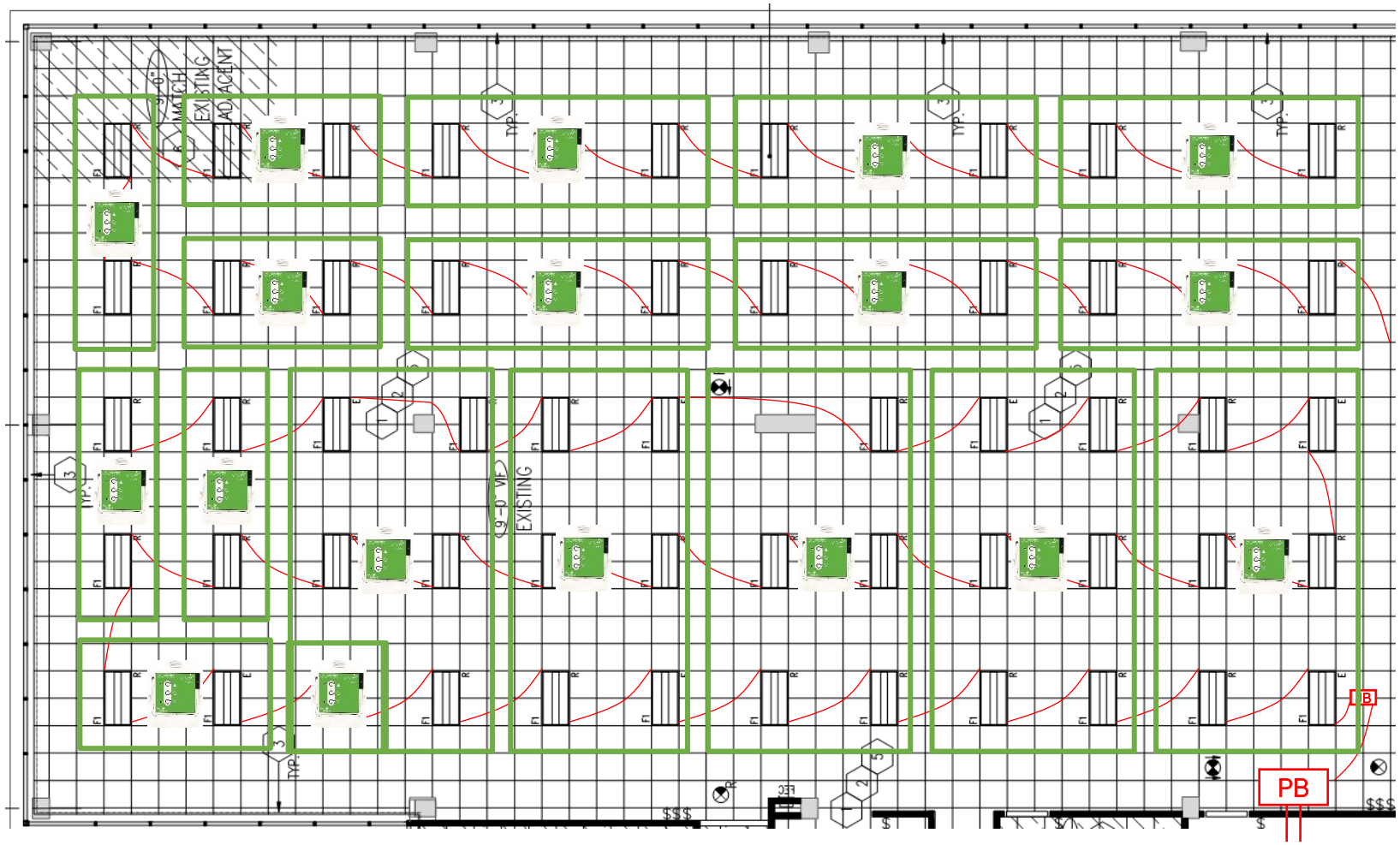
Control zones (18)




LUTRON

# Control Options
## Zone Control

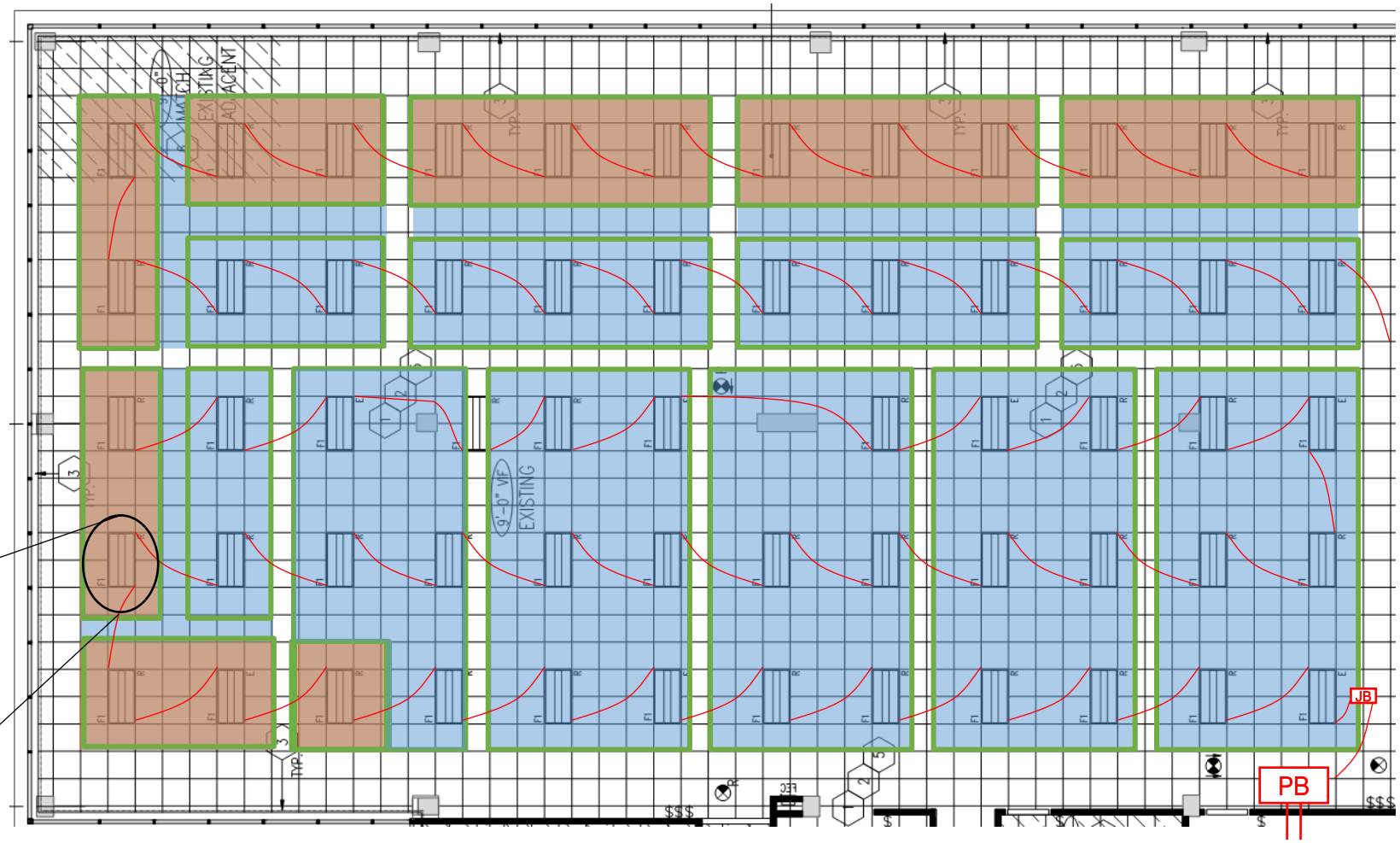
- 18 control zones
- Replace the fluorescent fixture with an LED fixture
- 26 power wire breaks
- 26 power wire reconnections
- 90 control terminations to be made at fixtures
- Utilize remote sensors
- Install control hub




LUTRON | be ex building energy exchange

# Control Options
## In-fixture

- 18 control zones
- Replace the fluorescent fixture with an LED fixture with individual fixture control
- No power rewiring
- No control wire connections to the fixtures
- Utilize remote or in fixture sensors
- Add a control hub



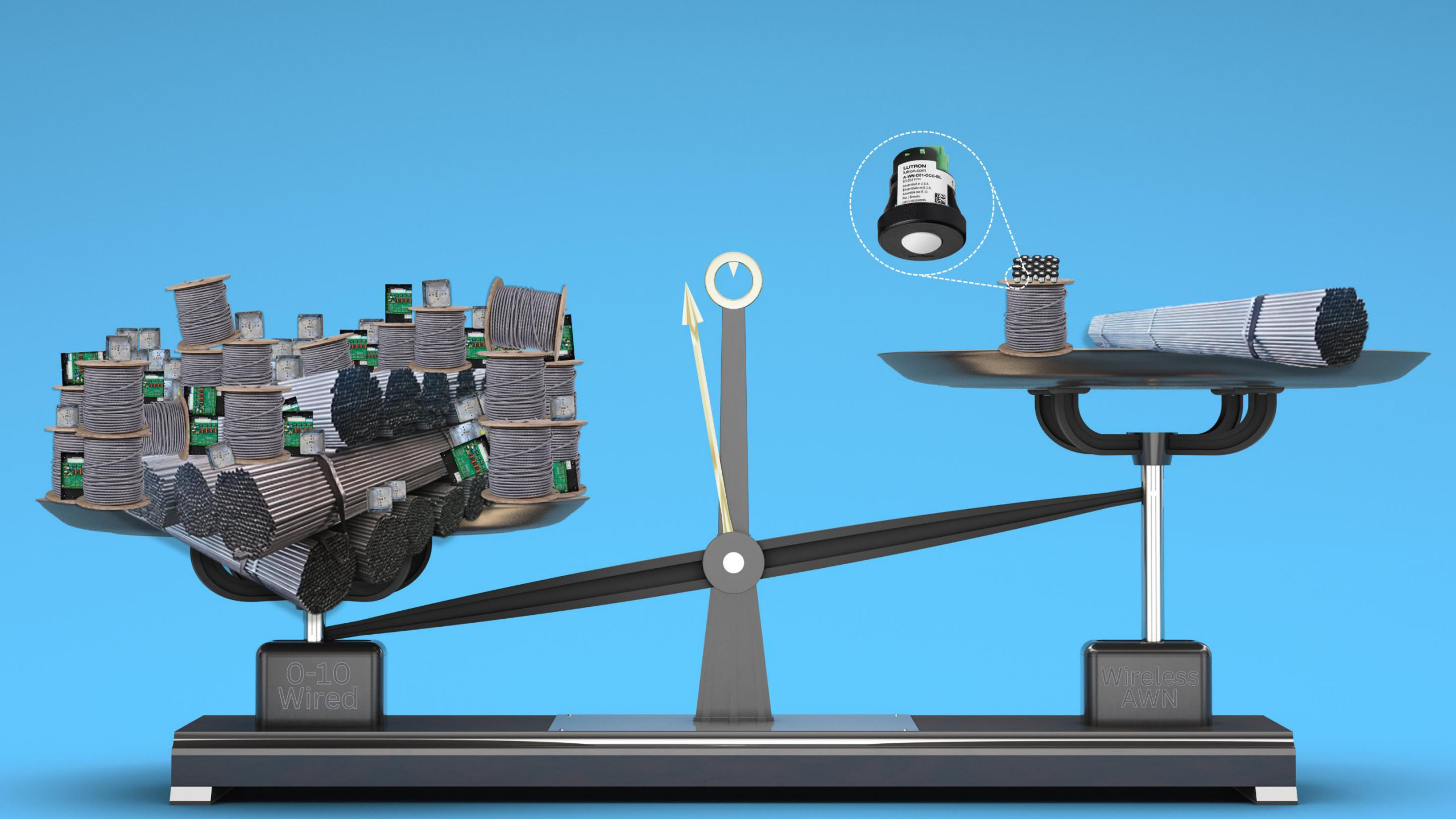

LUTRON | be ex building energy exchange

# What does the full renovation look like?

## Zone Breakdown

- Occupancy (39)
- Daylight (27)

LUTRON | be ex building energy exchange


LUTRON
lutron.com
A-WN-D01-OCC-BL
0-10
Wired
Wireless
AWN

# Case Study: State Farm World HQ

Industry: Insurance

Location: Bloomington, IL

Project size: 1,000,000 ft²

Lutron Products:

- Vive control system
- Vive in-fixture control w/ integrated daylight and occupancy sensing
- Vive hubs


## Challenge

- Existing system was fully fluorescent 2x2 and 2x4 troffers
- Goal to capitalize on rebate of $.50/ kWh offered by local energy company for installing luminaire-level-lighting-control (LLLC).

## Solution

- 18,650 Vive in-fixture controllers in custom LED troffer transformer kits.
- Vive hubs simplified programming and enabled BACNet integration.

## Results

- Significant energy reduction from upgrading to LEDs & adding sensors.
- Significant cost savings from energy rebate, plus reduction in use.
- Expanding Vive in-fixture to an additional 8-10M ft² of offices and warehouses in Bloomington, plus Atlanta and Dallas locations.

LUTRON | be ex building energy exchange

# Thank you!

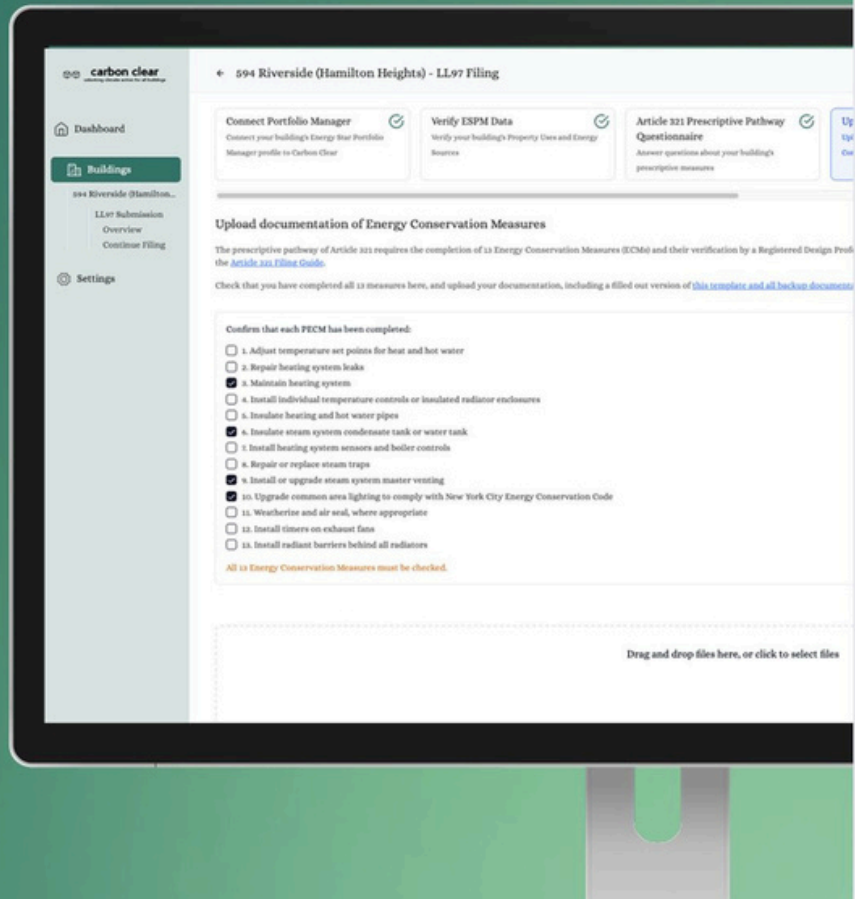
carbon clear

getcarbonclear.com

CASE STUDY

# How BES Leveraged the CarbonClear Platform

BUILDING EFFICIENCY SERVICES
*Engineered Performance Savings*



# Client Challenge

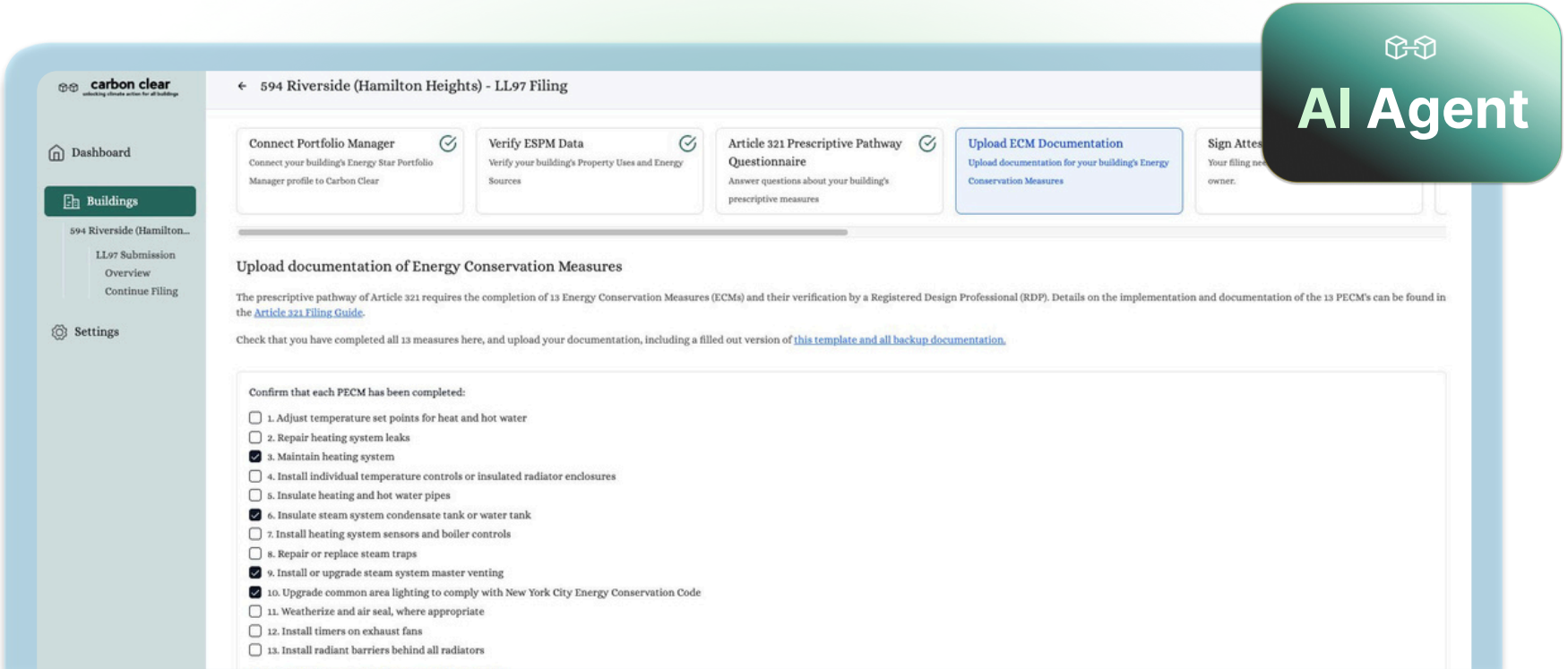
As the LL97 compliance deadline neared, **BES saw a surge in requests from building owners seeking fast, accurate filings.**

As an attempt to stay ahead of the regulation, BES looked to use tools to increase their capacity, become more efficient, and clear out their backlog.

Solution

carbon clear

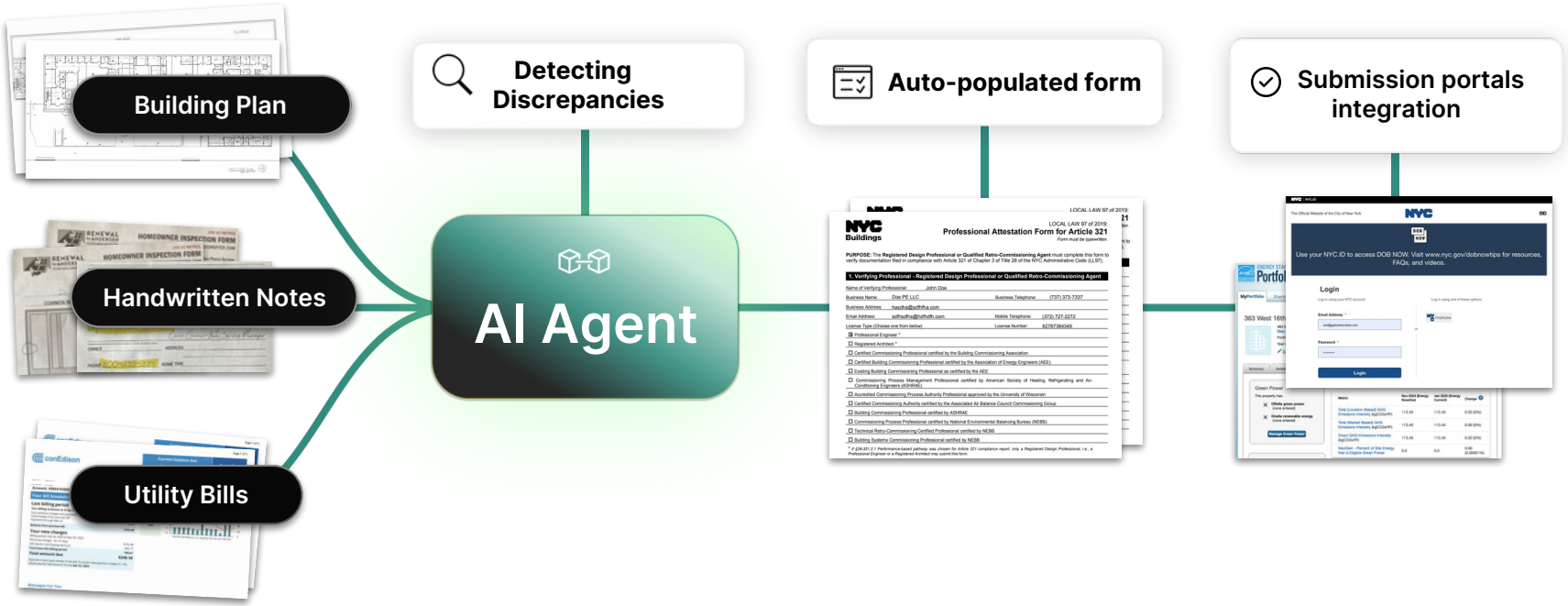
# Carbon Clear is an AI-powered platform designed to automate the entire compliance filing



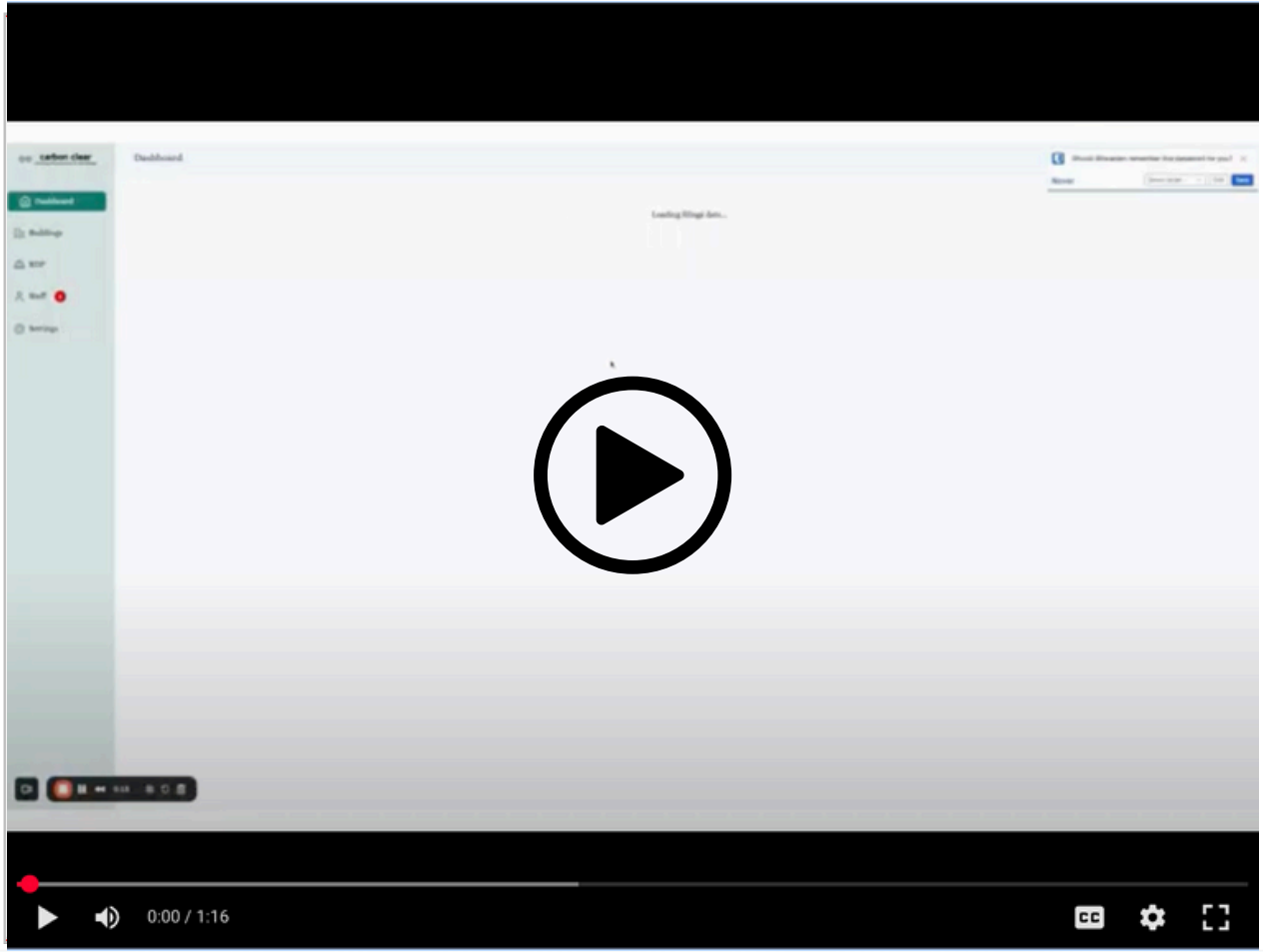
How it works

carbon clear

# Our AI ingests all unstructured data, auto-populates compliance forms, and submits them automatically



## Product Demo:



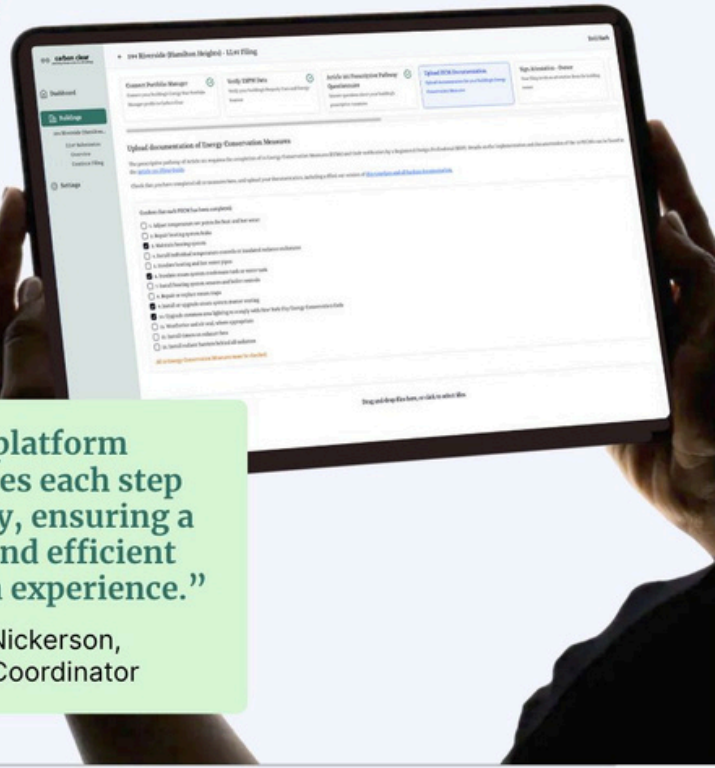
# CarbonClear Use-Case

Powered by the **Carbon Clear platform, BES** streamlined their entire LL97 and LL88 workflow.

The platform allowed them to:

- **Track every project with timestamps**
- **Centralize data collection**
- **Stay organized and compliant**

BES met and exceeded client expectations with minimal stress and effort.



> **"The platform streamlines each step with clarity, ensuring a smooth and efficient submission experience."**
>
> Pnina Nickerson,
> Project Coordinator

# CarbonClear Impact

**2X**

Filings capacity expansion

**50%+**

Reduction of emails and phone calls to DOB

**25%+**

Reduction of emails and phone calls to owners

> "From start to finish, Carbon Clear has proven to be an invaluable tool for managing the LL97 and LL88 submission processes."
>
> Pnina Nickerson,
> Project Coordinator

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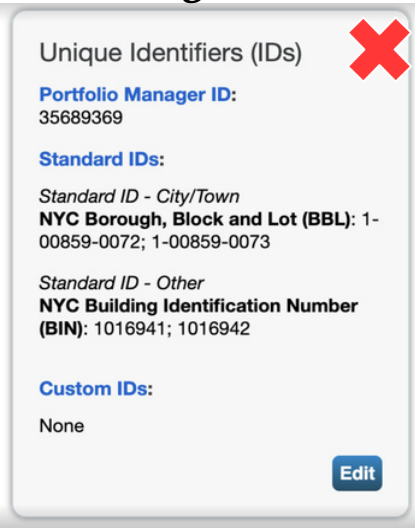
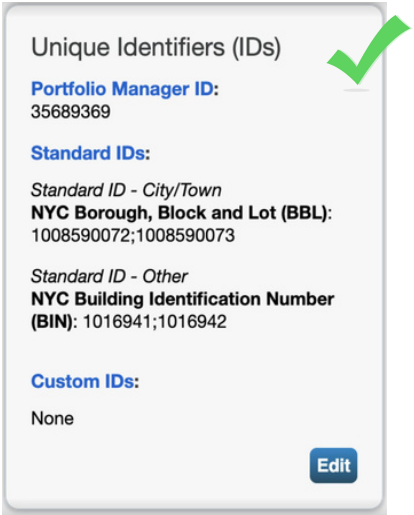
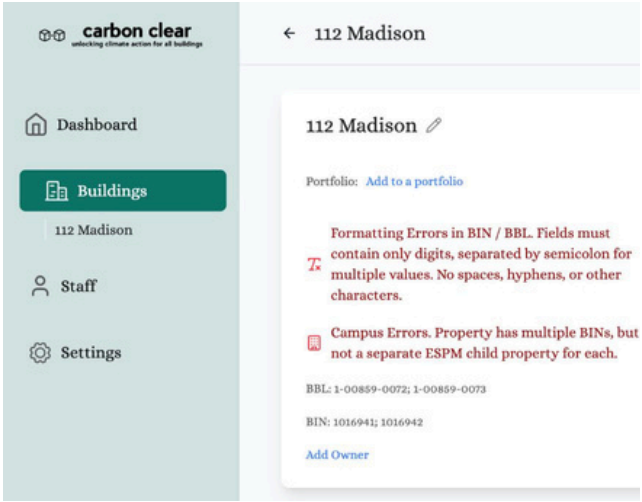
getcarbonclear.com

# General Insights

**Formatting Errors:**




**CBL disputes:** Ensure required attachments (like DHCR reports) are included and aligned with current dispute criteria to minimize risk of fines.

**BEAM emissions tool:** Select the property on BEAM to determine the emissions calculations and projections.

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# Contact


## Zeid Harb

CEO & Co-Founder

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**getcarbonclear.com**

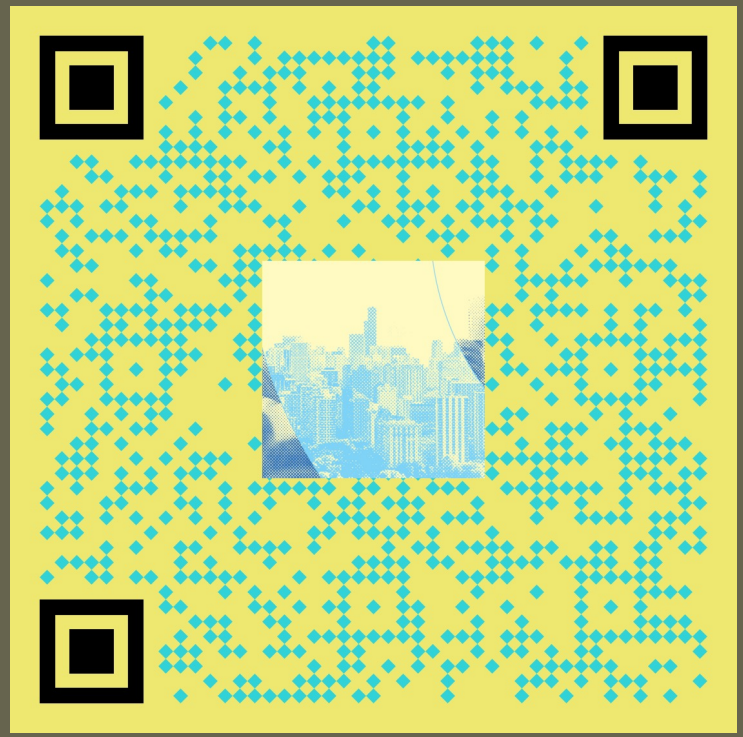
# Upcoming Events

## Advancing Local Climate Leadership Through a Community of Practice

**Thursday, September 25 | 10:30 am – 12 pm**

Join BPP for a topical discussion about local action to scale building decarbonization in the U.S.!

This event will feature a snapshot of local building performance policy progress, and a moderated discussion of hub directors and leading real estate professionals covering the state of hub development, real-world success stories, and ways to continue scaling local hubs to increase building energy efficiency.



# Upcoming Events

## WISE: Lessons from Women in the Field

**Thursday, September 25 | 6 pm – 7:30 pm**

Celebrate Climate Week with BE-Ex's Women in Sustainability & Energy (WISE) series!

This panel will highlight the experiences of women working "on the ground" in building electrification and energy efficiency projects.

The panel discussion will conclude with an audience Q&A, followed by a networking session with refreshments—including wine and small bites.