



Superstars of Energy Efficiency: Showcase Projects Achieving Big Savings

Better Buildings Summit

Wednesday, May 11 2016

11:15 – 12:30

Today's Presenters

- Angelica Ciranni, PNC Bank
- Frank Inoa, Arby's Restaurant Group
- Rawson Haverty, Haverty's Furniture
- Andrew Mitchell, Department of Energy (Moderator)



PNC

PNC Firstside Center
Three PNC Plaza
Ft Lauderdale Branch
500 Smithfield St.

LEED version 2.0.
LEED Gold
Net-Zero Energy
LEED Gold

The Tower at PNC Plaza LEED Platinum



24% energy savings; 2.7 million square feet

HAVERTYS

FURNITURE®

22% energy savings; 5.1 million square feet

Better Buildings Solution Center



Proven Solutions for:

- Large and small buildings
- All sectors
- Specific building types

Search by:

- Your energy efficiency barrier
- Your sector
- Your city or state

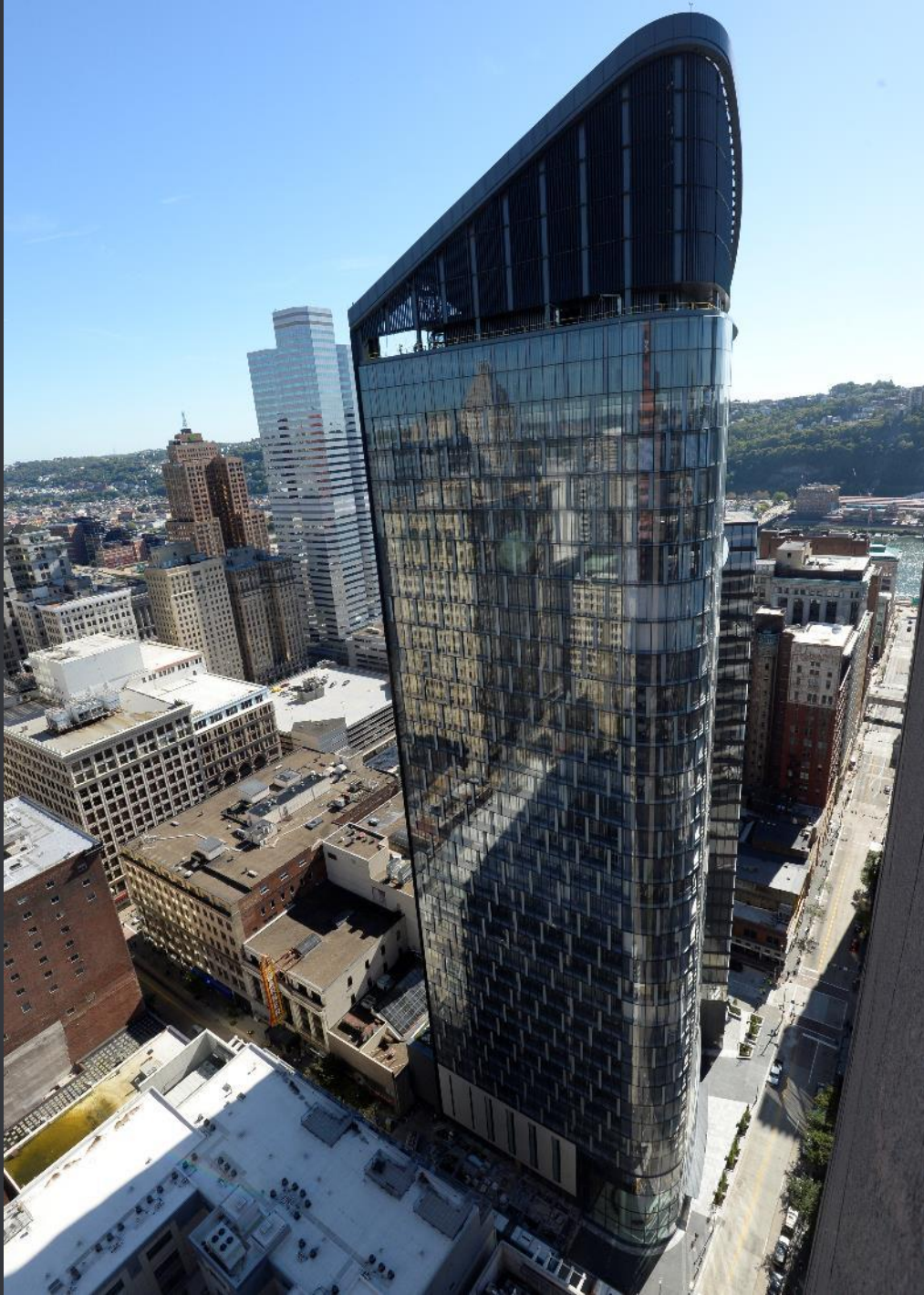
betterbuildingsolutioncenter.energy.gov/

Showcase Projects

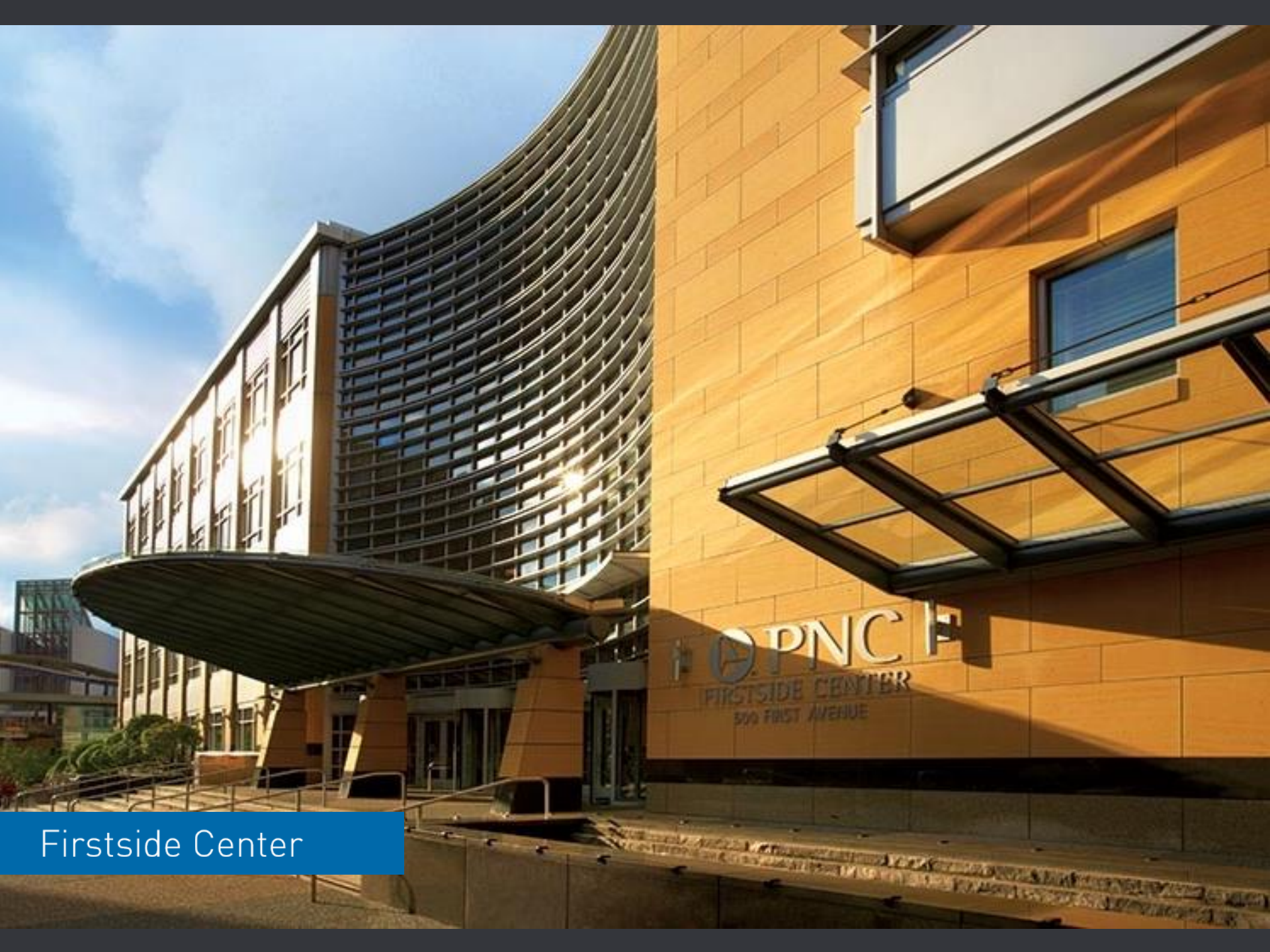
- Currently 163 showcase projects on the Better Buildings Solution Center.



Angelica Ciranni
PNC Bank



Angelica Ciranni, LEED AP O+M
Sustainability Analyst



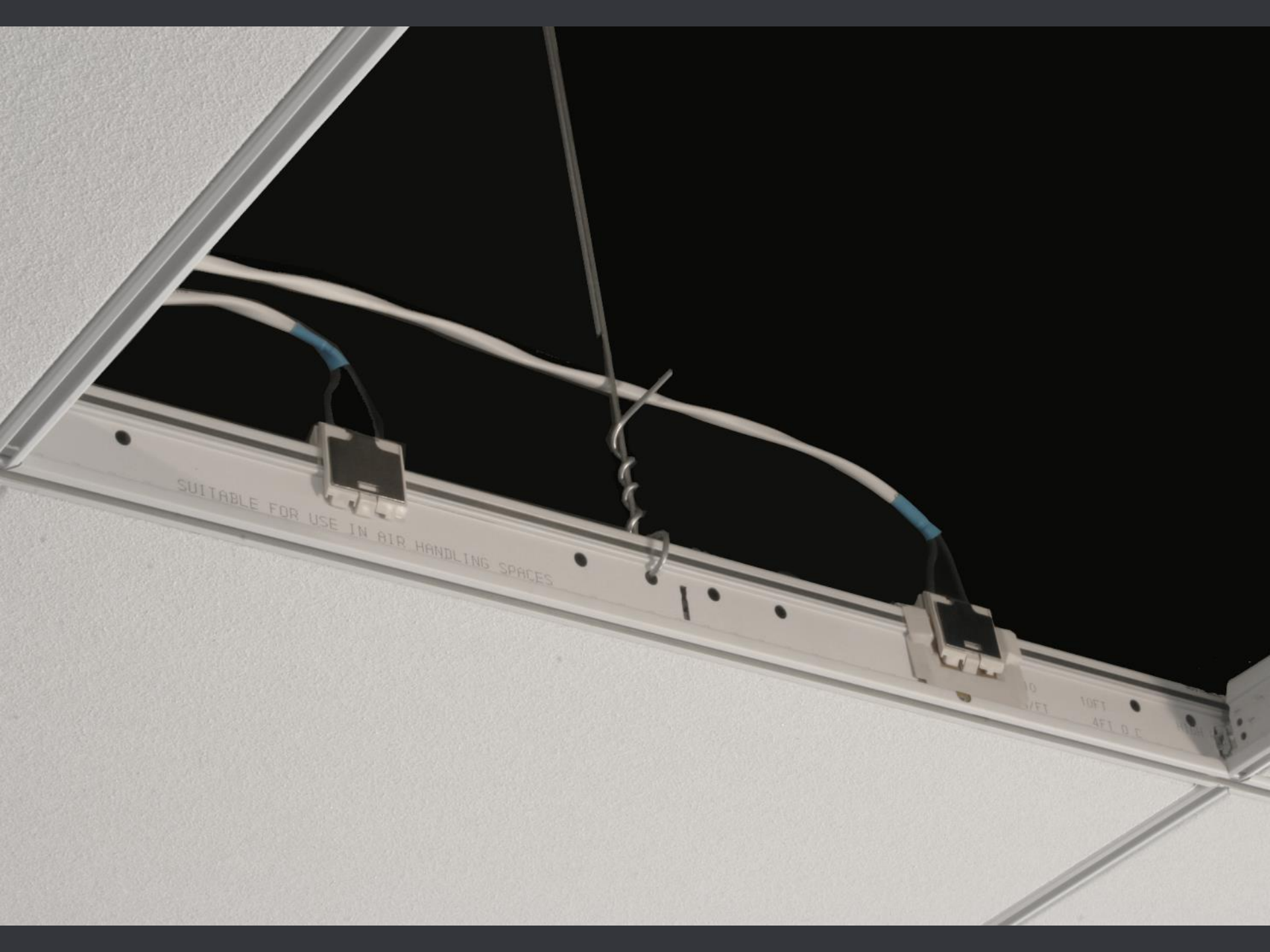
Firstside Center



Green Branch®



Davie Boulevard and Andrews Net Zero Energy Branch



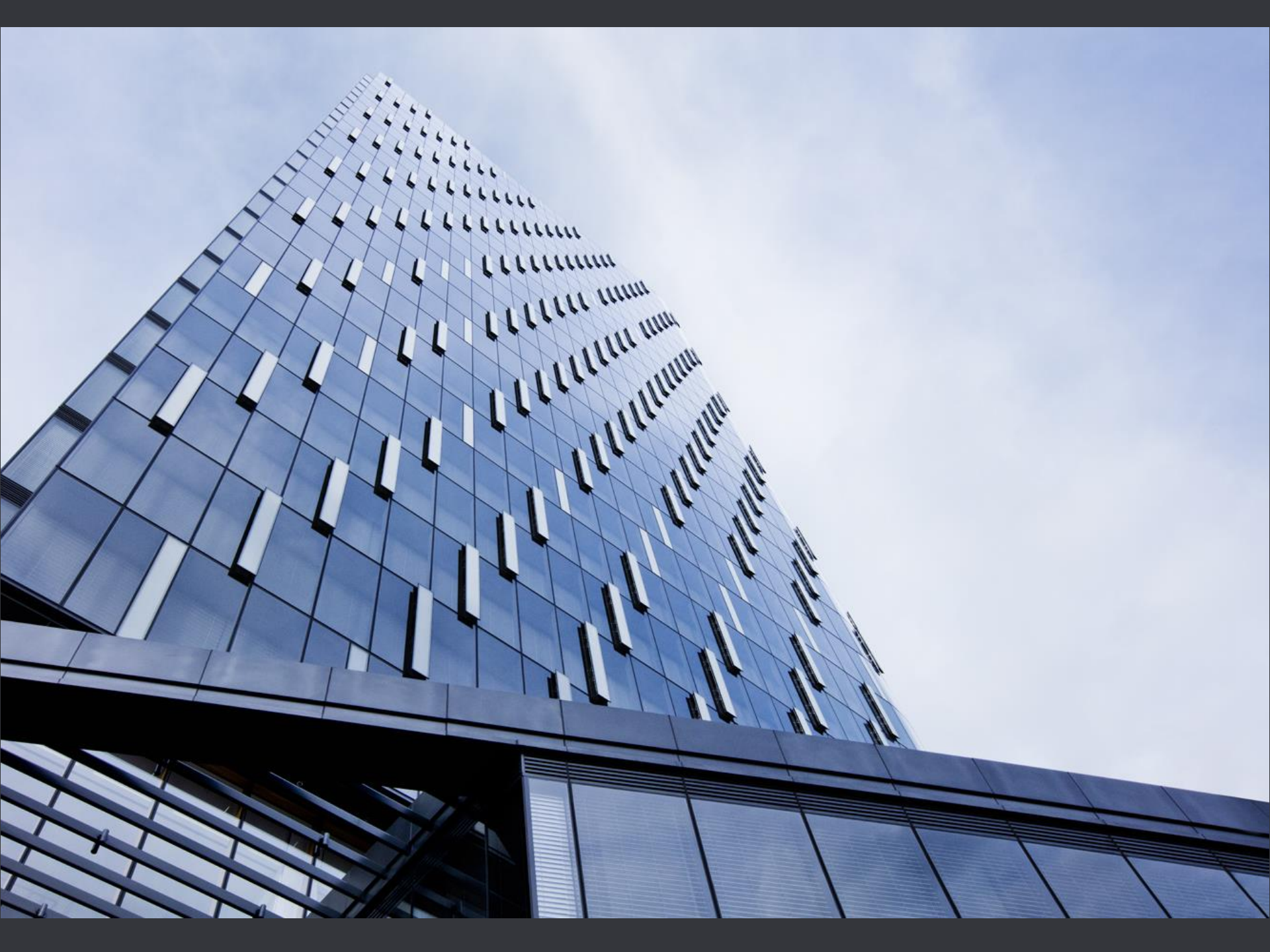
SUITABLE FOR USE IN AIR HANDLING SPACES

0
10FT
4FT 0 E





The Tower at PNC Plaza







OPTIMIZED FOR DAYLIGHT

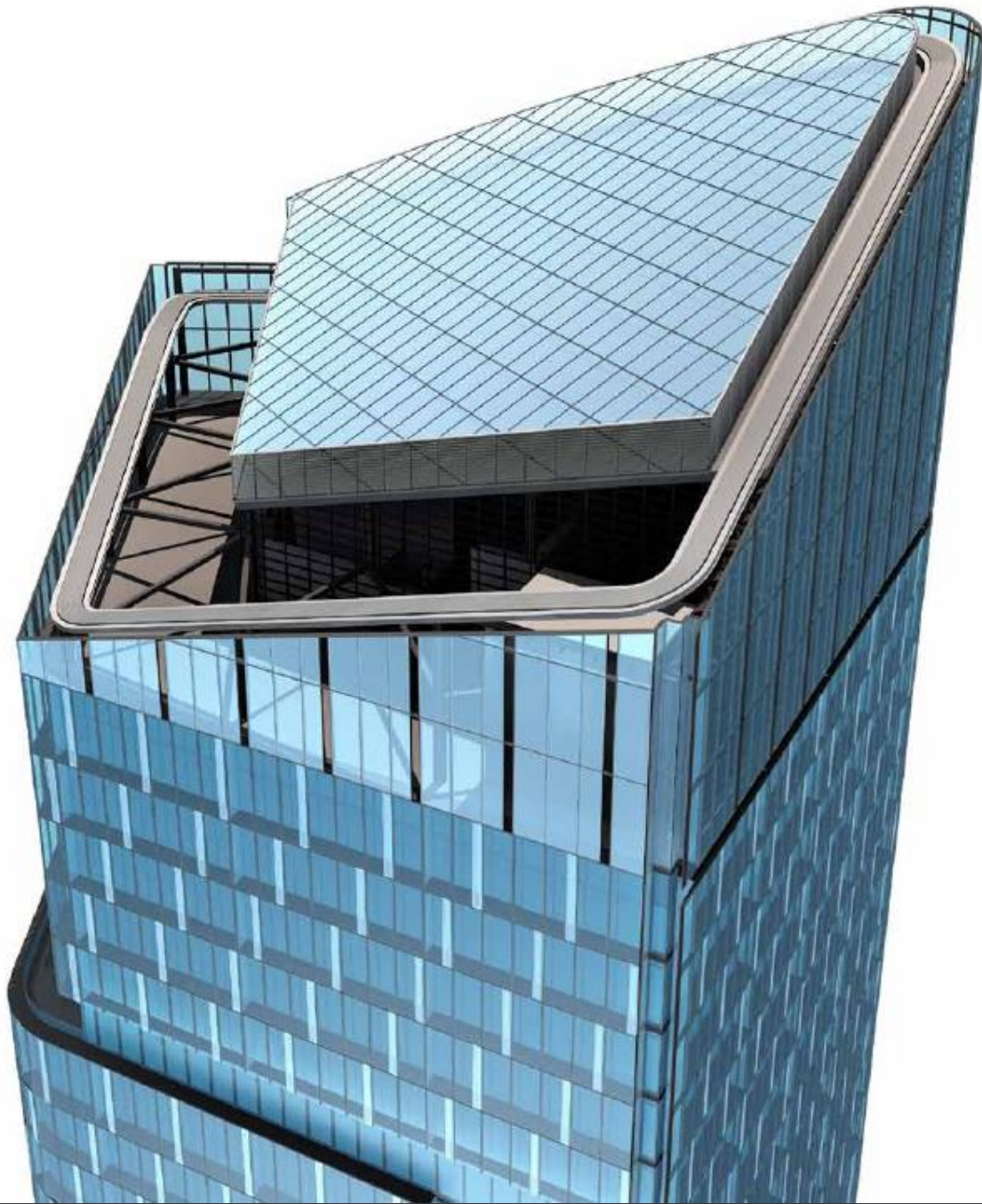
MANUALLY OPERATED
DOORS SLIDE OPEN

NATURAL
VENTILATION

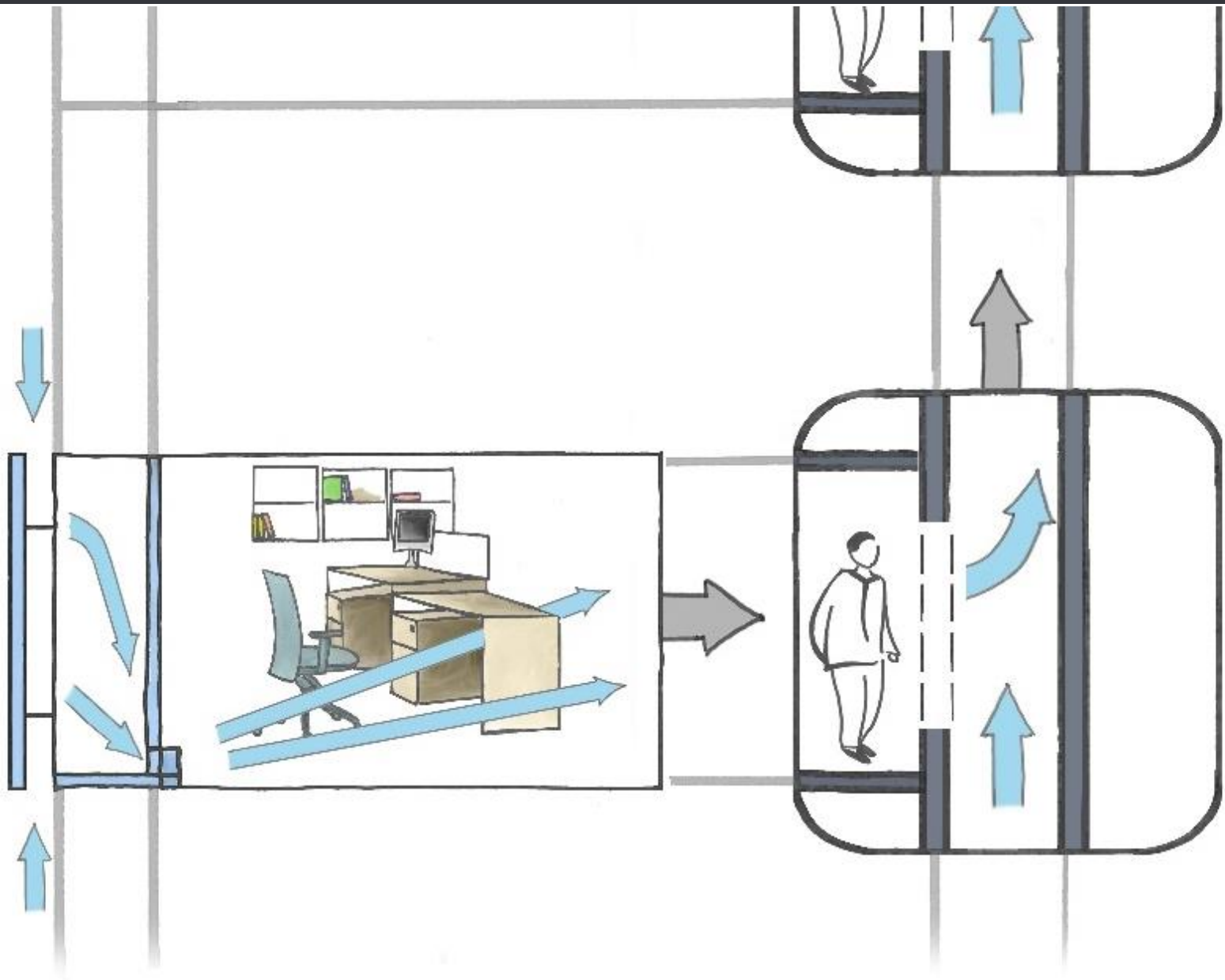
FRESH
AIR

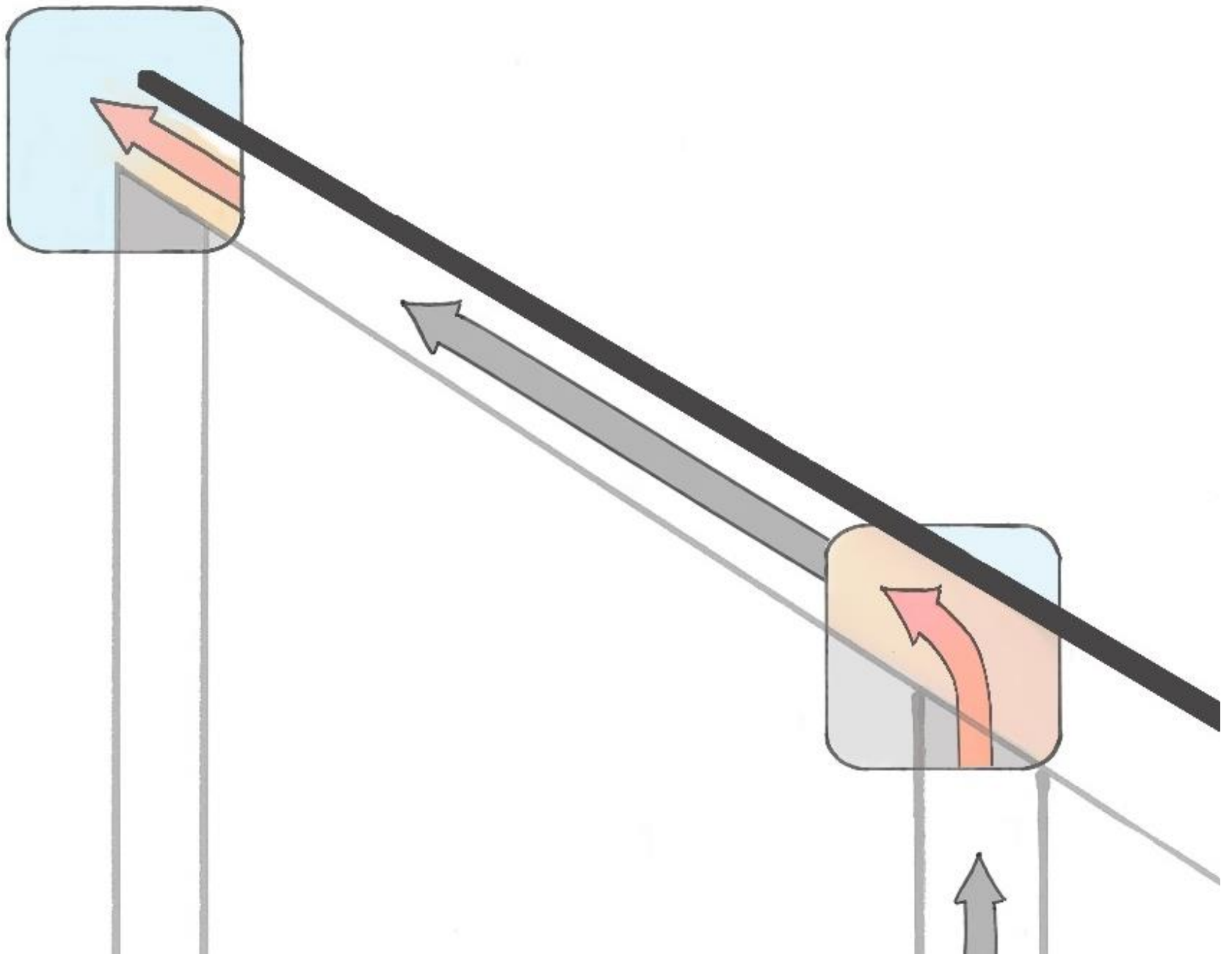












ANALYSIS OF LOCAL CONDITIONS DETERMINED OPTIMAL PERIODS WHERE NATURAL VENTILATION COULD BE UTILIZED

Jan Feb Mar Apr May June July Aug Sept Oct Nov Dec

Natural Ventilation Days (2 or more hours; 730A-630P)

annual NAAQS 15.0 ppm
initial episode 10.0 ppm

Pittsburgh PM2.5, 2010 [40% attributable to industrial processes, only 4% to cars]

8-hour NAAQS 0.075 ppm

annual average 0.12 ppm

Pittsburgh Ozone, 2010

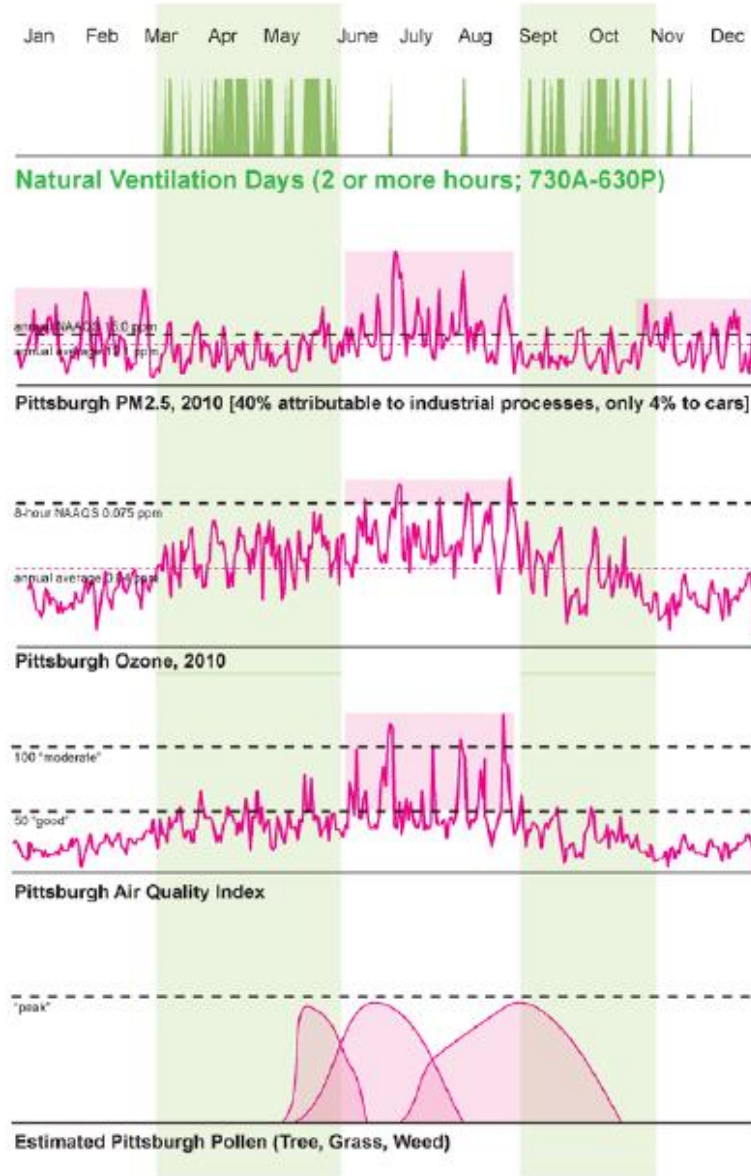
100 "moderate"

50 "good"

Pittsburgh Air Quality Index

"peak"

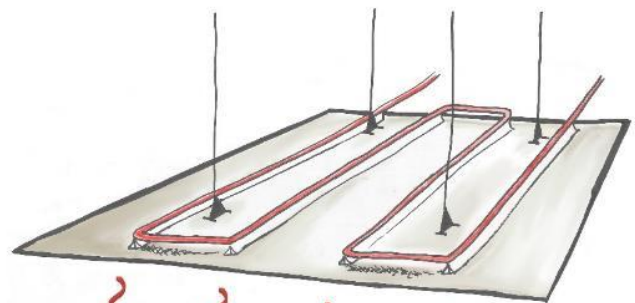
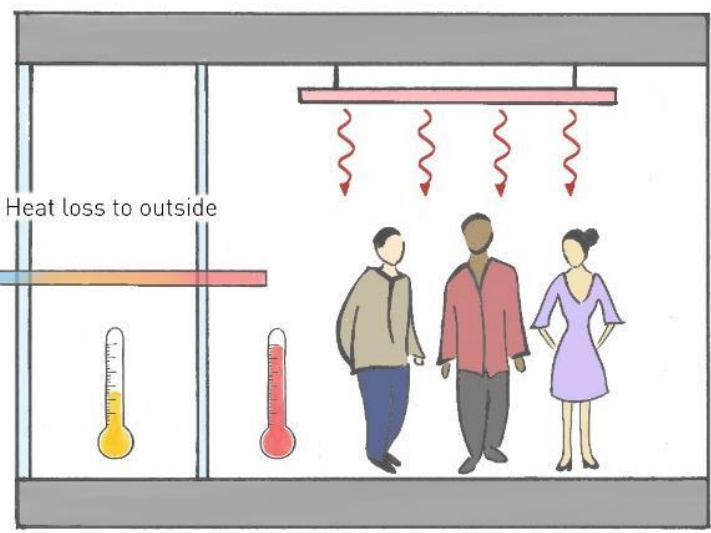
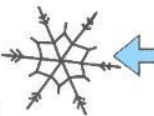
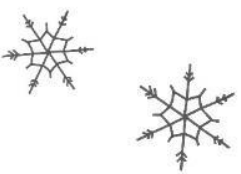
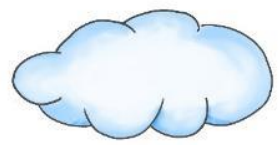
Estimated Pittsburgh Pollen (Tree, Grass, Weed)





Mechanical Heating
Mode
(WINTER)

Radiant Panel

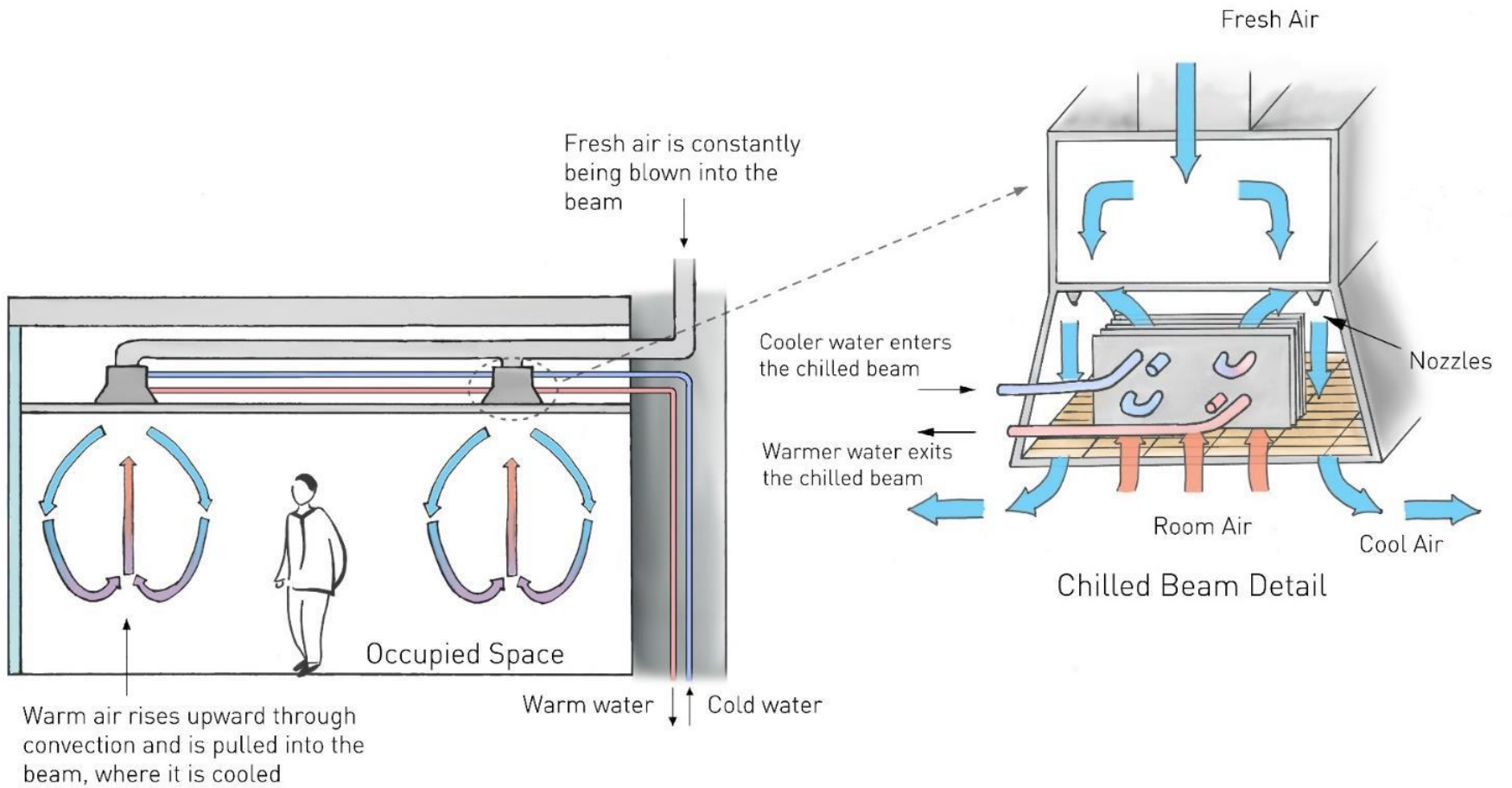


Hot water circulates through the panel, which radiates heat into the space.

Radiant panels offset heat loss from windows to maintain a comfortable indoor temperature.



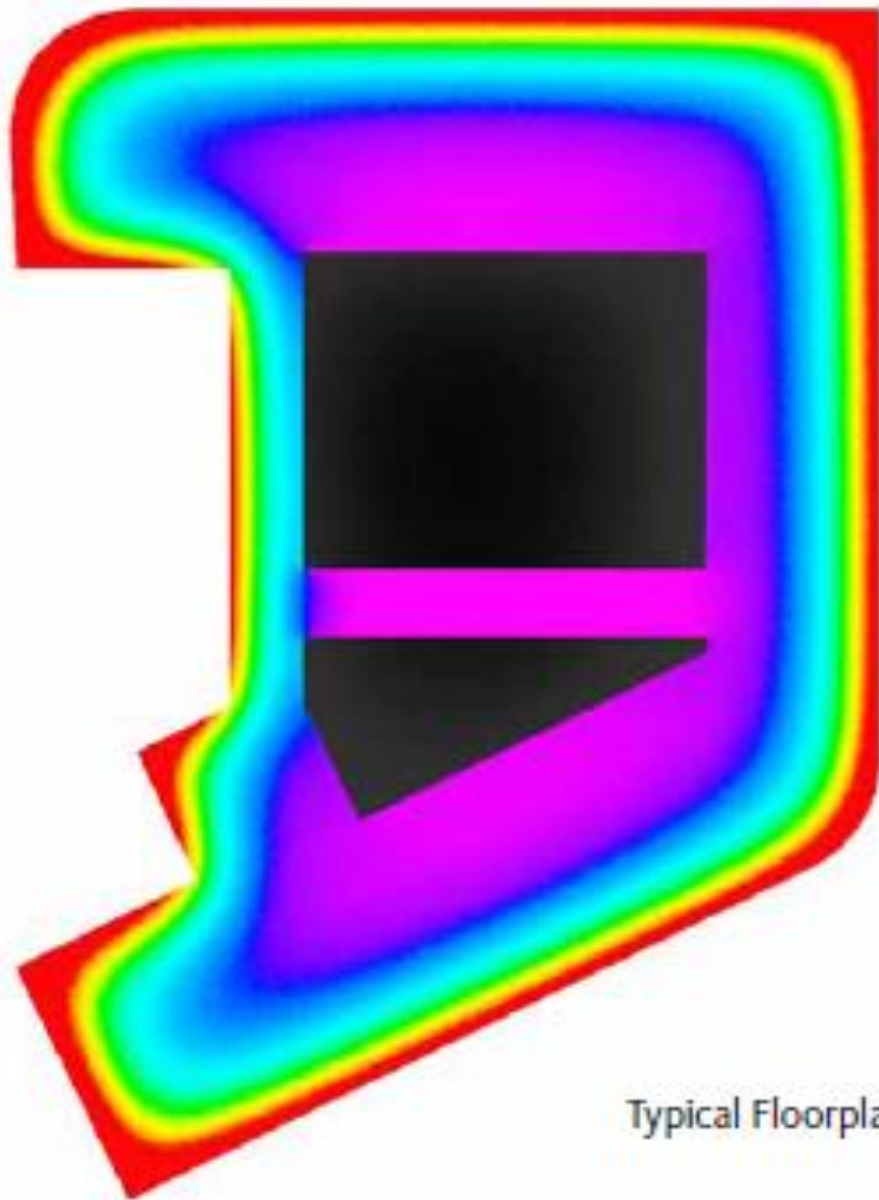
Mechanical Cooling
Mode
(SUMMER)



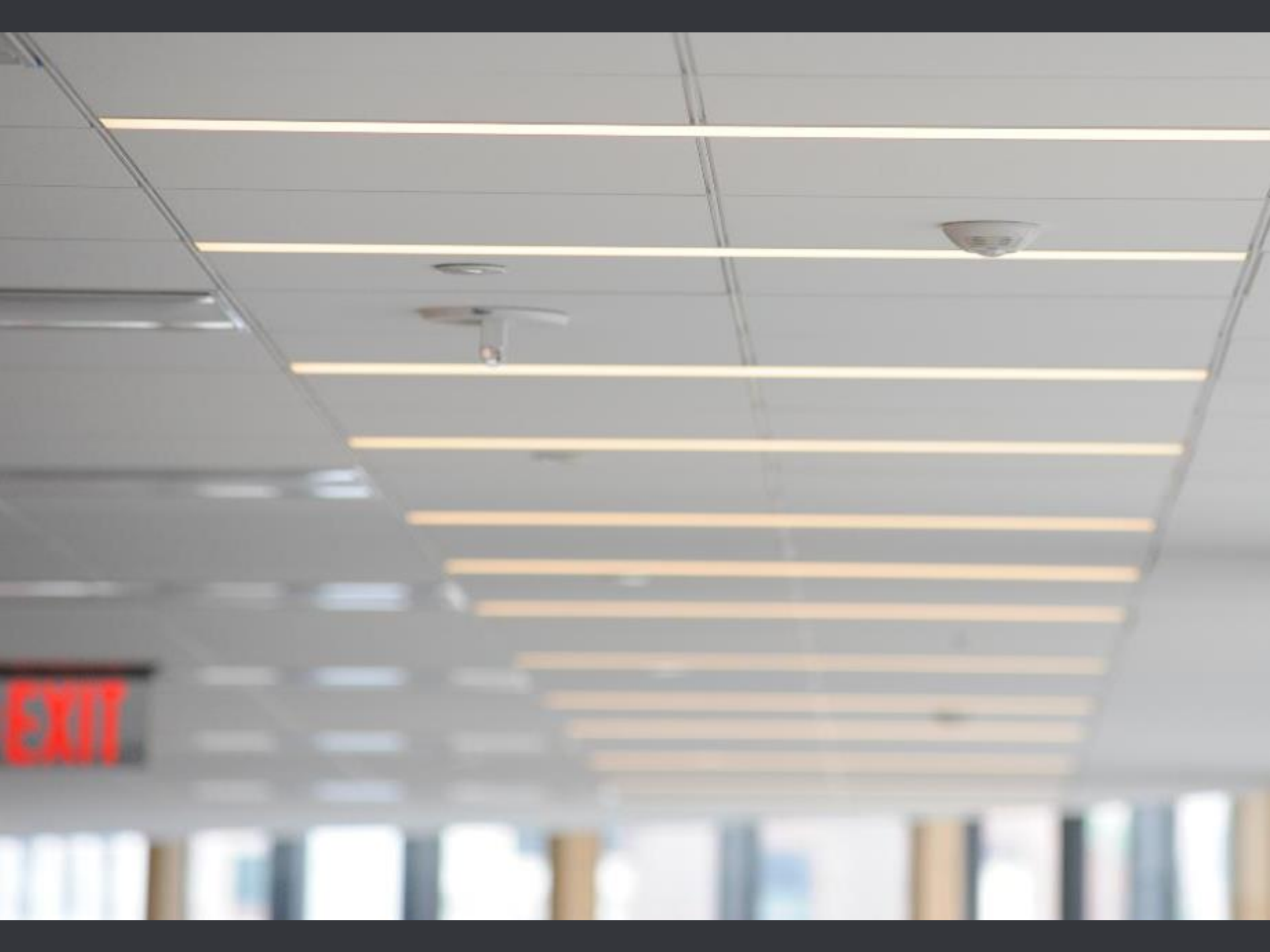
Typical Floor Section

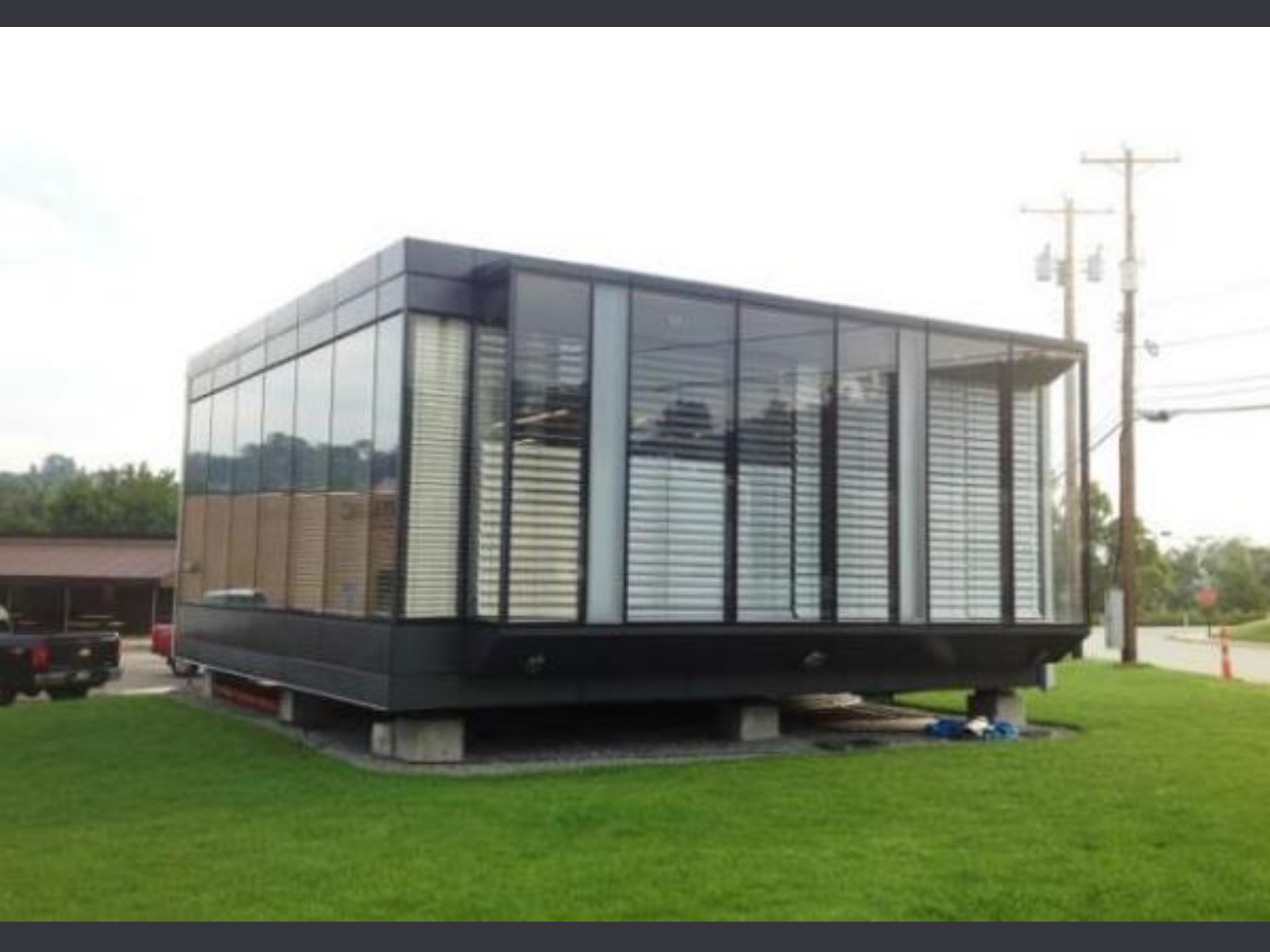


Illuminance (LUX)



Typical Floorplate







Huntington

Frank Inoa
Arby's

Arby's Overview

- The 2nd largest quick-service sandwich chain in the U.S. with more than 3,300 restaurants in 4 countries
- Headquartered in Sandy Springs, Georgia
- Famous for roast beef sandwiches!



Showcase project: Howell Mill Road Atlanta

SECTOR TYPE

Commercial

LOCATION

Atlanta, Georgia

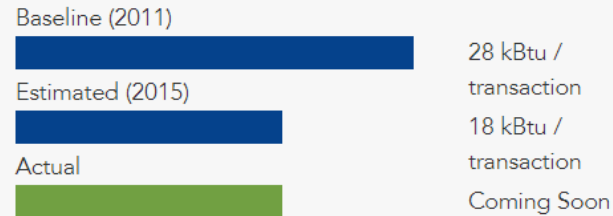
PROJECT SIZE

3,200 Square Feet

FINANCIAL OVERVIEW

Project Cost: \$80,000

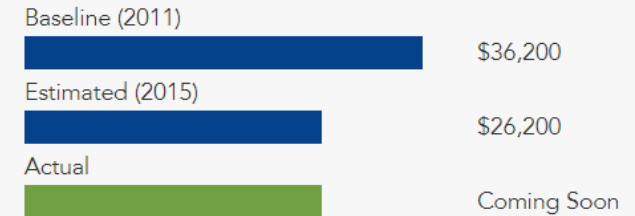
Annual Energy Use



Energy Savings:

38%

Annual Energy Cost



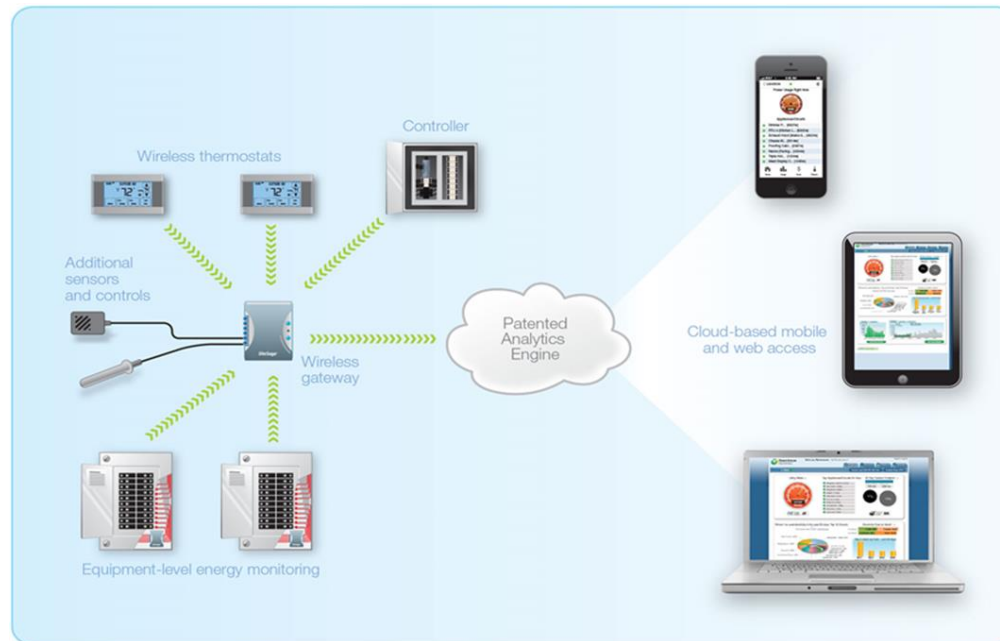
Cost Savings:

\$10,000



How do we do this?

- Managing Arby's Assets with SiteSage
 - Low-cost Asset Management
 - Enterprise-Wide Visibility to HVAC portfolio
 - Nimble company – Willing to design ways to expand its system



A system to manage energy costs, equipment performance, and food safety



A Look Into Arby's RTUs

Current Thermostat Settings (Friday, August 30, 2013, 9:44 AM)

63° Cool

Mode: Auto Cooling Heating Off

Fan: Auto On

Outdoor Temp: 63°F Friday AM Prep Setting: 75°F Hold

Cooling Schedule for Friday

- Closed: 80°F 11:00p - 8:00a
- AM Prep: 75°F 6:00a - 11:40a
- Lunch: 69°F 11:40a - 4:20p
- Lull: 80°F 4:20p - 8:00p
- Dinner: 72°F 8:00p - 10:00p
- Clean: 76°F 10:00p - 11:00p

Centralized, easy to use HVAC & other controls

WIC Cond (Meat)

Day | Week | Month | Year

Usage | Outdoor Temperature

Nov 15, 2:30pm: 0.57kWh

Patented analytics tackle operational inefficiencies and equipment performance

Benchmark

Benchmark HVAC/R _{ASTX} Food Safety _{ASTX} Admin

Results - Past 30 Days (based on measured usage)

Name	City	State	Cost	Cost Sq. Ft.	Cost Oper.Hr.
Braintree	Braintree	MA	\$ 7,795	\$ 1.95	\$ 24.59
Dedham	Dedham	MA	\$ 5,801	\$ 0.97	\$ 17.24
Lexington	Lexington	MA	\$ 3,874	\$ 1.55	\$ 8.73
Salem	Salem	MA	\$ 1,830	\$ 0.73	\$ 3.81

Effective benchmarking down to the equipment level across the Enterprise

SiteSage Status Current use: 51.06 kW | \$8.17/hr Current voltage: 286v Outside Temp: 46°F Enterprise

Off Hours Report November 13, 2014

Summary Report Off Hours Report

Selected Off Hours Circuits, Past 30 Days

Total Lost Profits for Selected Circuits: \$88 (\$1,066/yr)
Selected Period vs. Comparison Period: \$113 (\$1,369/yr) (more profits)

Equipment	Lost Profits (\$)
Heat Lamp (Point)	\$7
Exhaust Hoods (Main)	\$9
Frozen Margarita Machine	\$4
Bun Toaster	\$8
2 Door Mug Chiller	\$5
Heat Lamps (Roll)	\$5

Proactive, exception-based push reporting - and "mobile first" strategy



Asset Scoring

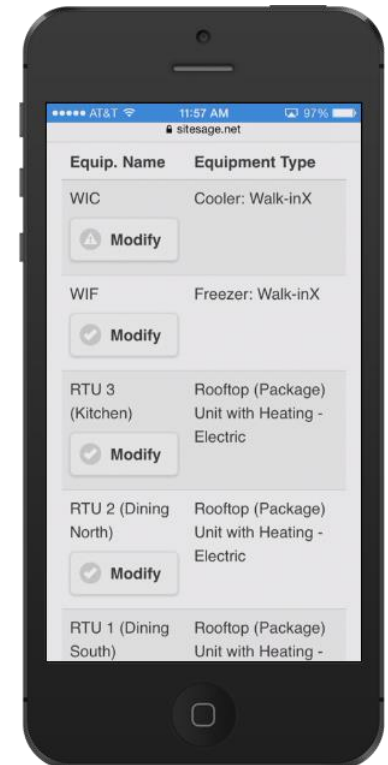
Expanded Capabilities, *Assets Application*

Capture: Custom mobile app to capture make, model, serial number, age, tons, observed condition, notes, photos

Onsite Scoring: Surveyor provides objective scoring of each unit and uploads information onto platform

Analyze: Online reporting, mapping & scoring enables quick sorting of thousands of units

Maintain: Bar codes deployed facilitate future access to and updating of equipment data



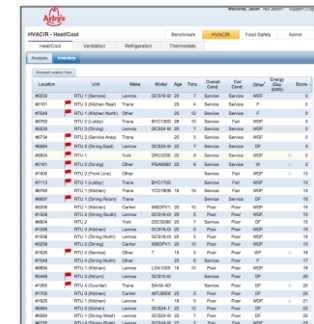
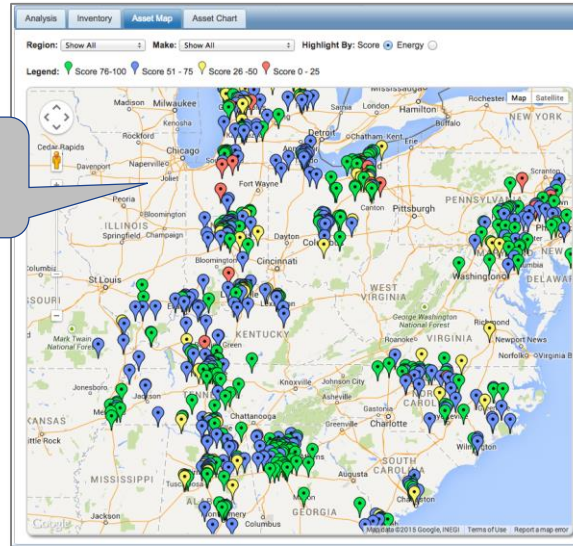
2015 HVAC Replacement Project

Execution Phase II:

- Selection
 - With a fixed budget, how do you know which units to replace?
 - Understand current cost of ownership, maintenance + energy consumption
 - Online reporting
 - Scoring enables quick sorting between thousands of units
 - Mapping can determine geographical trends
 - Negotiating is facilitated by actual unit size & count



Mapped & coded
by score range



Location	Unit	Make	Model	Age	Type	Overall	Cost	Unit	Energy	Room
ARIZONA	HVU 1 (Phoenix)	Carrier	50CRA-05	10	Split	Service	1000	1000	1000	1000
ARIZONA	HVU 2 (Phoenix)	Carrier	50CRA-05	10	Split	Service	1000	1000	1000	1000
ARIZONA	HVU 3 (Phoenix)	Carrier	50CRA-05	10	Split	Service	1000	1000	1000	1000
ARIZONA	HVU 4 (Phoenix)	Carrier	50CRA-05	10	Split	Service	1000	1000	1000	1000
ARIZONA	HVU 5 (Phoenix)	Carrier	50CRA-05	10	Split	Service	1000	1000	1000	1000
ARIZONA	HVU 6 (Phoenix)	Carrier	50CRA-05	10	Split	Service	1000	1000	1000	1000
ARIZONA	HVU 7 (Phoenix)	Carrier	50CRA-05	10	Split	Service	1000	1000	1000	1000
ARIZONA	HVU 8 (Phoenix)	Carrier	50CRA-05	10	Split	Service	1000	1000	1000	1000
ARIZONA	HVU 9 (Phoenix)	Carrier	50CRA-05	10	Split	Service	1000	1000	1000	1000
ARIZONA	HVU 10 (Phoenix)	Carrier	50CRA-05	10	Split	Service	1000	1000	1000	1000



2015 HVAC Replacement Project

2015 AOP Impact HVAC Replacement Project

- New platform allowed Arby's to survey 940 restaurants in (93) days
- 2,600 + roof-top-units "scored" & information entered into database
- Roll-out of 378+ units replaced in 2015 – 8 month time period
- Update feature provides new live equipment information
- Expected R&M savings of \$510K
- \$112K energy usage savings

Wins

- Lower installation costs (per ton) compared to industry average
- Over \$51K in early purchase equipment discounts
- Over \$42K in rebates recovered by our partner Ecova
- 250 + RTUs planned for 2016

Winner: *Most innovative RTU management approach by a participating partner* – Advanced RTU Campaign



Efficiency Matters

EFFICIENCY GOALS

15% reduction in total energy consumption of company-owned restaurants by the end of 2015 (Arby's *Efficiency Matters*)

20% reduction in total energy consumption per transaction per company-owned restaurants by 2020 (Dept. of Energy's Better Buildings Challenge)

RESULTS (EOY 2015)

Achieved 15.2% reduction in total energy consumption vs. Arby's set goal of 15%

Exceeded DOE's Better Buildings Challenge Goal – 24.2% reduction in total energy consumption per transaction (kBtu/transaction). Four years ahead of schedule! *

** Arby's corporate goal measures the average site energy reduction per restaurant, while the Better Buildings Challenge goal, factors in the increase in Arby's same-store sales transactions. It also accounts for source energy losses created by energy generation and transmission. Similar results, different metrics!*



Partners In Our Success

ecova®

 **Powerhouse**
Dynamics

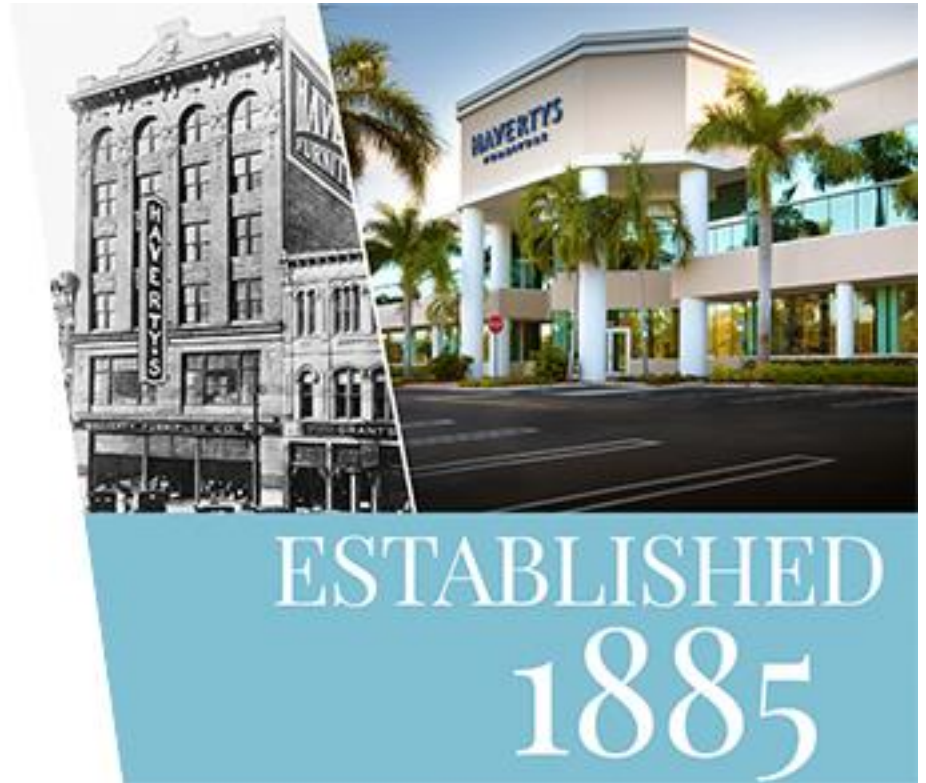
 **Better Buildings**
CHALLENGE
U.S. DEPARTMENT OF ENERGY



**Rawson Haverty
Haverty's Furniture**

Company Information

- Founded in Atlanta in 1885
- Today we are publicly traded and have over 100 stores in 16 states, serving millions of customers.







San Antonio Forum - 2004



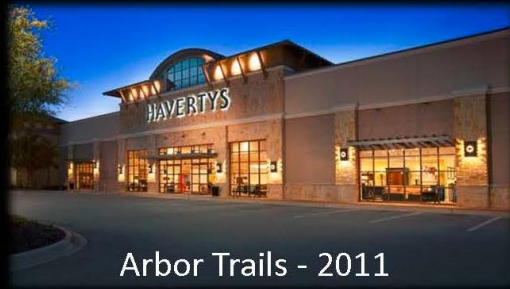
Baton Rouge - 2005



Shreveport - 2005



Castleton - 2006



Arbor Trails - 2011



Asheville - 2011



Boca Raton - 2011



Towson - 2011



Allen - 2012



Allen - 2012



McDonough - 2012



Midland - 2012



Midland - 2012



West Ashley - 2013



Alliance - 2014



Alliance - 2014



Kissimmee - 2014



“We will be responsible in our relationship with the environment and encourage all our associates to be environmentally sensitive.”

- Havertys Mission Statement

Haverty's Better Buildings Challenge Video



51 <https://www.youtube.com/watch?v=4FIAj-ooA7g>

Partner Highlight: Havertys Furniture

HAVERTYS
FURNITURE®



PROGRESS

22%

Cumulative (vs.
Baseline)



Goal Achieved

CHALLENGE COMMITMENT

5.1

Million Square Feet

Havertys Playbook: Buy-in + Bright Inspirations

HAVERTYS FURNITURE®



- Secure buy-in across organization
- Fold EE into store image upgrades
- Combine lighting/RTU retrofits – huge \$
- Havertys Implementation Model

Showcase Project: VA Beach Showroom

SECTOR TYPE

Commercial

LOCATION

Virginia Beach, Virginia

PROJECT SIZE

59,000 Square Feet

FINANCIAL OVERVIEW

Project Cost: \$394,000

Annual Energy Use

Baseline (2012)



172 kBtu/sq.ft

Actual (2013)



96 kBtu/sq.ft

Energy Savings:

44%

Annual Energy Cost

Baseline (2012)



1.0

Actual (2013)



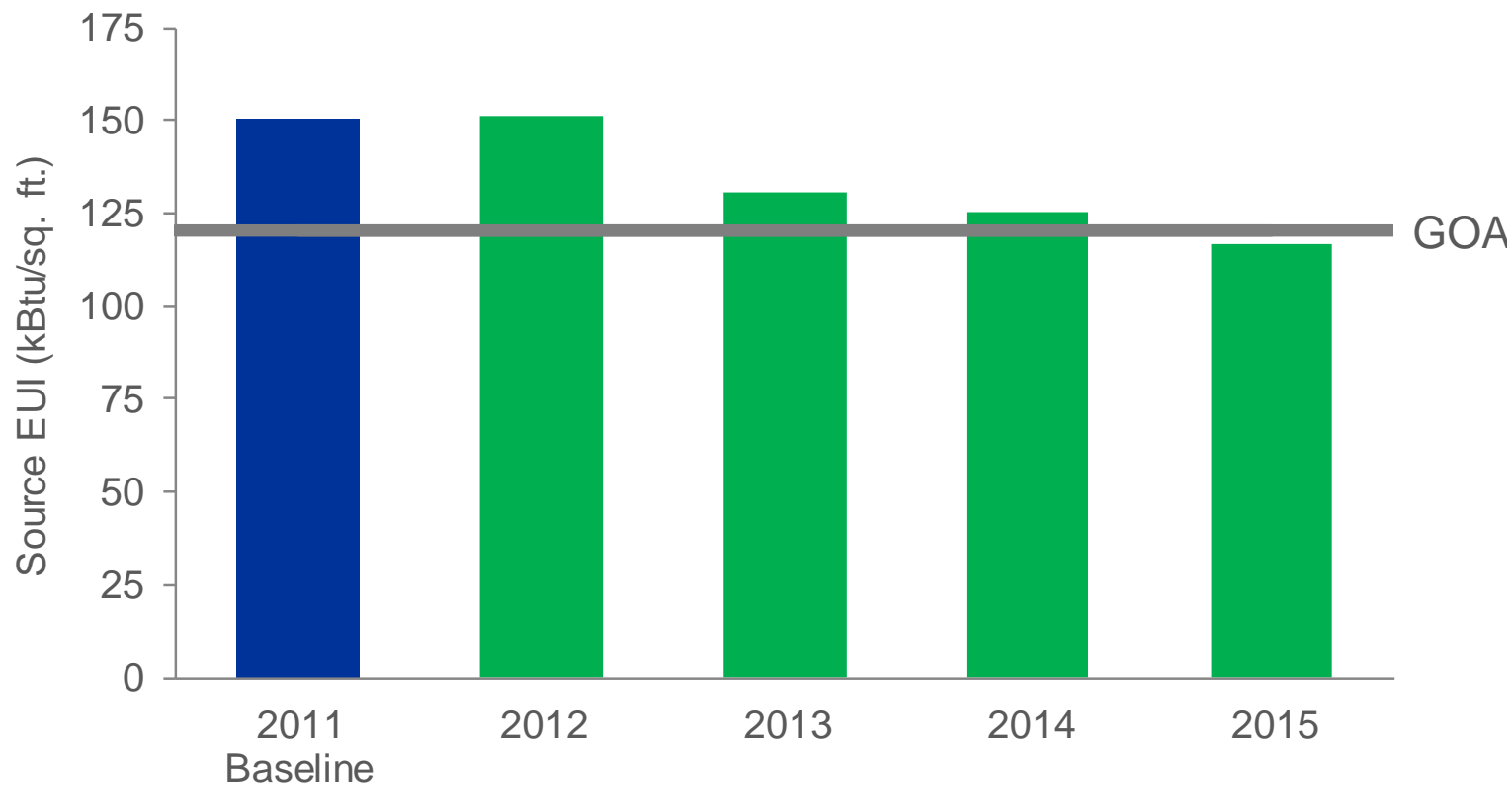
.66

Cost Savings:

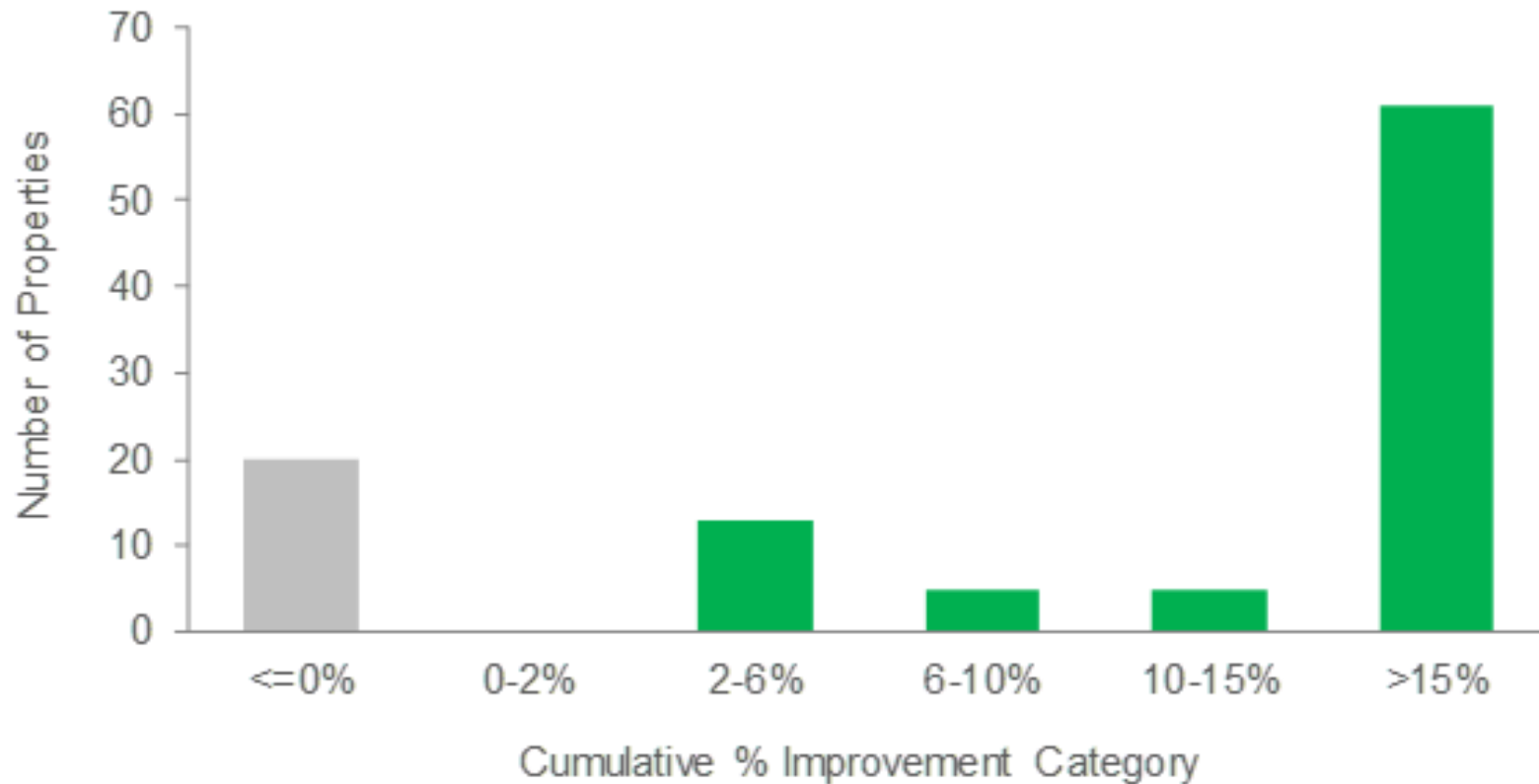
44%



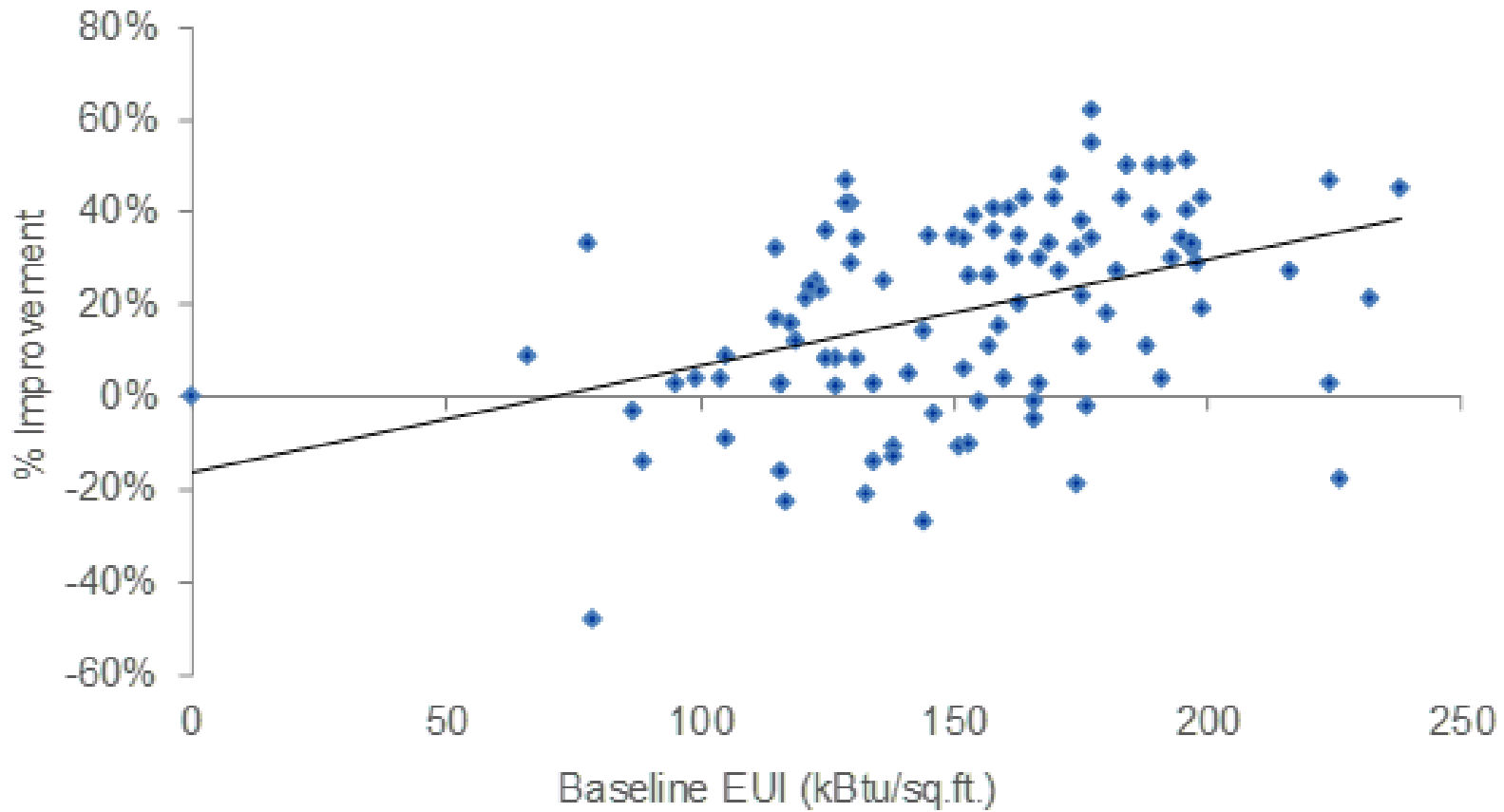
EUI and % Improvement vs. Baseline



Number of Properties by Cumulative % Improvement



% Improvement vs. Baseline EUI





Discussion

Thank you!

- Frank Inoa
- Rawson Haverty
- Angelica Ciranni