



DEMONSTRATED LEADERSHIP IN ELECTRIFICATION DESIGN

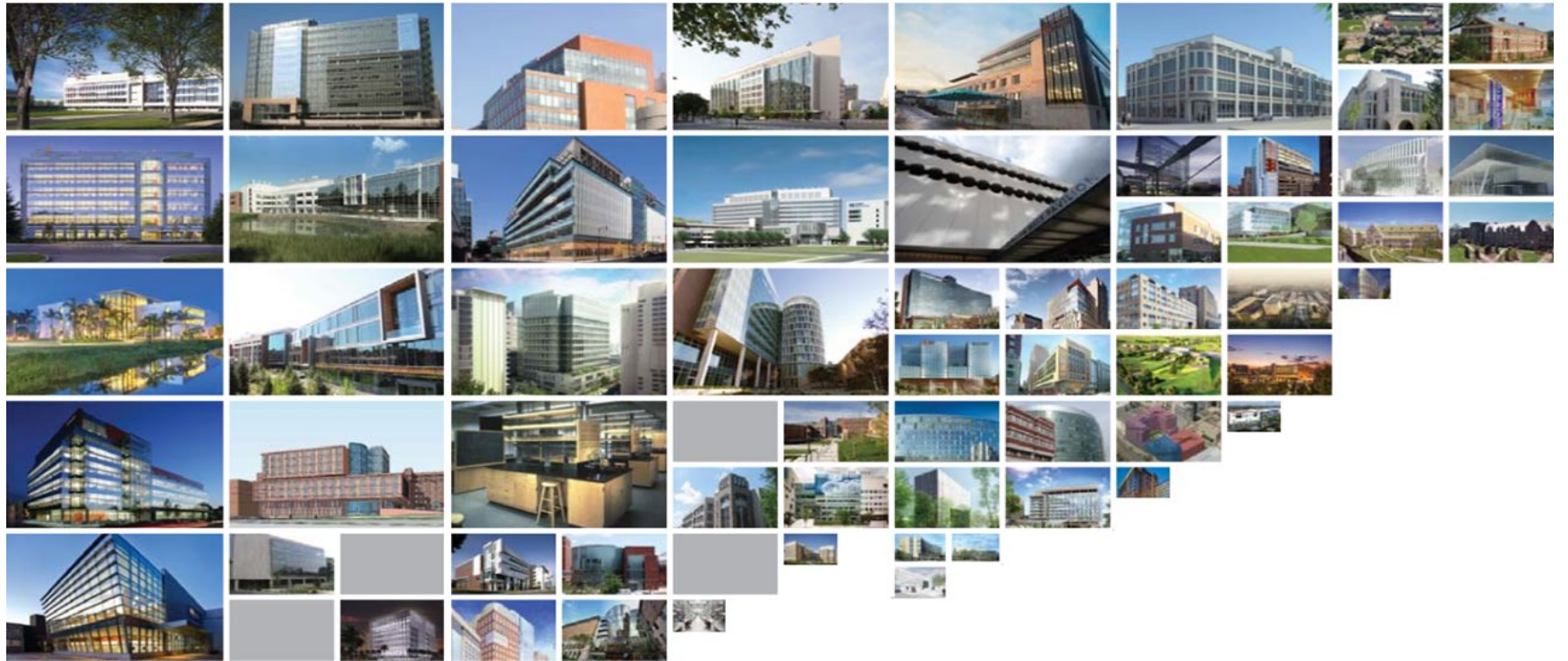
2019 NESEA BuildingEnergy NYC

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LEGACY



LEGACY



NEW YORK CITY: LOCAL LAW 97

BR+A's commitment to sustainability precedes the creation of LL97

5+ years of experience in ZNE design

80 x 50

80% carbon reduction by 2050

2024-2029 limits will affect the 20% most carbon-intensive buildings

2030-2034 limits will affect the 75% most carbon-intensive buildings

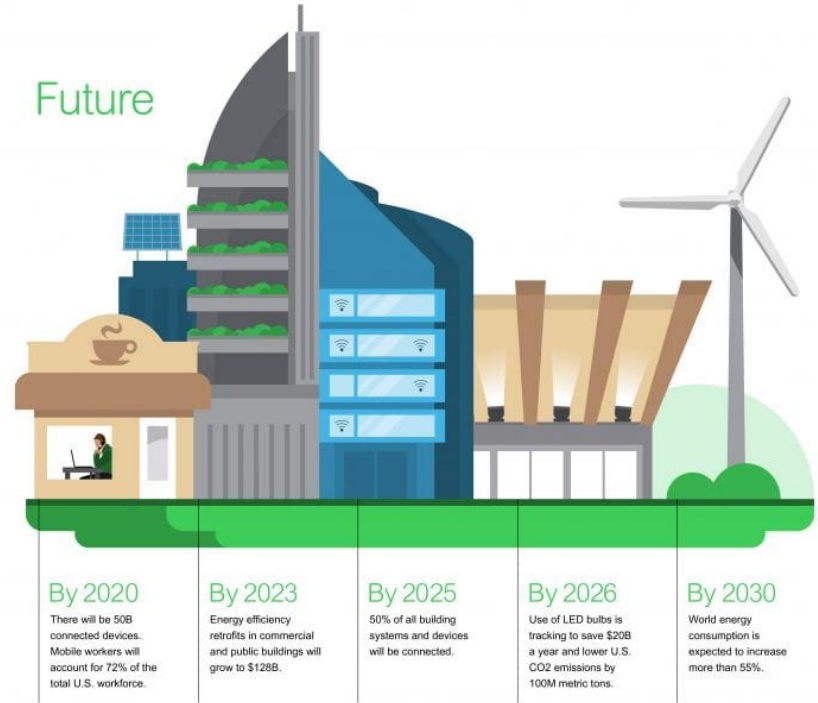


WHY ELECTRIFICATION?

Campuses, cities and countries are targeting carbon neutrality

Net zero codes and existing building energy regulations are going into effect

Clients are asking us ‘how do we cost effectively achieve these goals?’



FLEXIBILITY

We offer flexible solutions that adapt to your project and your budget.

Our focus is on the Triple Bottom Line:

Profit: The traditional measure of corporate profit¹

People: Measures how socially responsible an organization has been throughout its operations¹

Planet: How environmentally responsible a firm has been¹

Designs range from least cost buildings to world-class innovations

¹Investopedia; Triple Bottom Line (TBL)



BEST IN CLASS ENGINEERING

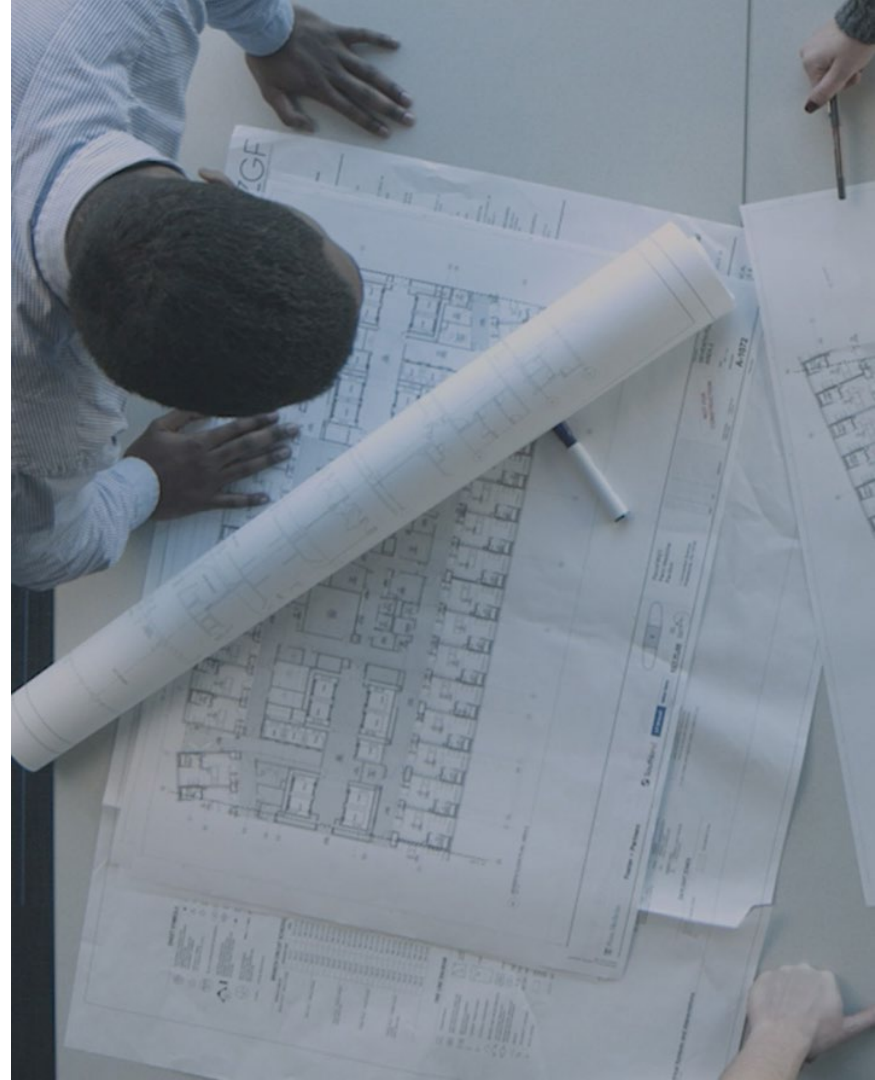
13 Offices

40+ Years

400+ Employees

1000+ Successful projects

BR+A is leading the industry, with **millions of square feet of net zero buildings** in operation, construction and design





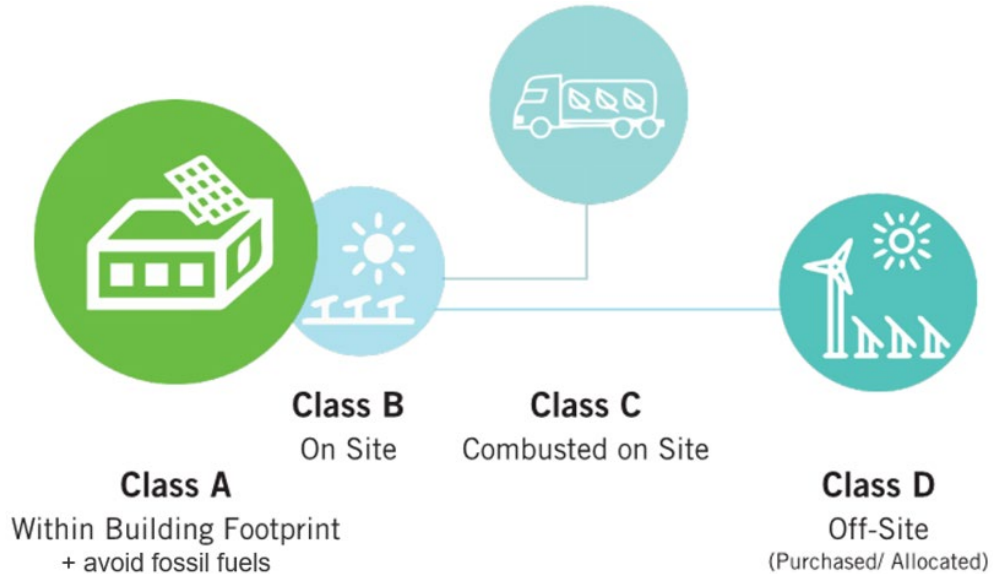
PATH TO ZNE

WHAT IS NET ZERO?

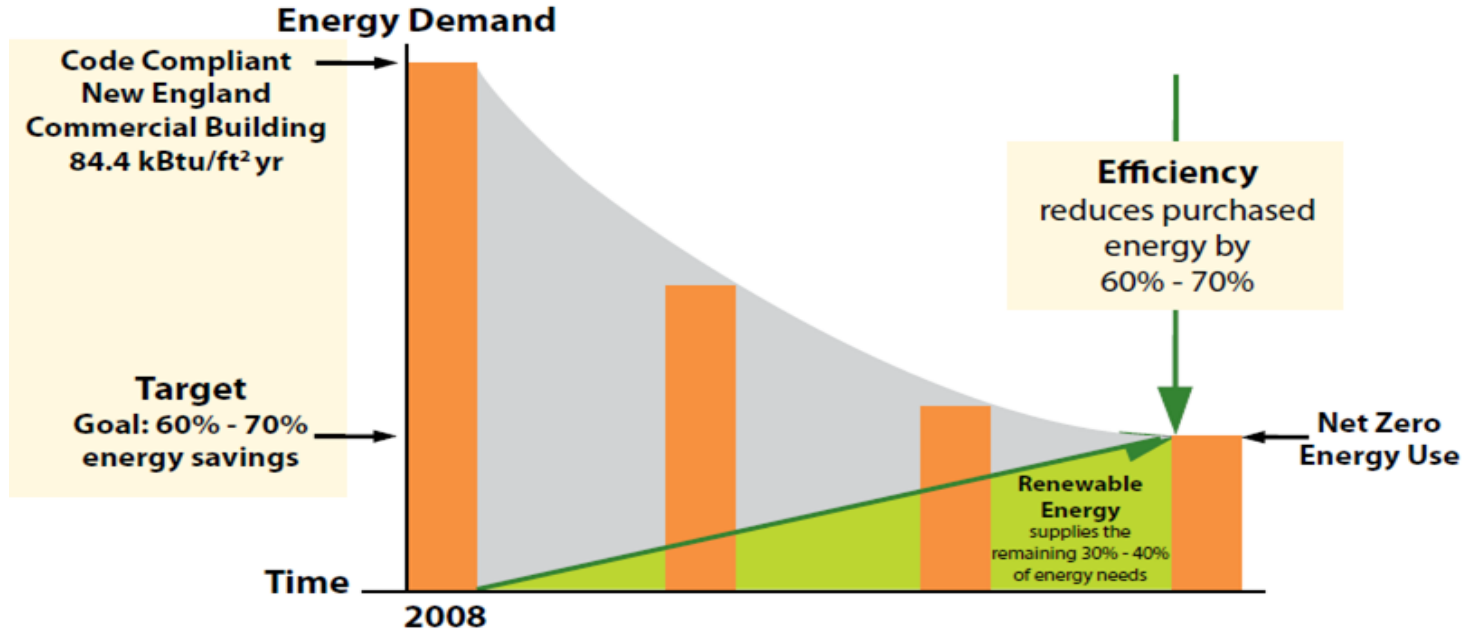
A Net Zero building generates as much renewable energy as it consumes, on an annual basis

There are four metrics to measure energy performance: site, source, cost, and carbon

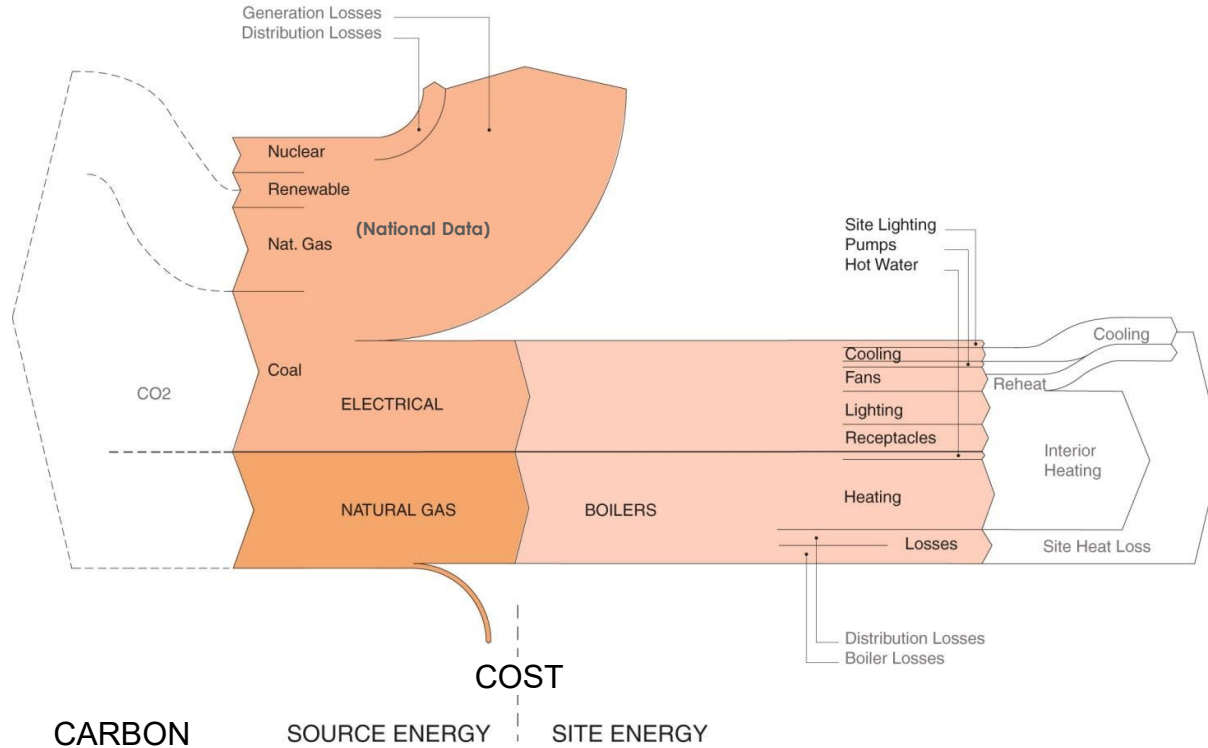
Four classes of net zero: A, B, C, and D



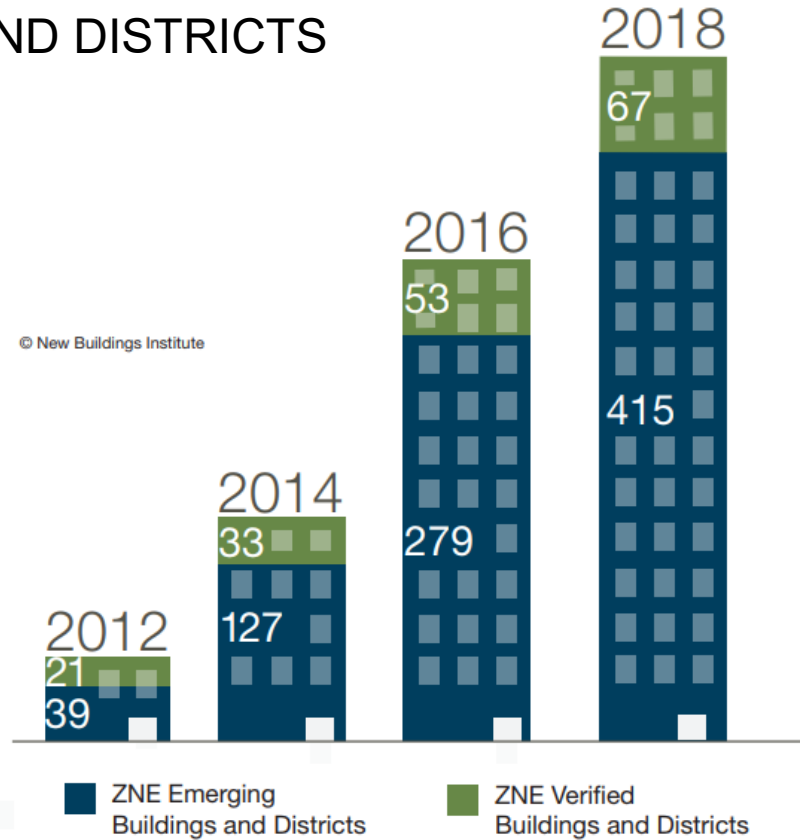
ZNE APPROACH



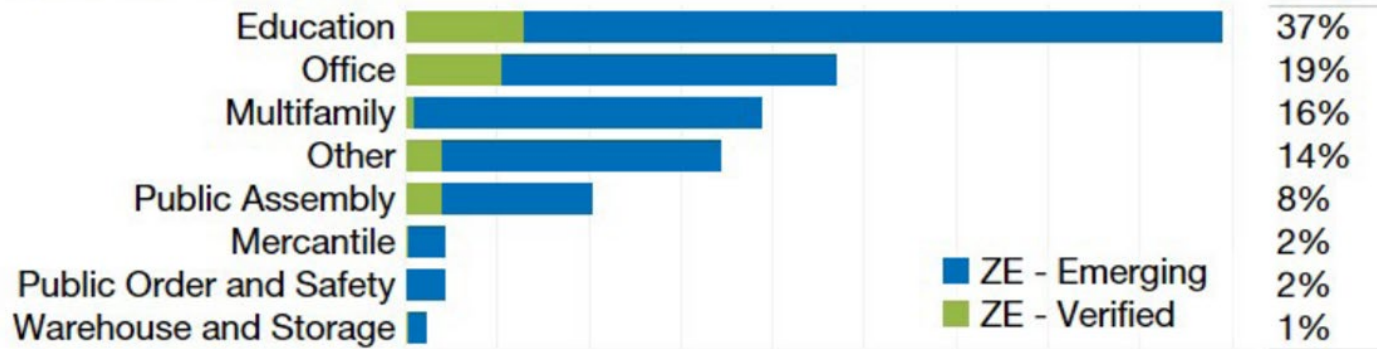
ZNE METRICS



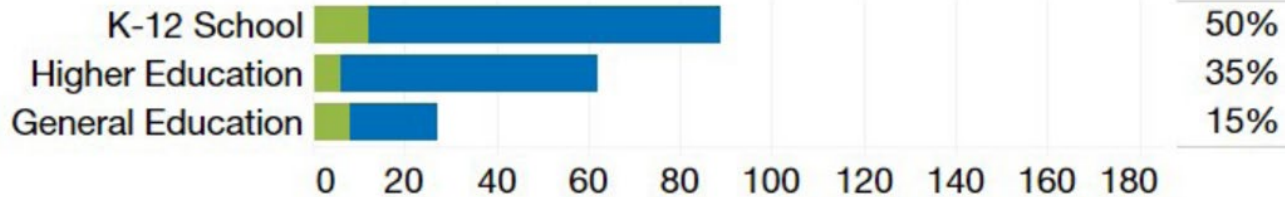
ZNE BUILDINGS AND DISTRICTS



ZNE BUILDINGS BY TYPE



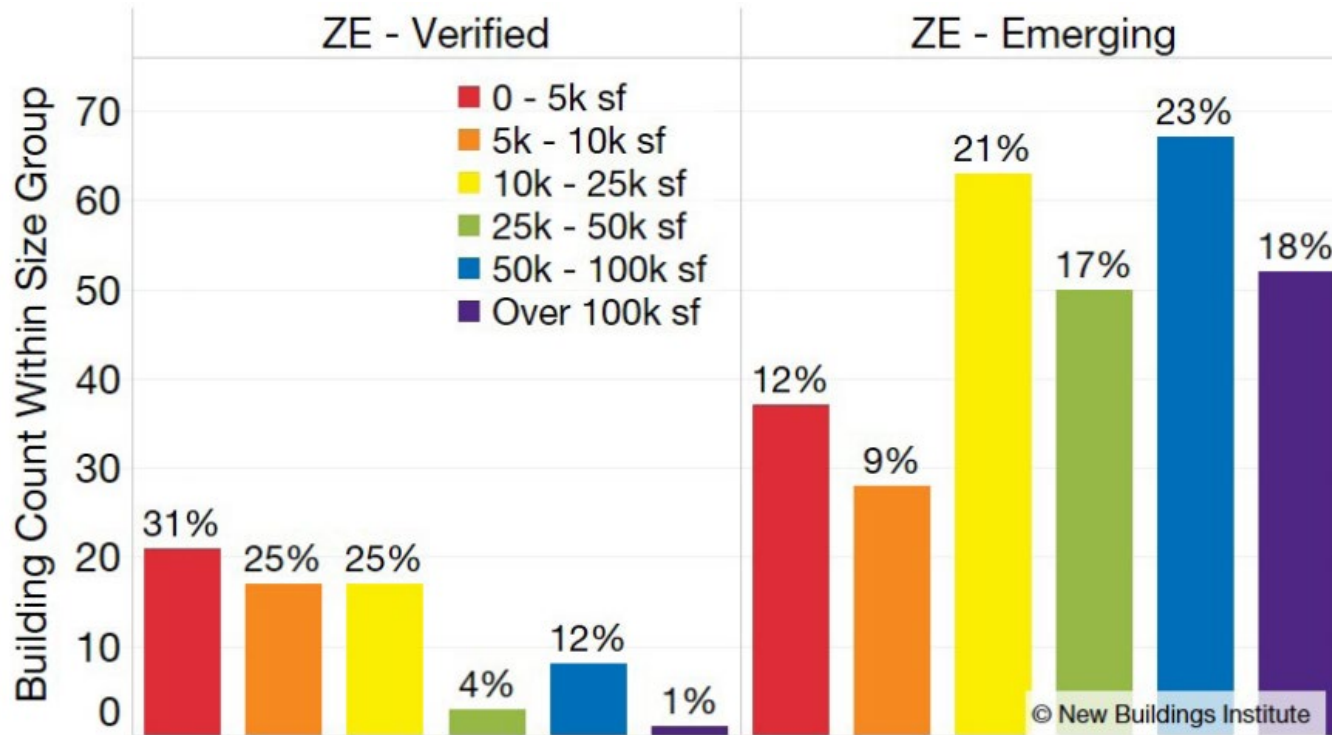
Education Breakdown



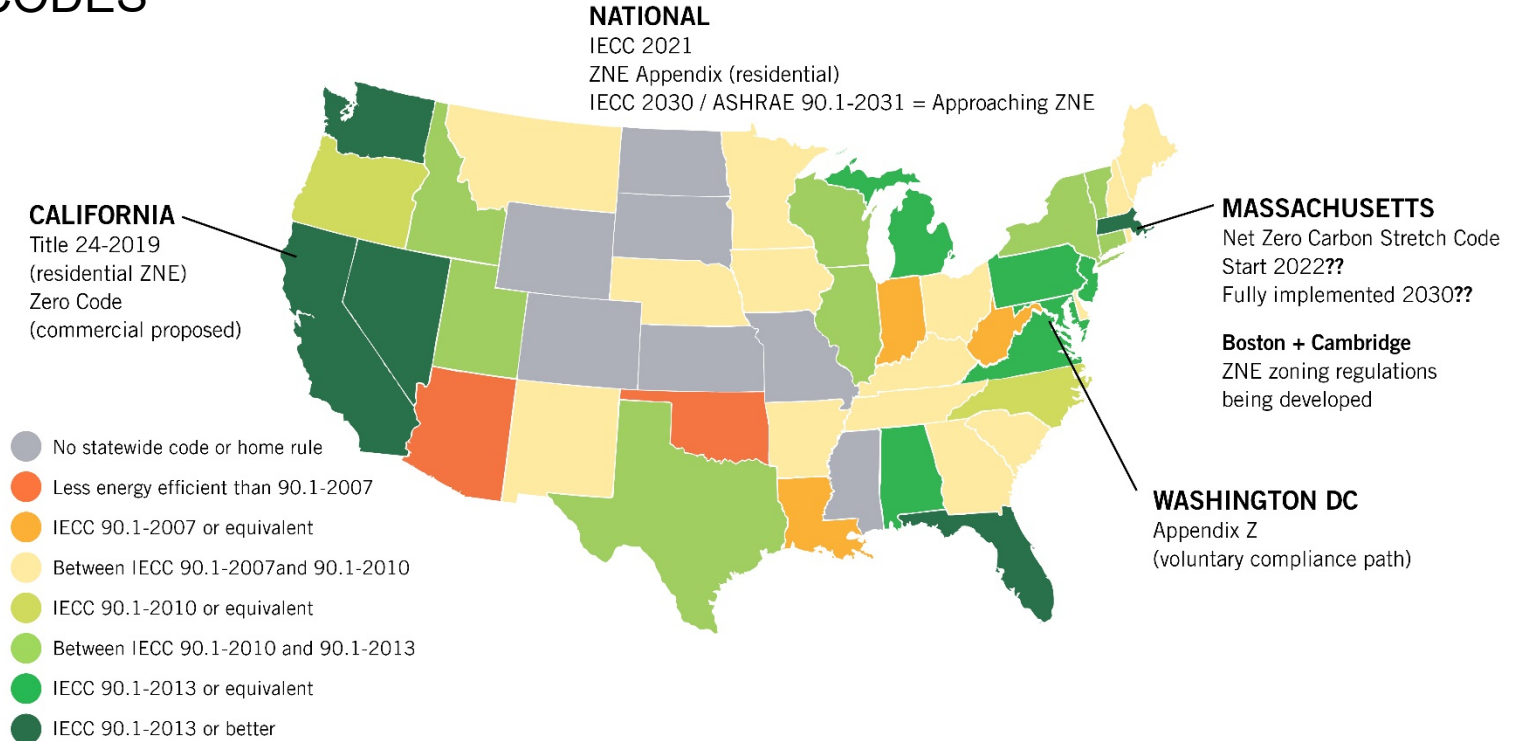
Building Count

© New Buildings Institute

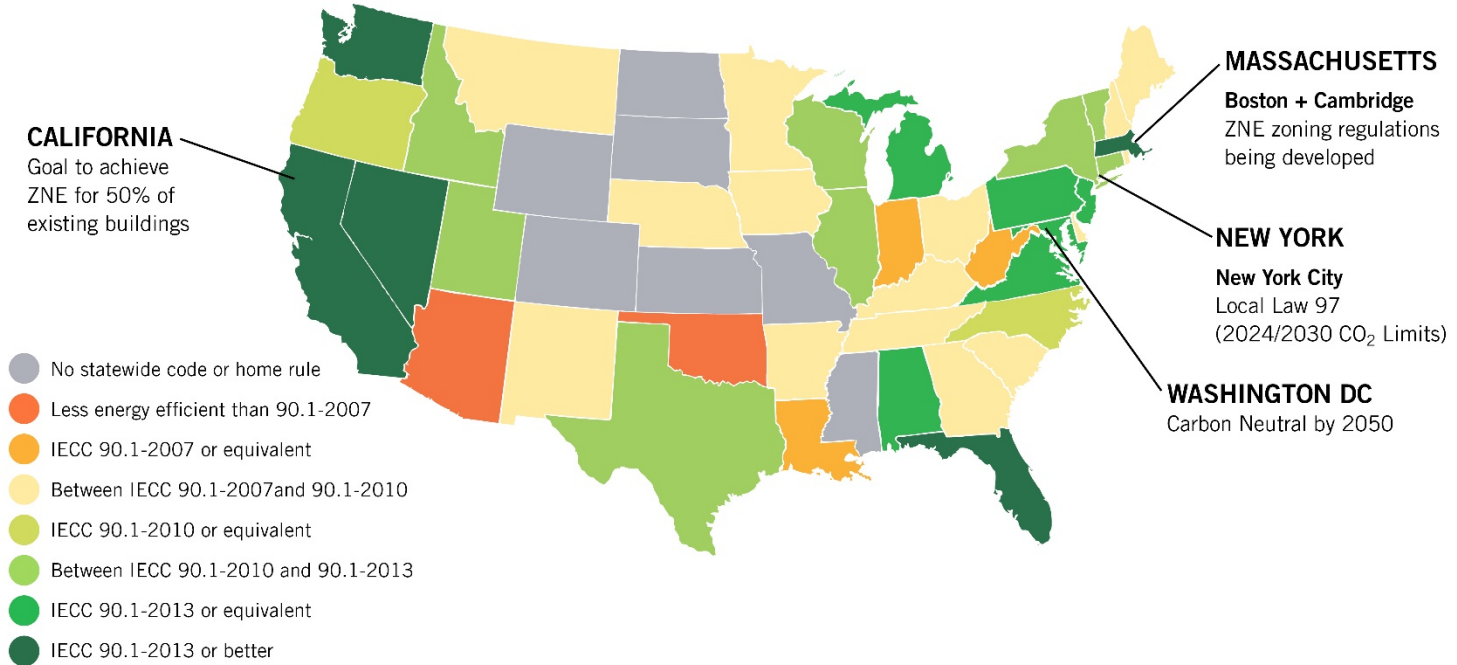
BUILDING SIZE BY ZNE STATUS



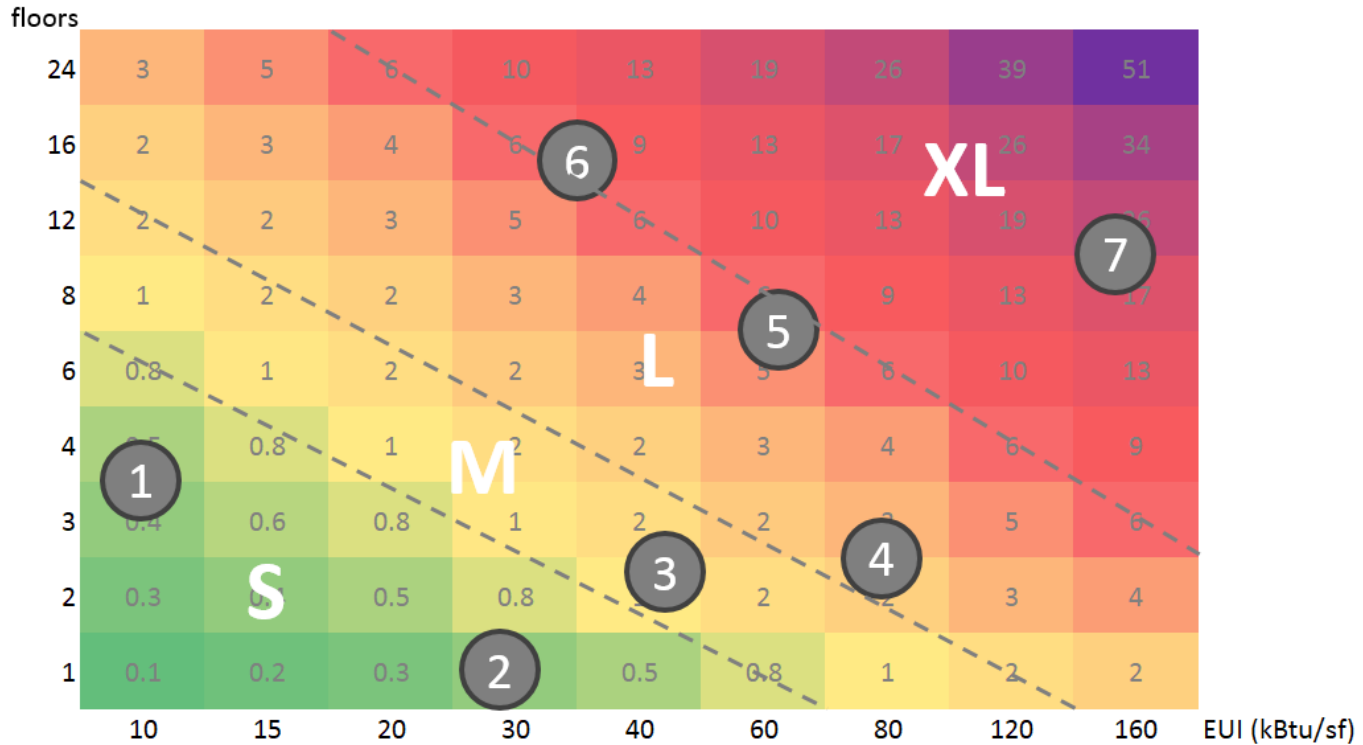
ZNE CODES



EXISTING BUILDINGS



ZNE: S, M, L, XL



SMALL: Harvard University, ARTLAB

Triple Glazing

Solar Array

VRF Fan Coil Units



MEDIUM: Bristol Community College, John J. Sbrega Health & Science Building

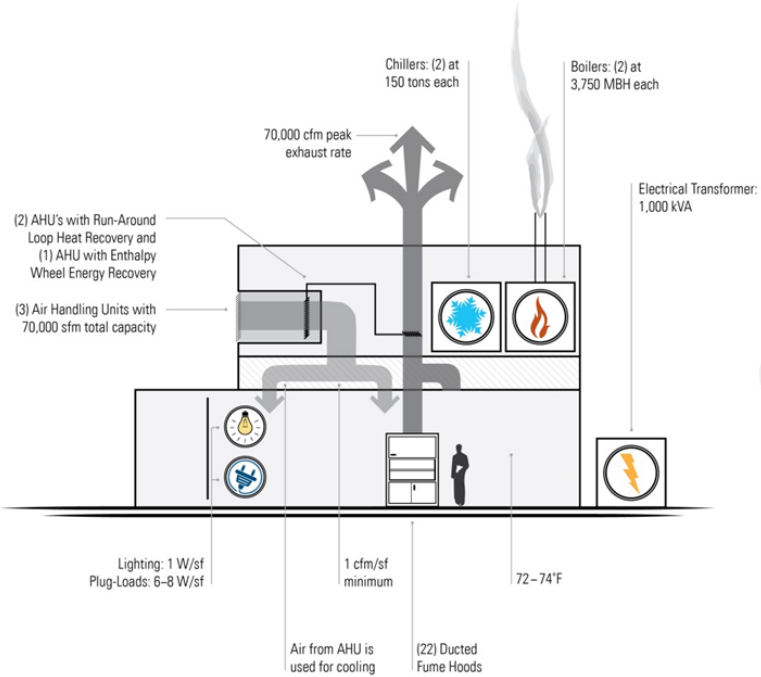
Net Zero

Only 1% Construction Cost Premium

First verified zero net energy lab in the U.S.

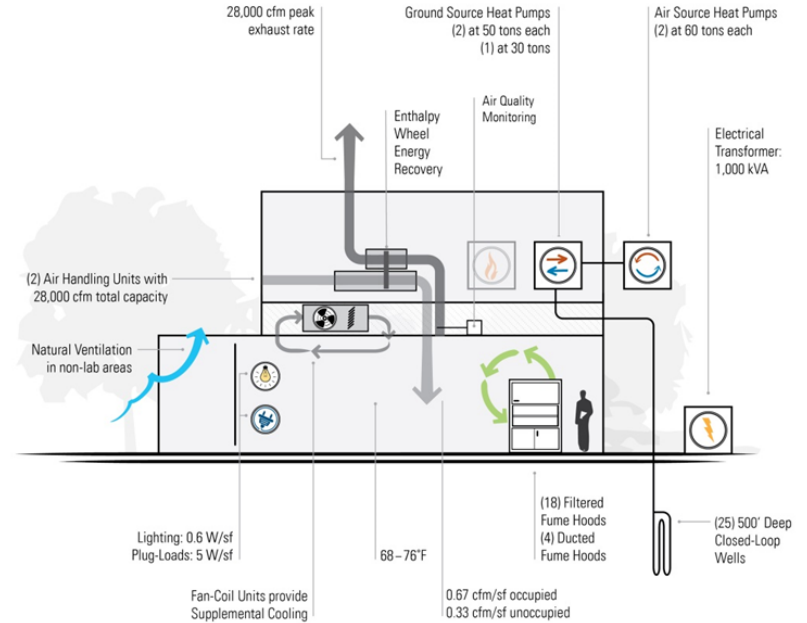


HIGH PERFORMANCE

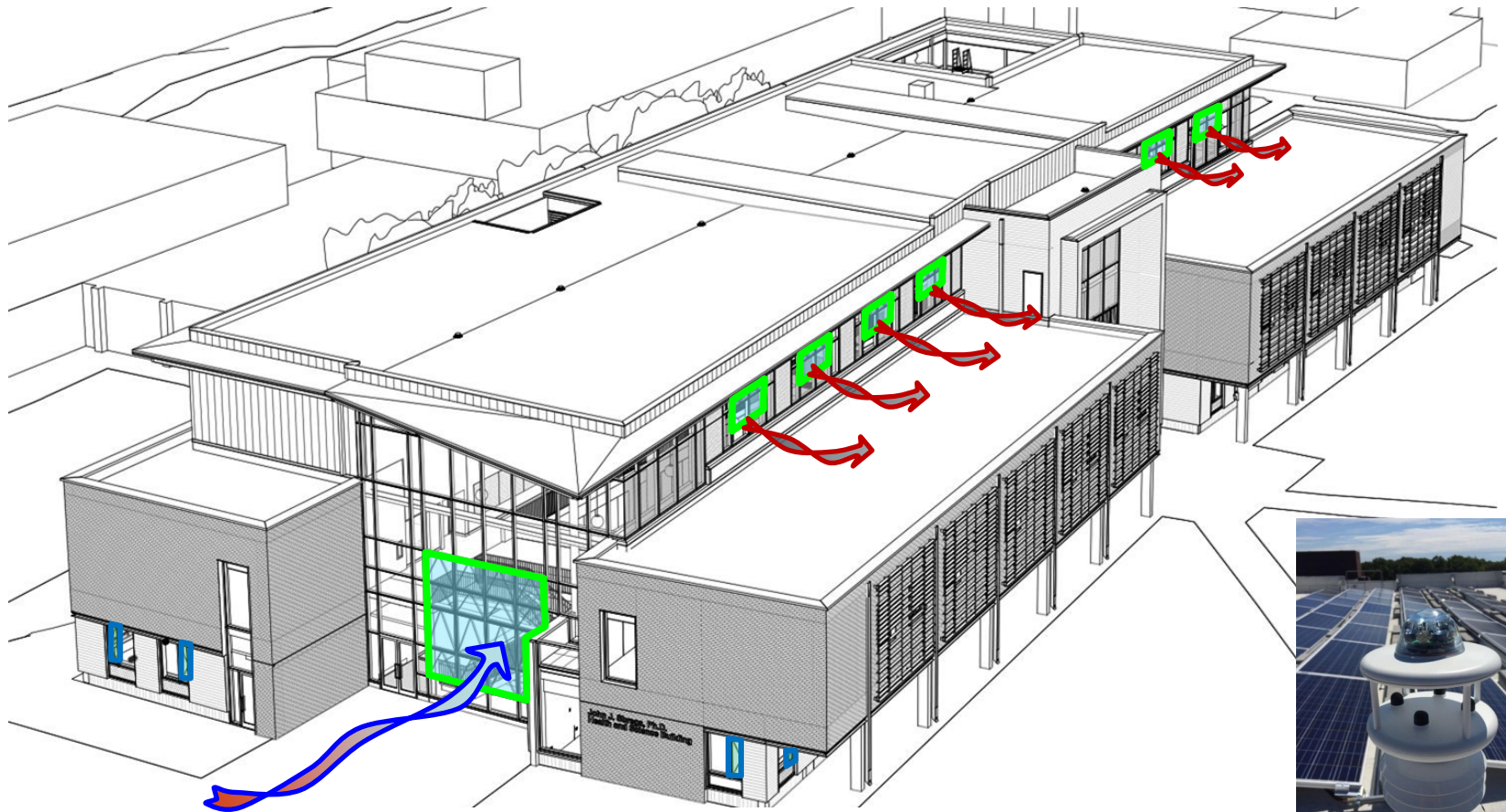


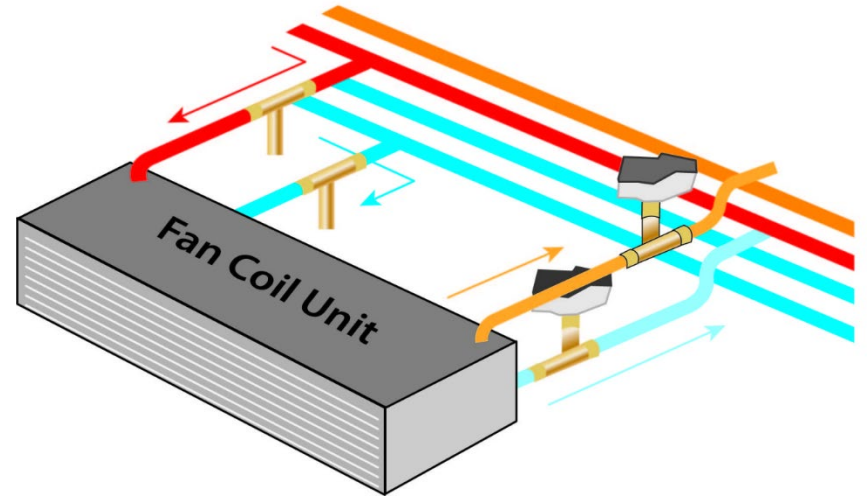
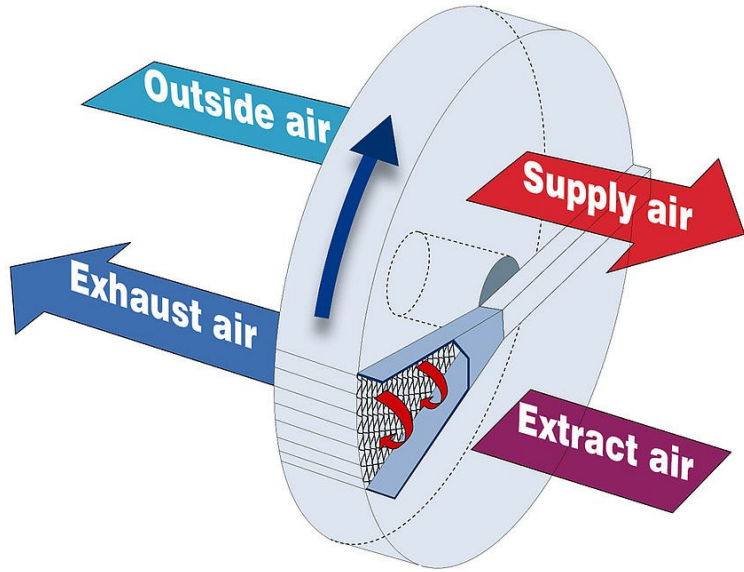
VS

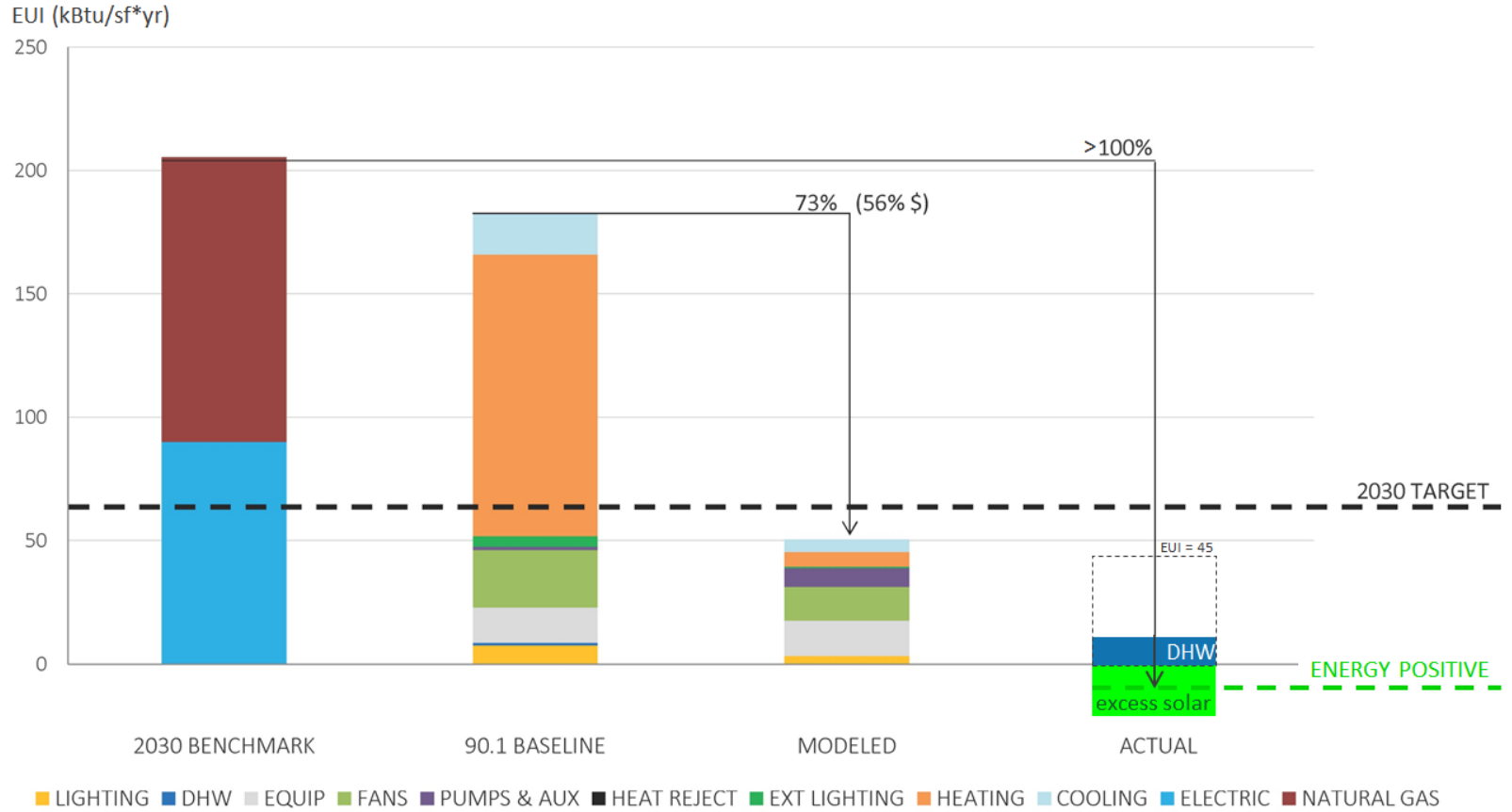
ZERO NET ENERGY











LARGE: Chelsea Soldiers' Home, Community Living Center

250,000 SF Healthcare Facility

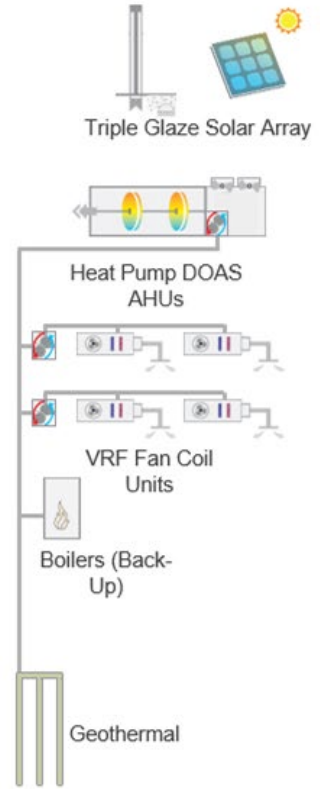
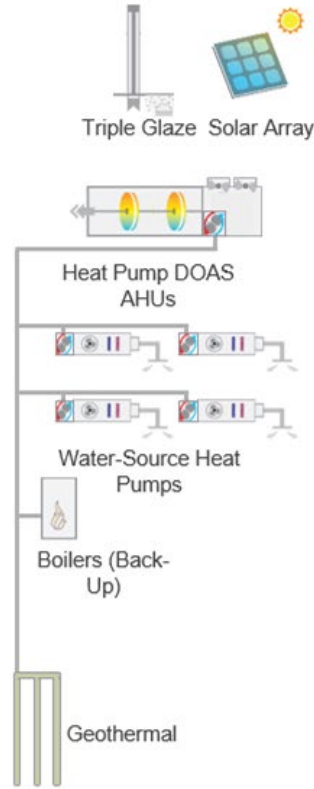
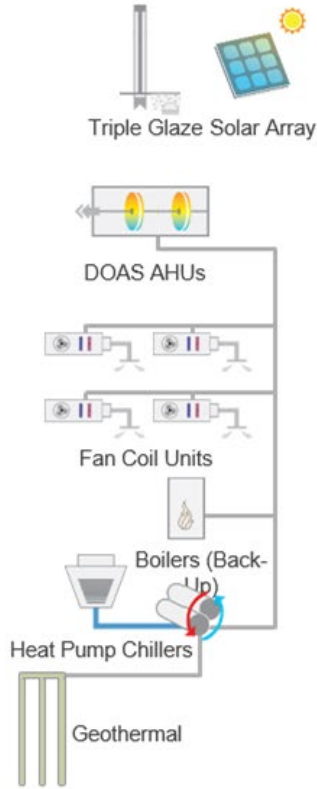
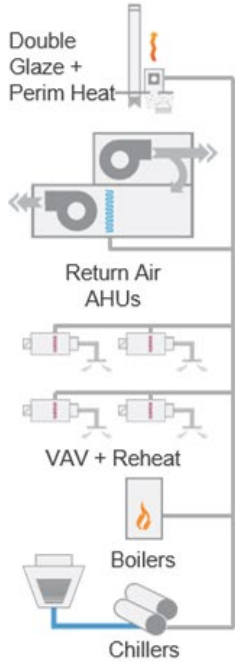
Provides housing and care for veterans

145 closed loop geothermal wells 500 ft deep

Triple Glazing

0.5MW Solar Array





EXTRA LARGE: Boston University, Data Science Center

350,000 SF

Solar Array

DOAS AHUs (Dual Wheel)

Fan Powered Boxes + Chilled Beams

Triple Glazed + Fixed Exterior Shades

Electric Boilers (Peak + Back-up)

Heat Pump VFD Scroll + Screw Chillers w/ Buffer Tanks

Geothermal

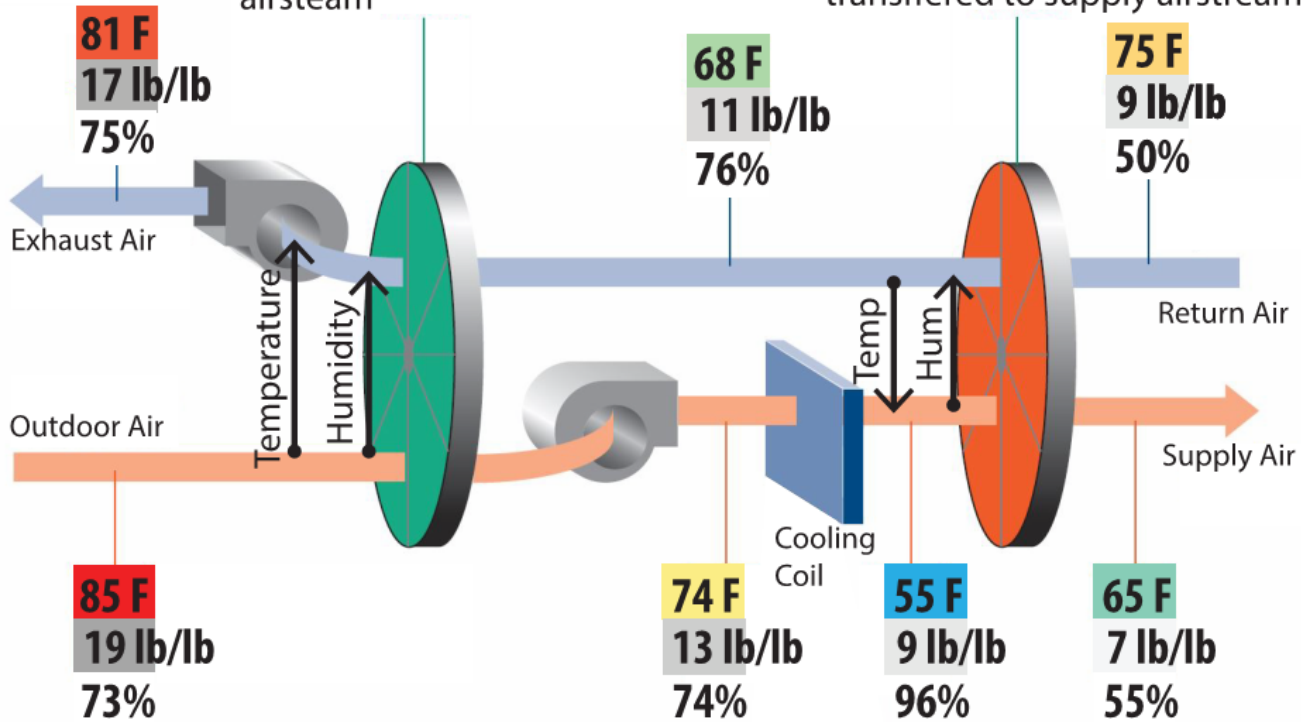
100% ELECTRIC

Demonstrated Leadership in Electrification Design



Total Energy Wheel:
 humidity & temperature
 transferred to exhaust
 airstream

Passive Desiccant Wheel:
 humidity transferred to ex-
 haust airstream, temp
 transferred to supply airstream



THANK YOU!

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