Creekside Community High School

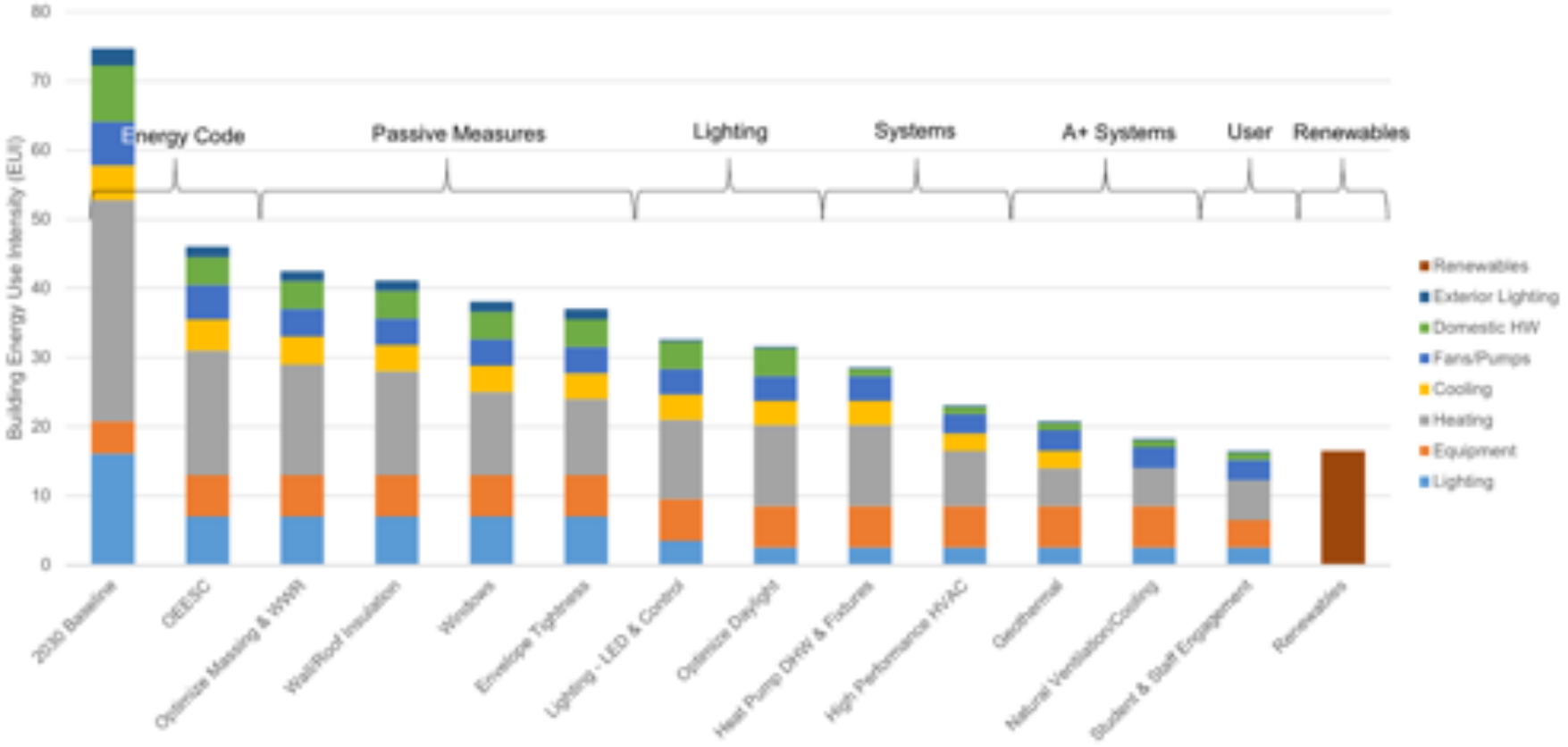
Russ Romas, Principal, Creekside Community High School

Kevin Montague, Facilities Manager, Tigard-Tualatin School District

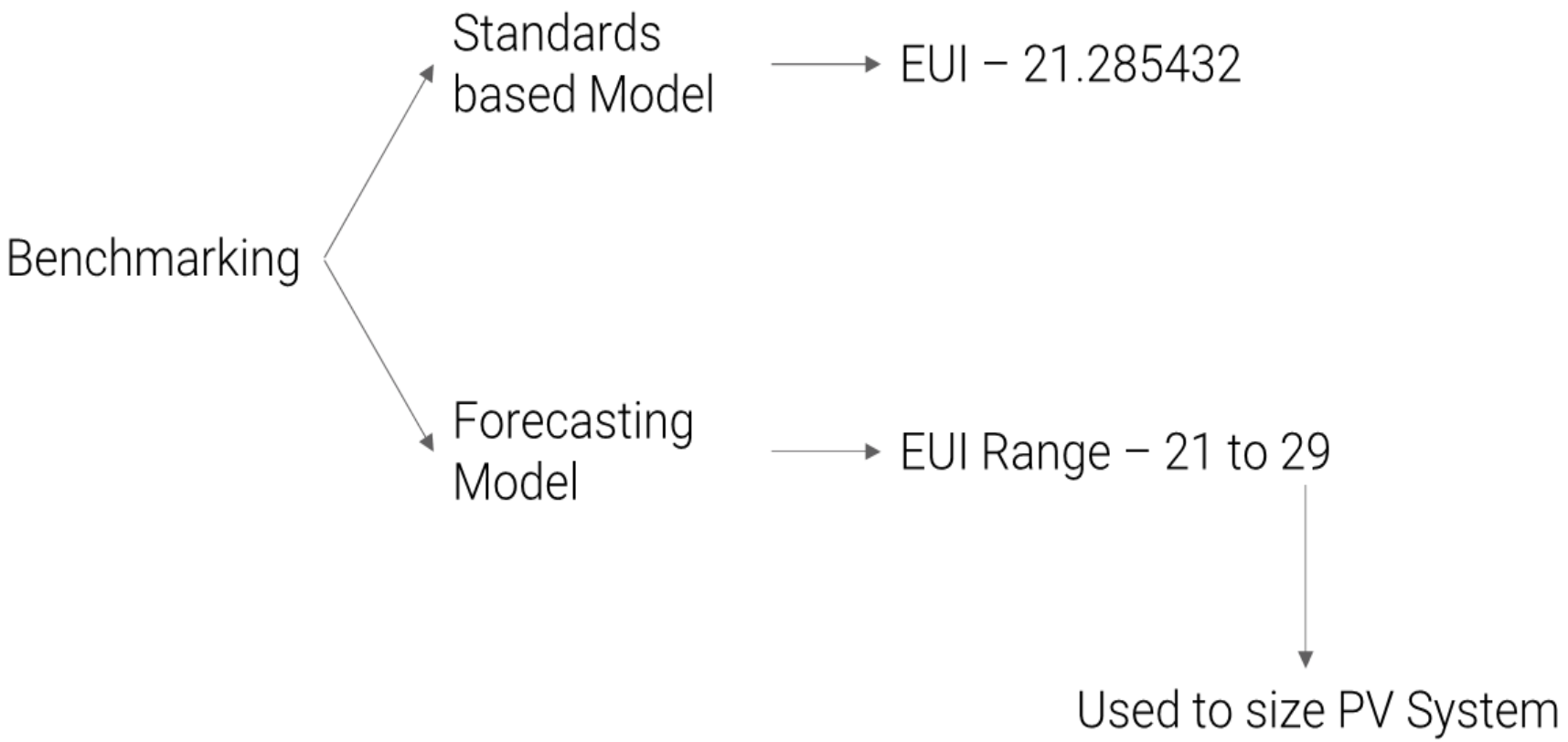
CREEKSIDE HIGH SCHOOL

GLUMAC
A TETRA TECH COMPANY

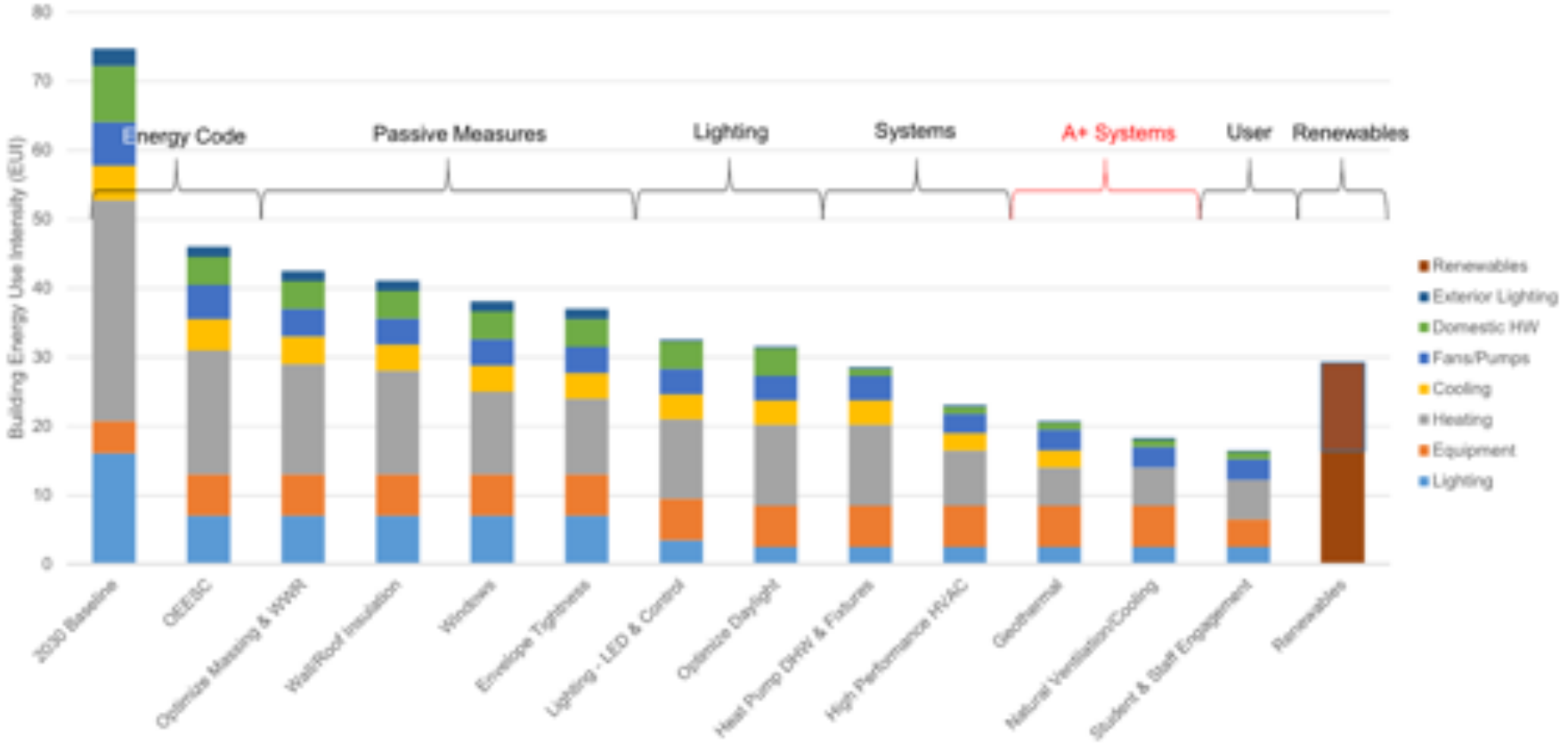
Energy Consulting



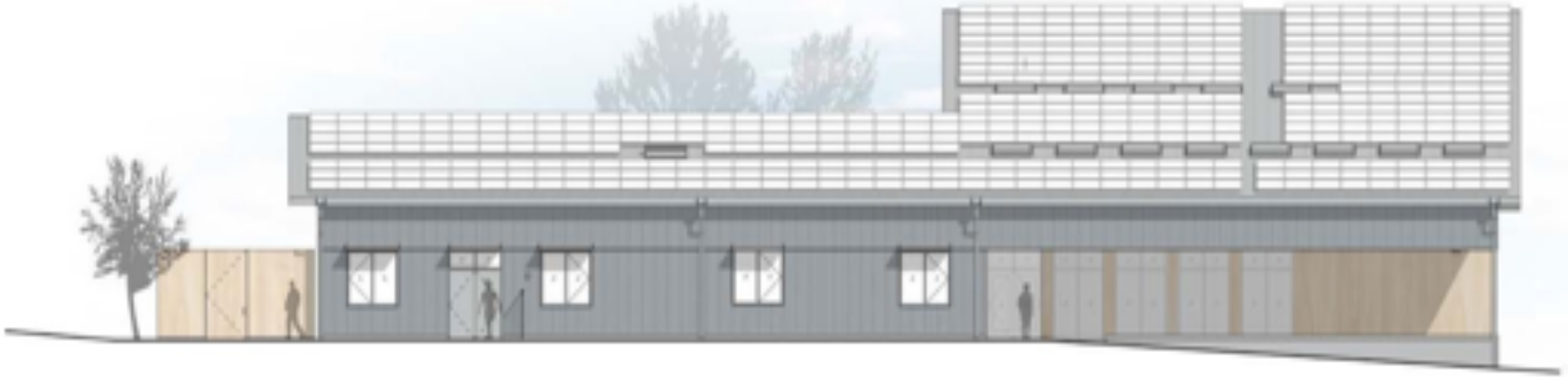
Energy Consulting



Energy Consulting



PV Design

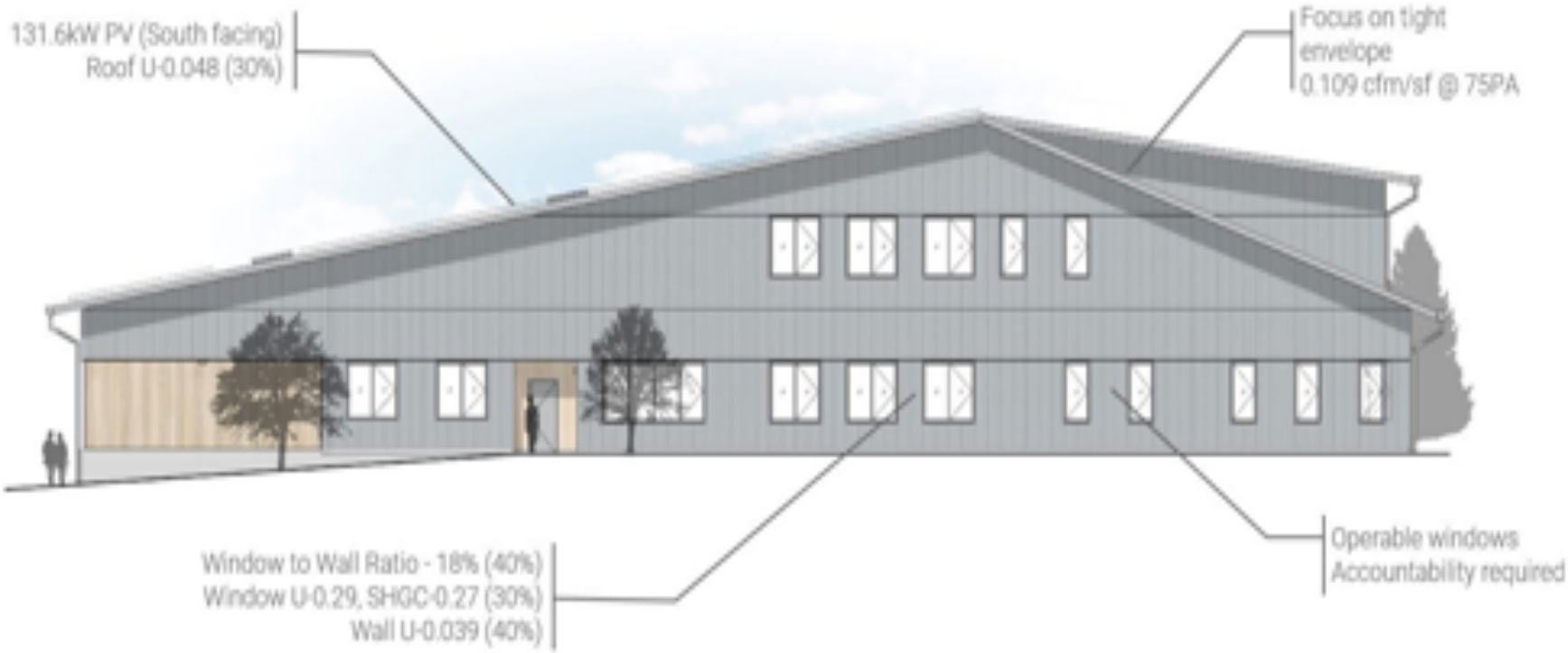


SOUTH ELEVATION

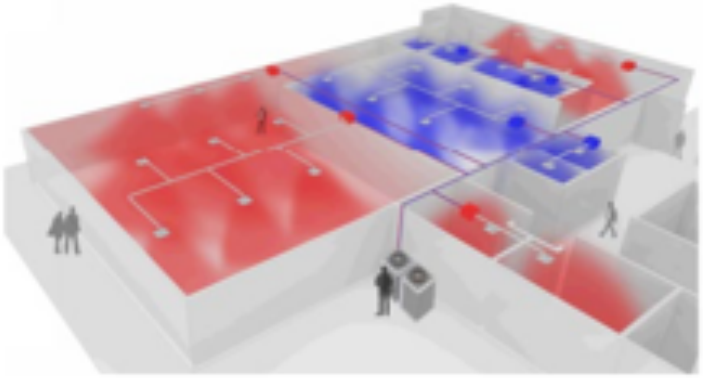
PV Design

Passive Design

- Orientation
- Shading
- Solar study
- Envelope



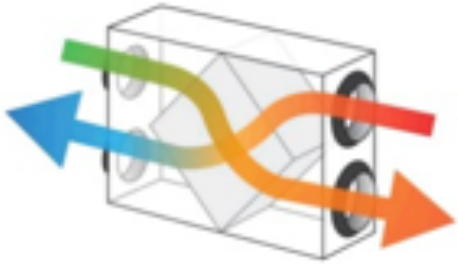
Energy Conservation



VRF w/ heat recovery

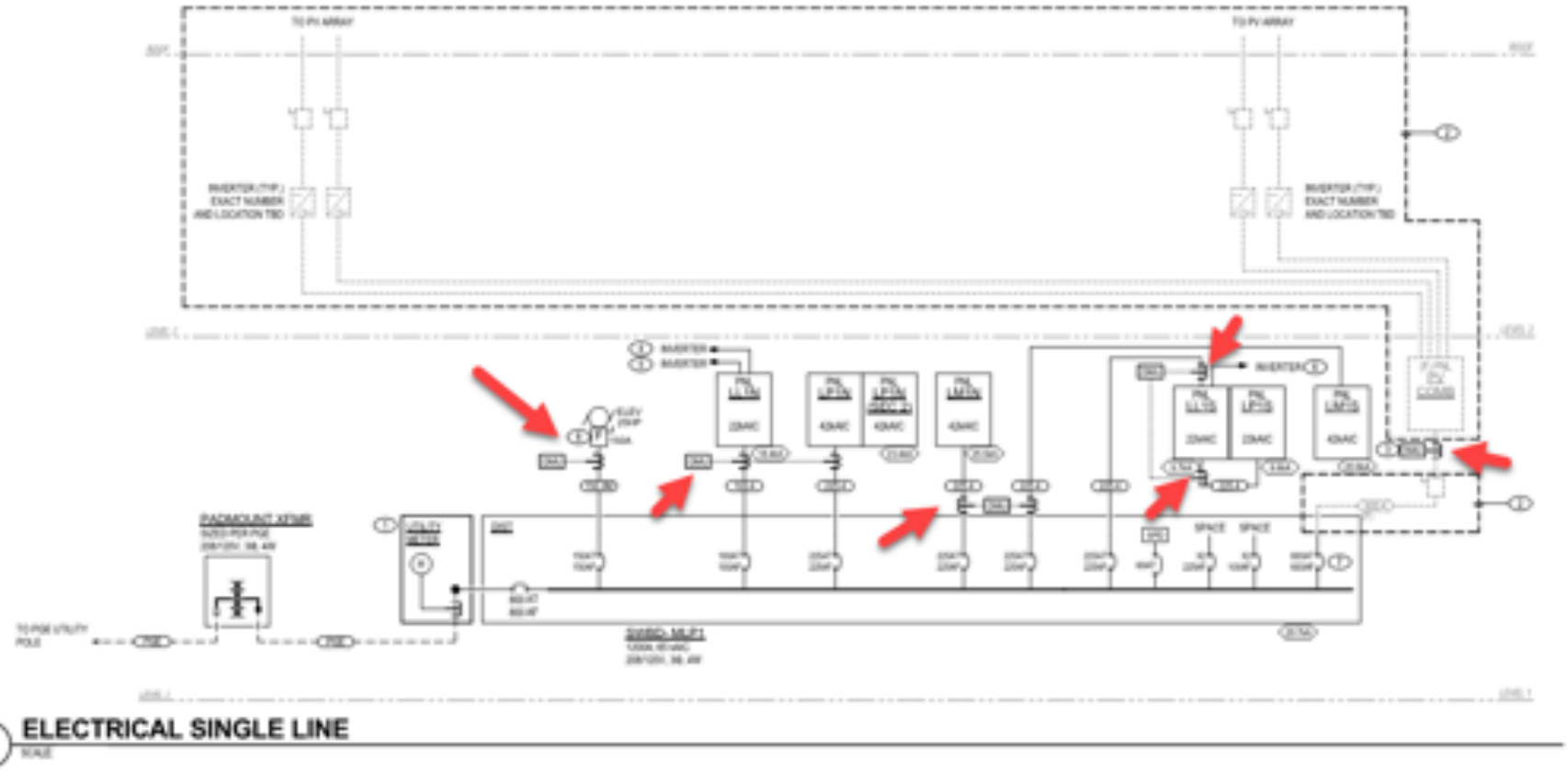
operable windows

ceiling fans



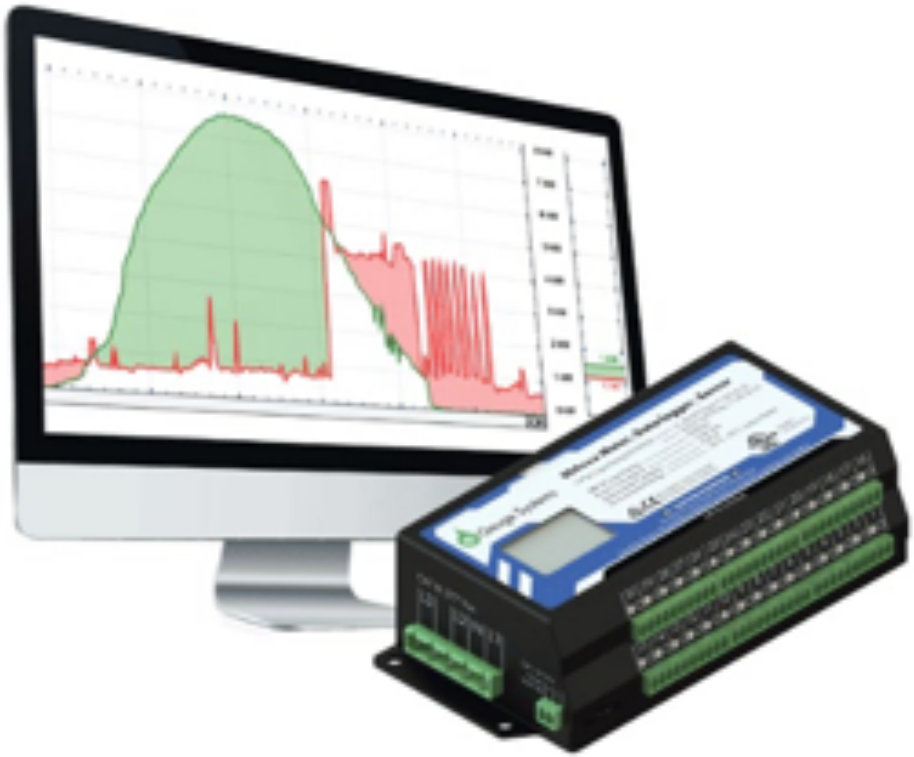
heat recovery ventilators

Metering Design



Metering Data

eGauge



Metering Website

[Creekside eGauge Site]

Energy Dashboard

Glumac Dashboard

TIGARD-TUALATIN SCHOOL DISTRICT

CREEKSIDE COMMUNITY HIGH SCHOOL

BORA

PROJECT GOALS

The Durham Center will be a place that:

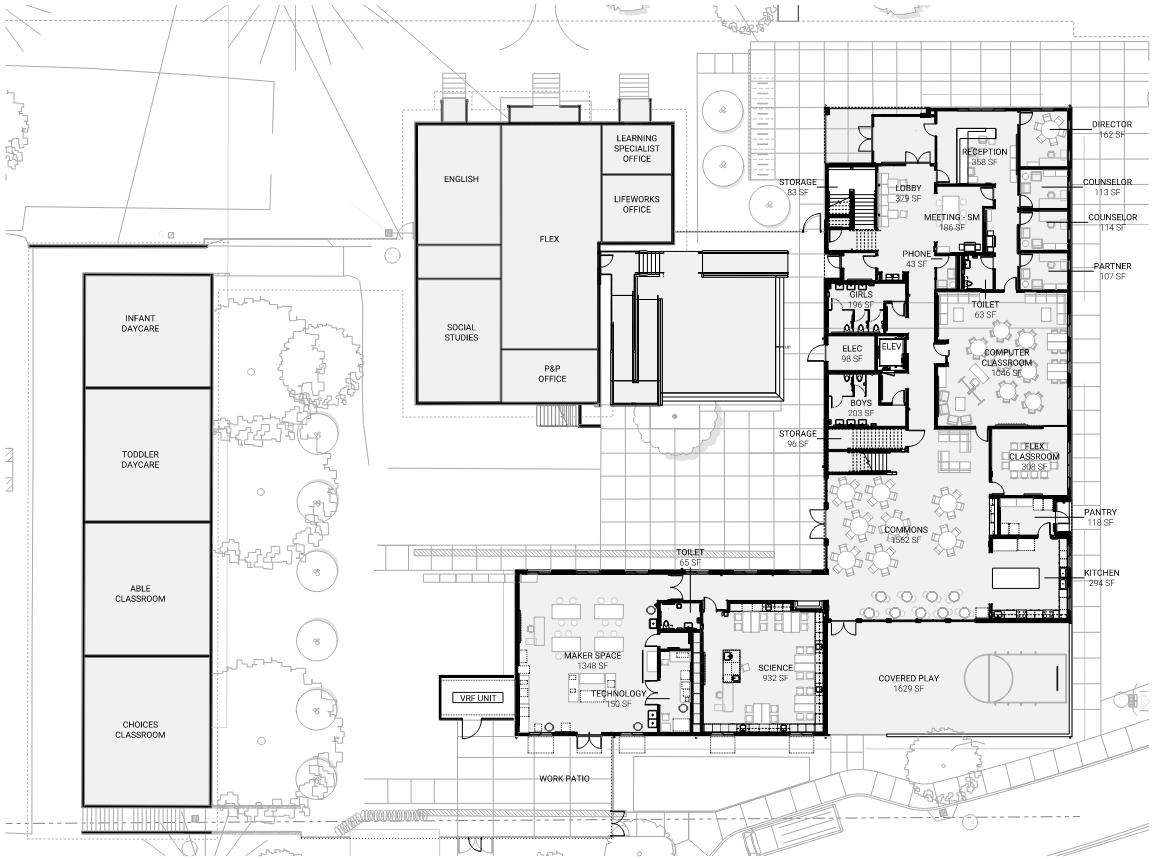
- Is student-centered
- Engages under-served and marginalized students
- Provides rigorous curriculum and a broad spectrum of experiences
- Prepares students for college and / or careers
- Provides dual college credit and expanded internships
- Provides a more diverse set of spaces
- Reflects modesty and informality
- Achieves net-zero energy use

CAMPUS PLAN

FIRST FLOOR PLAN

NEW CLASSROOM BUILDING

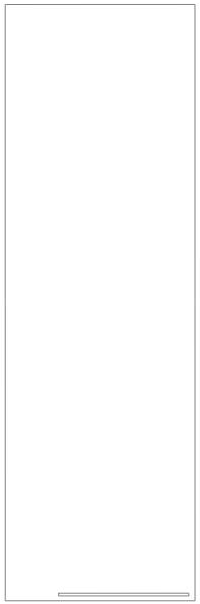
First Floor	10,771 SQFT
Second Floor	4,268 SQFT
Total	15,039 SQFT

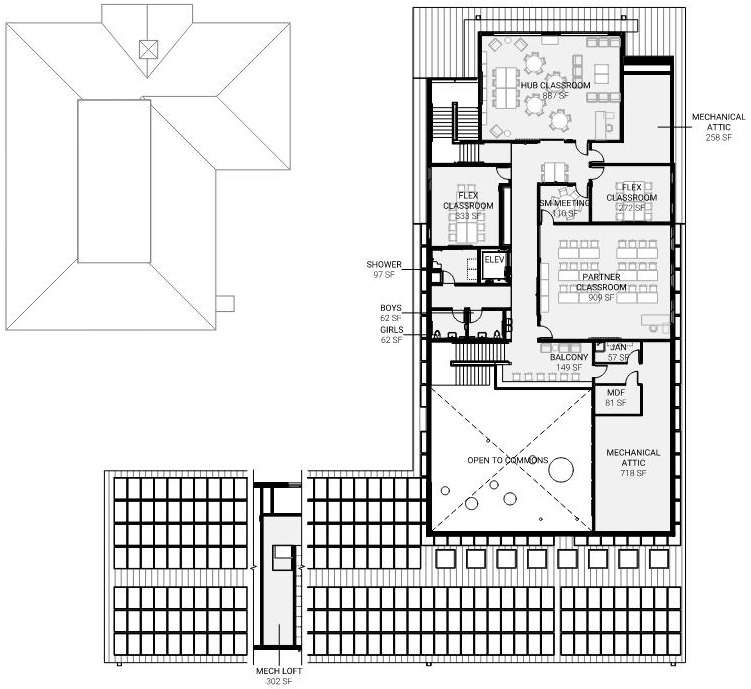


SECOND FLOOR PLAN

NEW CLASSROOM BUILDING

First Floor	10,771 SQFT
Second Floor	4,268 SQFT
Total	15,039 SQFT

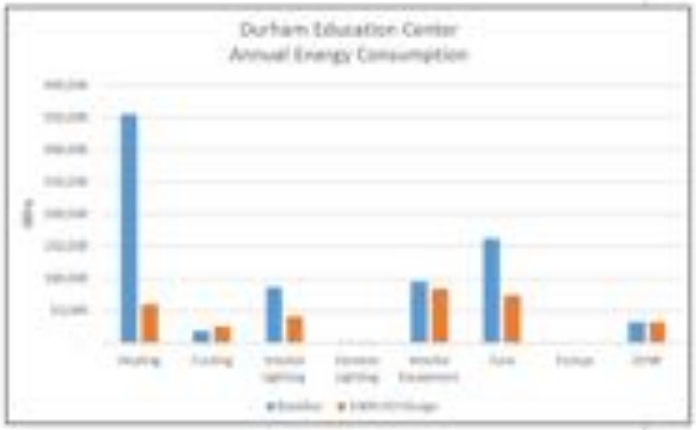


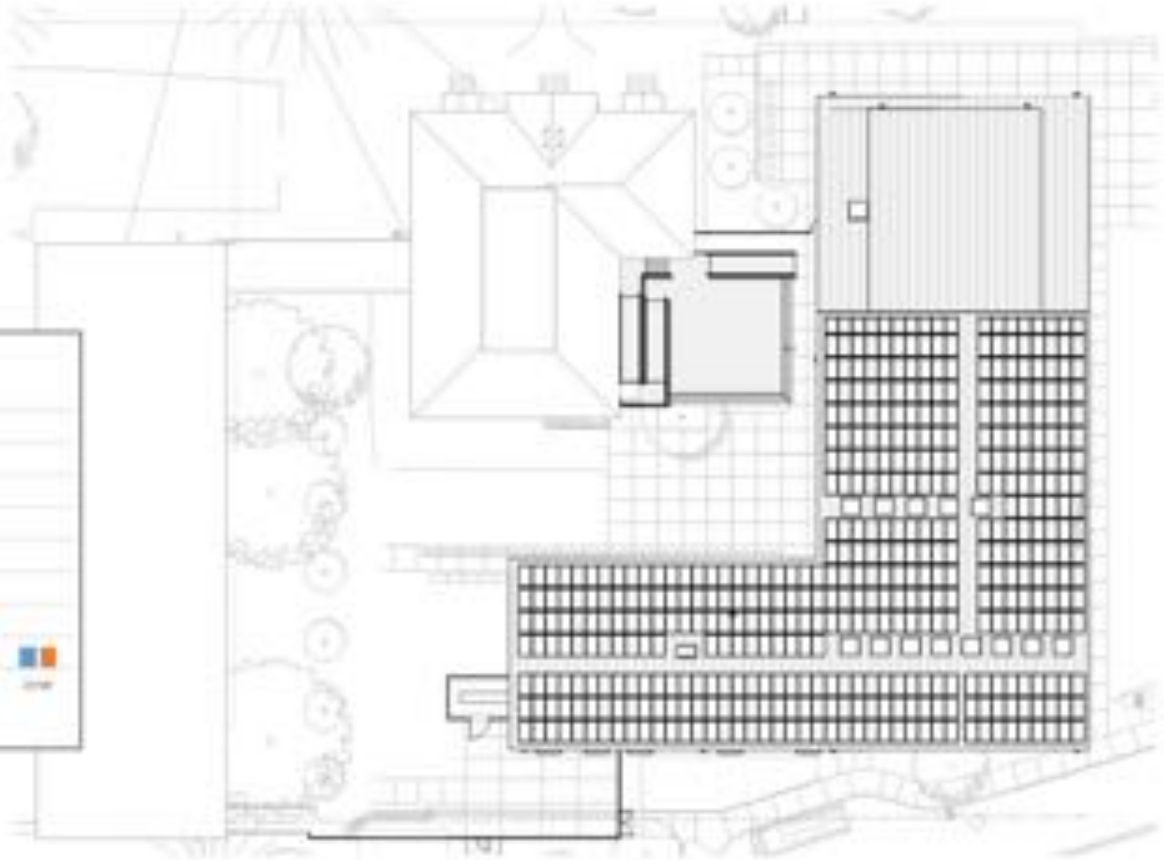


ROOF PLAN

NEW CLASSROOM BUILDING

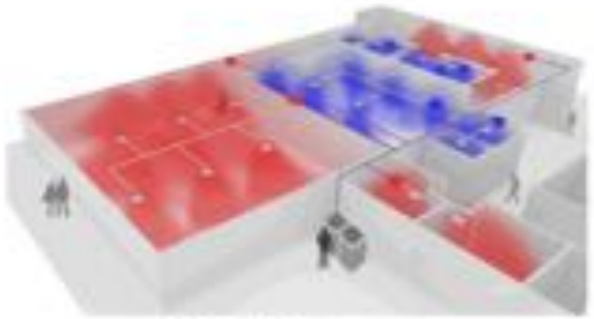
PV Count	455
Energy Generated	28.7 kBTU/sf/yr
Estimated Building EUI	19 kBTU/sf/yr





CONSERVATION – THE ENVELOPE

CONSERVATION – THE SYSTEMS



VRF w/ heat recovery

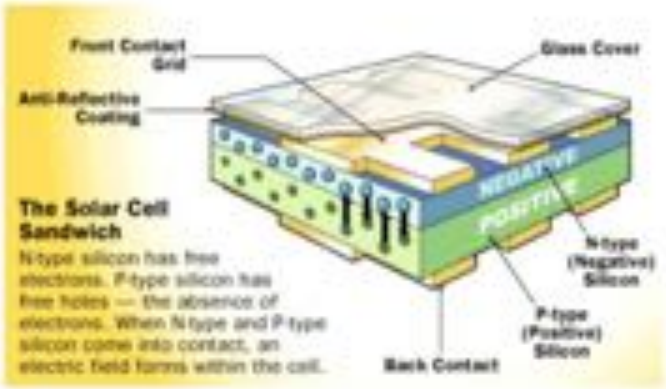
operable windows

ceiling fans

heat recovery ventilators

GENERATION – PHOTOVOLTAICS

simple photovoltaic installation
save 20-25% on installation costs
lose 10% on efficiency
net win

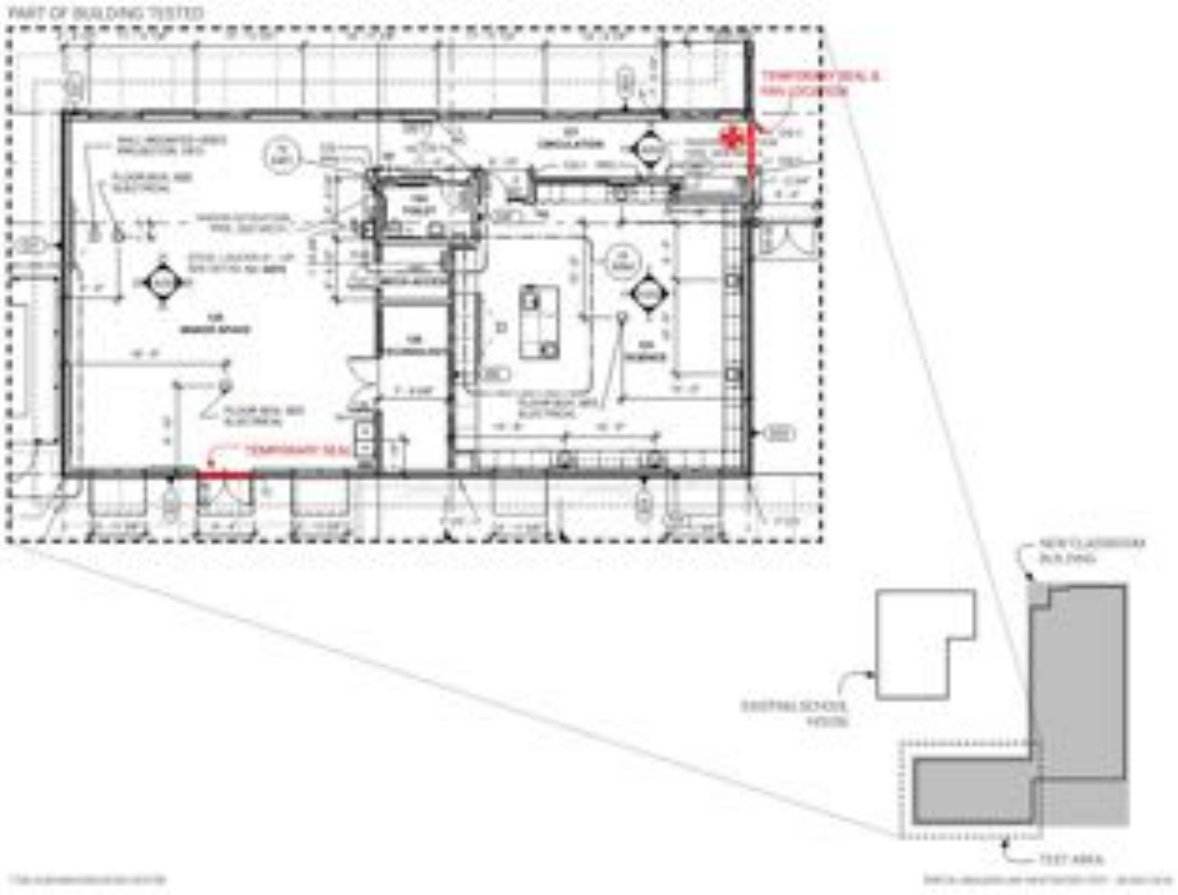


sunlight -> photons
(2) silicon layers
Electron flow to create electric field

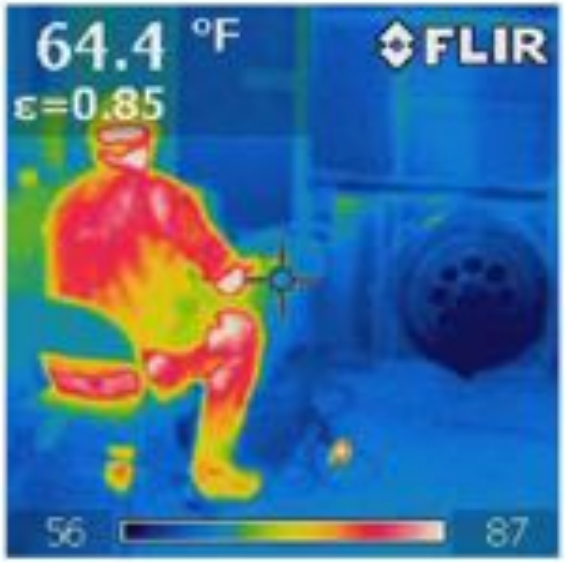
CONSTRUCTION

MOCK-UP TESTING

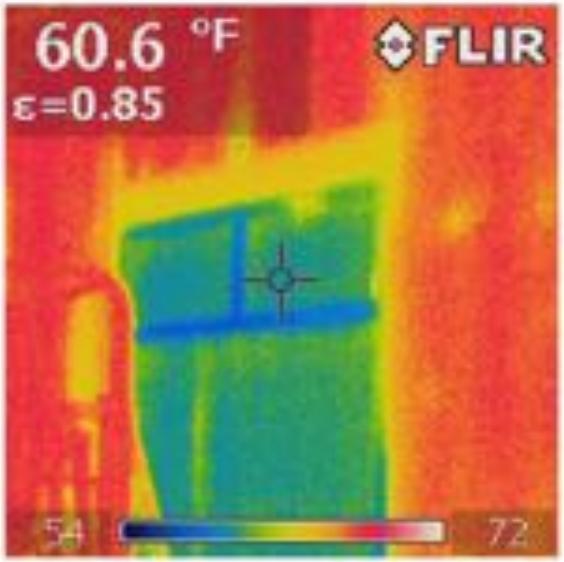
BUILDING TESTING

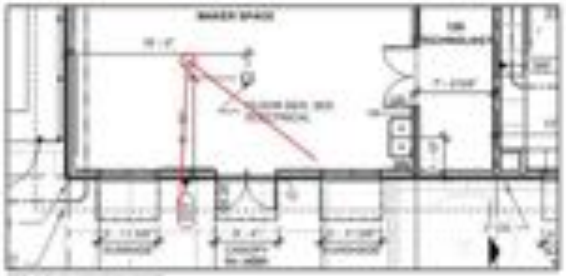


SETTING UP FAN AT TEMPORARY SEAL IN CORRIDOR

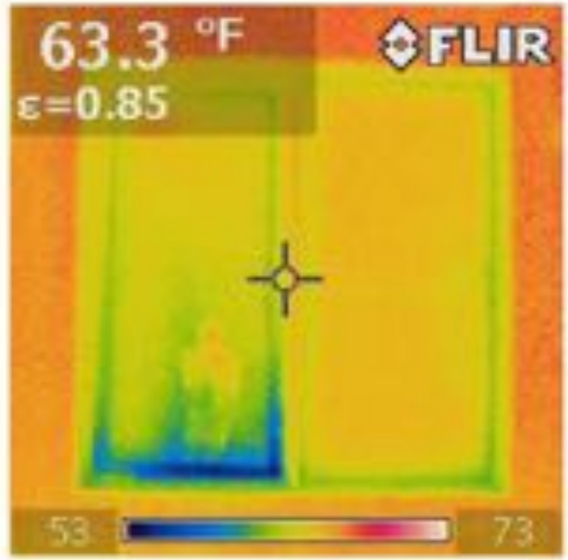


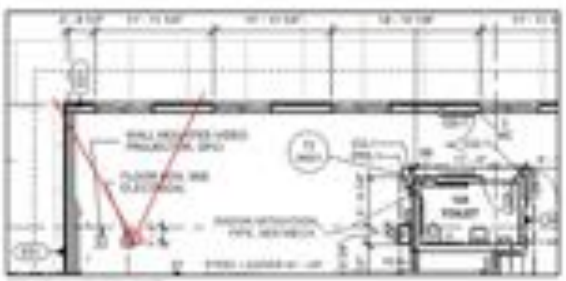
TEMPORARY SEAL AT MAKERSPACE



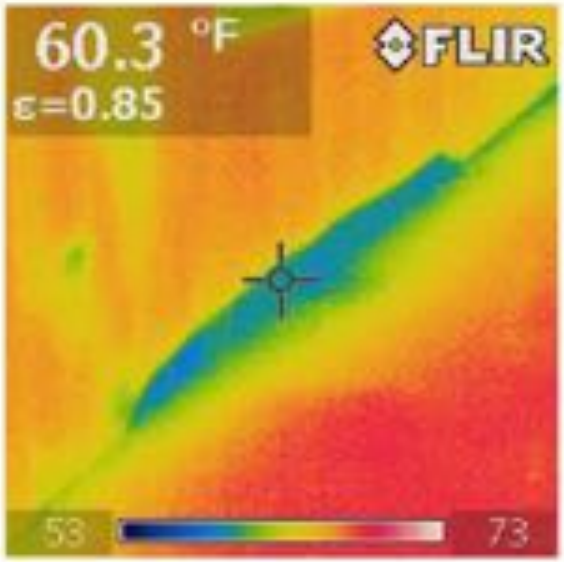


AIR LEAK AT WINDOW IN MAKERSPACE

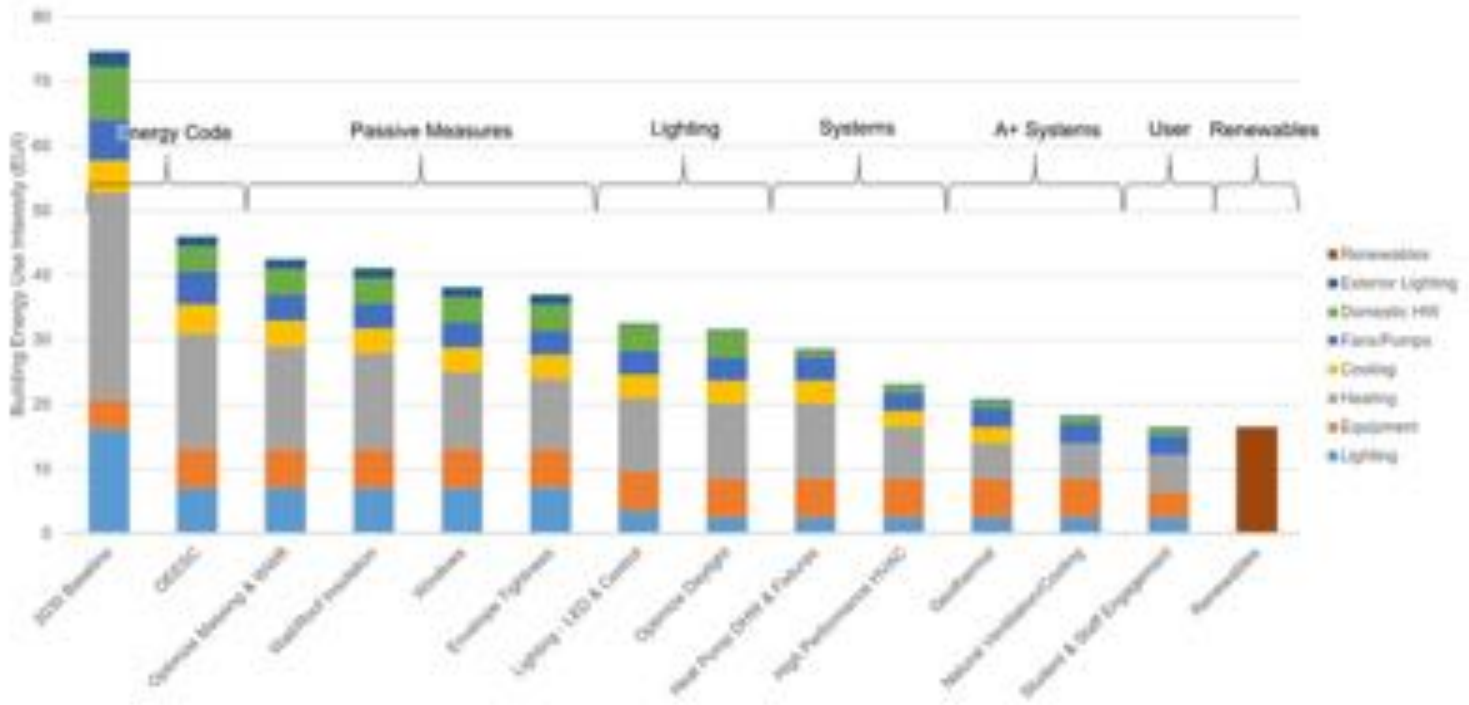




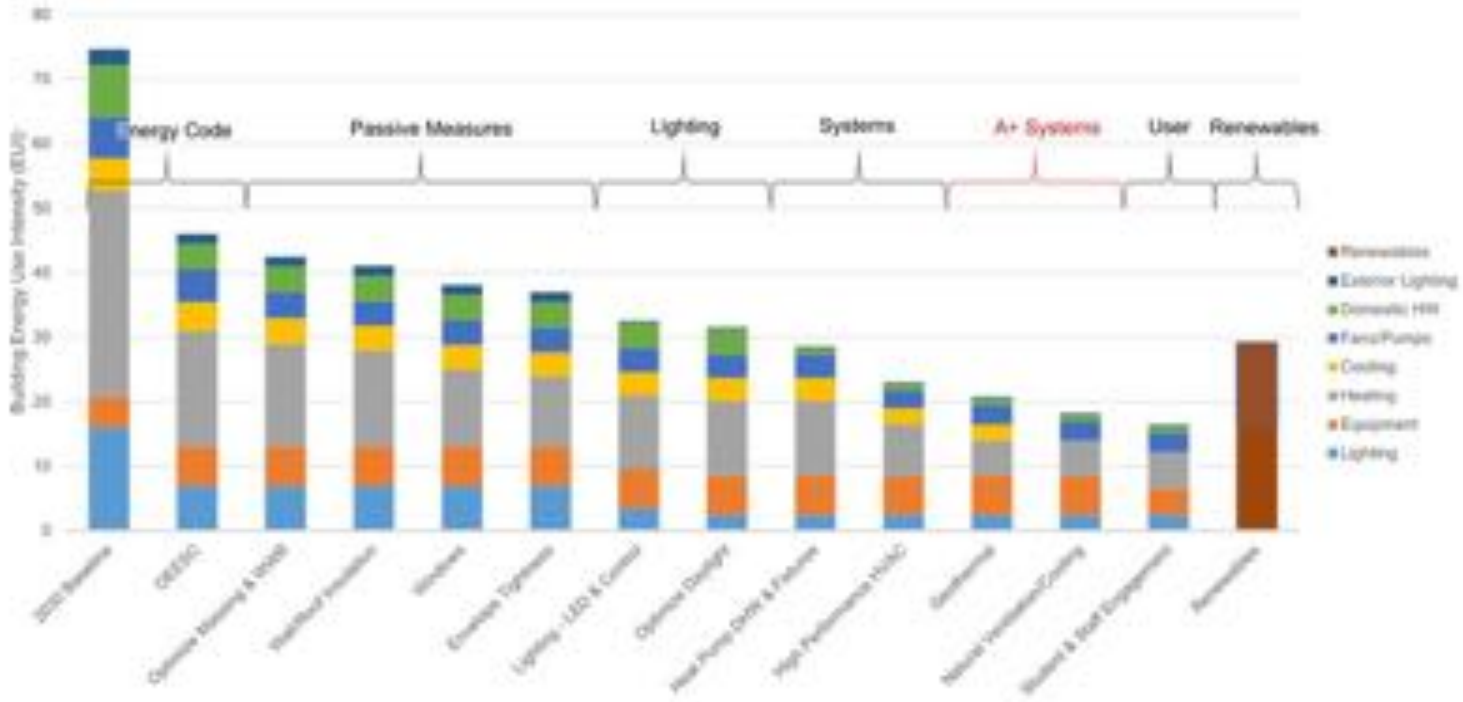
AIR LEAK (AND POTENTIALLY MOISTURE) AT SILL IN CORRIDOR



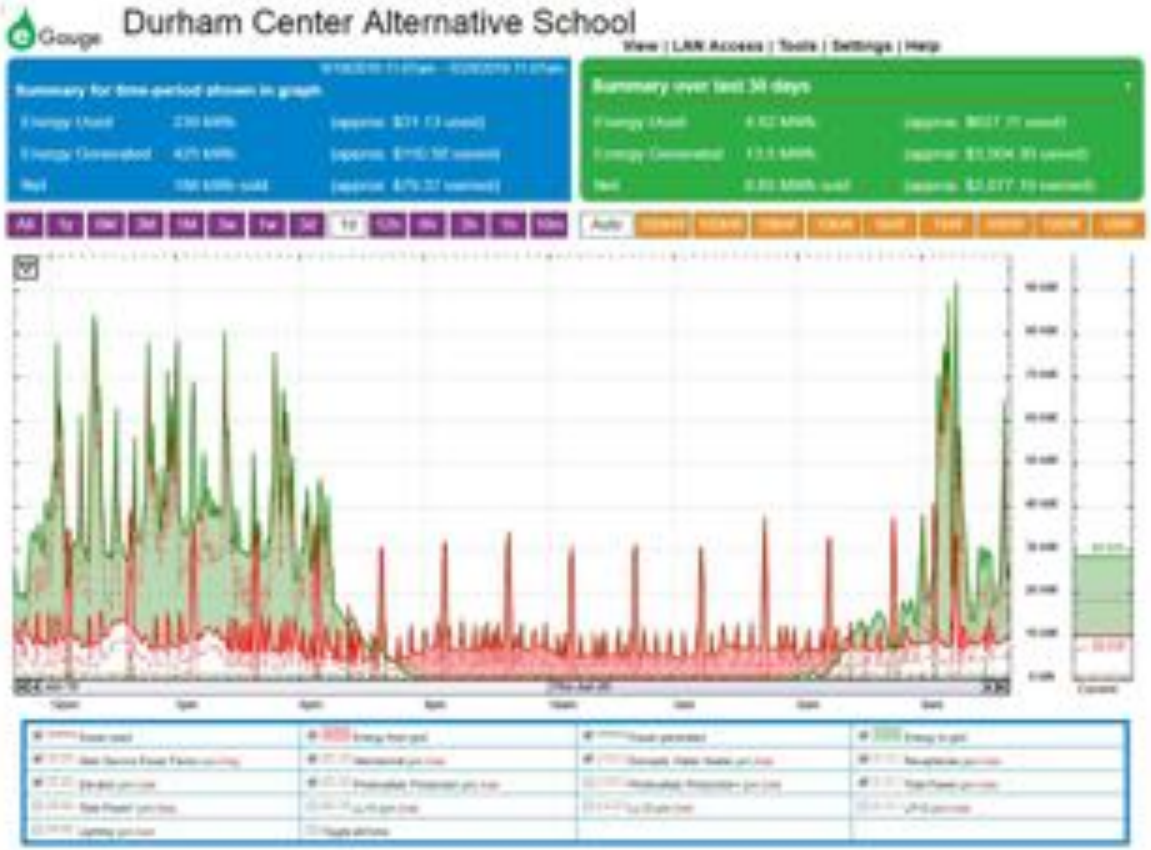
APPROACH TO ENERGY – PROCESS



APPROACH TO ENERGY – PROCESS



ENERGY DASHBOARD



https://egauge42767.egaug.es/5CDC8/

Courtyard

View from North - East

Commons

Makerspace

Covered porch

Creekside Community High School

Tigard-Tualatin School District

- Net Zero new construction w/EUI 21
- Passive strategies
  - Natural ventilation
  - Daylighting
  - High-efficiency envelope
- VRF + DOAS mechanical system
- 18 kW solar electric array
- $61,405 in Energy Trust incentives
- $5,250 est. annual utility cost savings
- 70,000 kWh est. annual savings

*Post occupancy incentives pending