The Bullitt Center
LIVING PROOF:

HOW HIGH PERFORMANCE TEAMS CREATE HIGH PERFORMANCE BUILDINGS

MILLER | HULL

MILLER | HULL

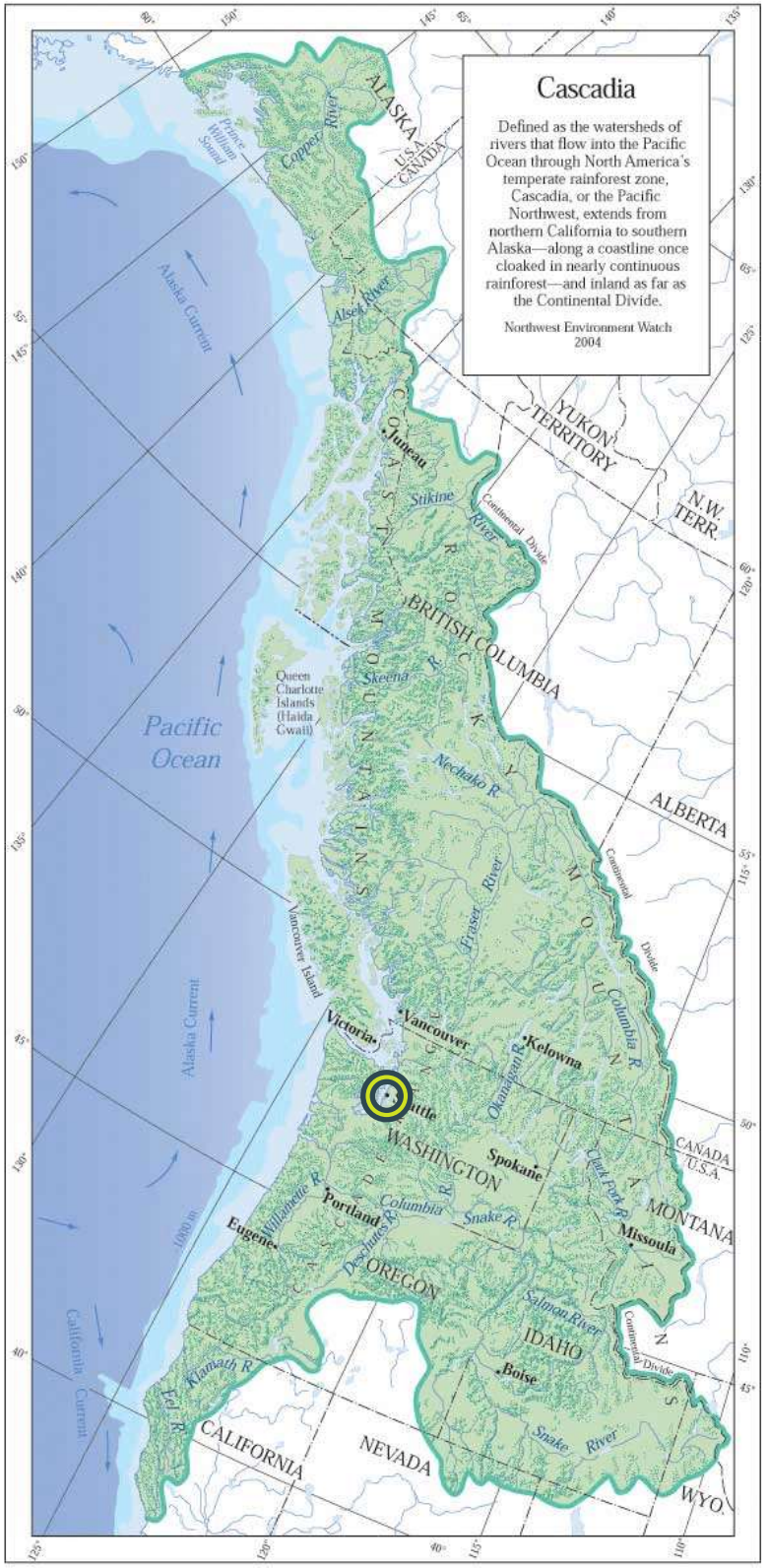
HIGHLY MOTIVATED CLIENT

The Bullitt Foundation

"There is not a single office building in the United States that is truly designed to meet the needs of today's environment, much less tomorrow's, so we set out to build one. Our goal was to design and construct the greenest commercial building in the world." – Denis Hayes

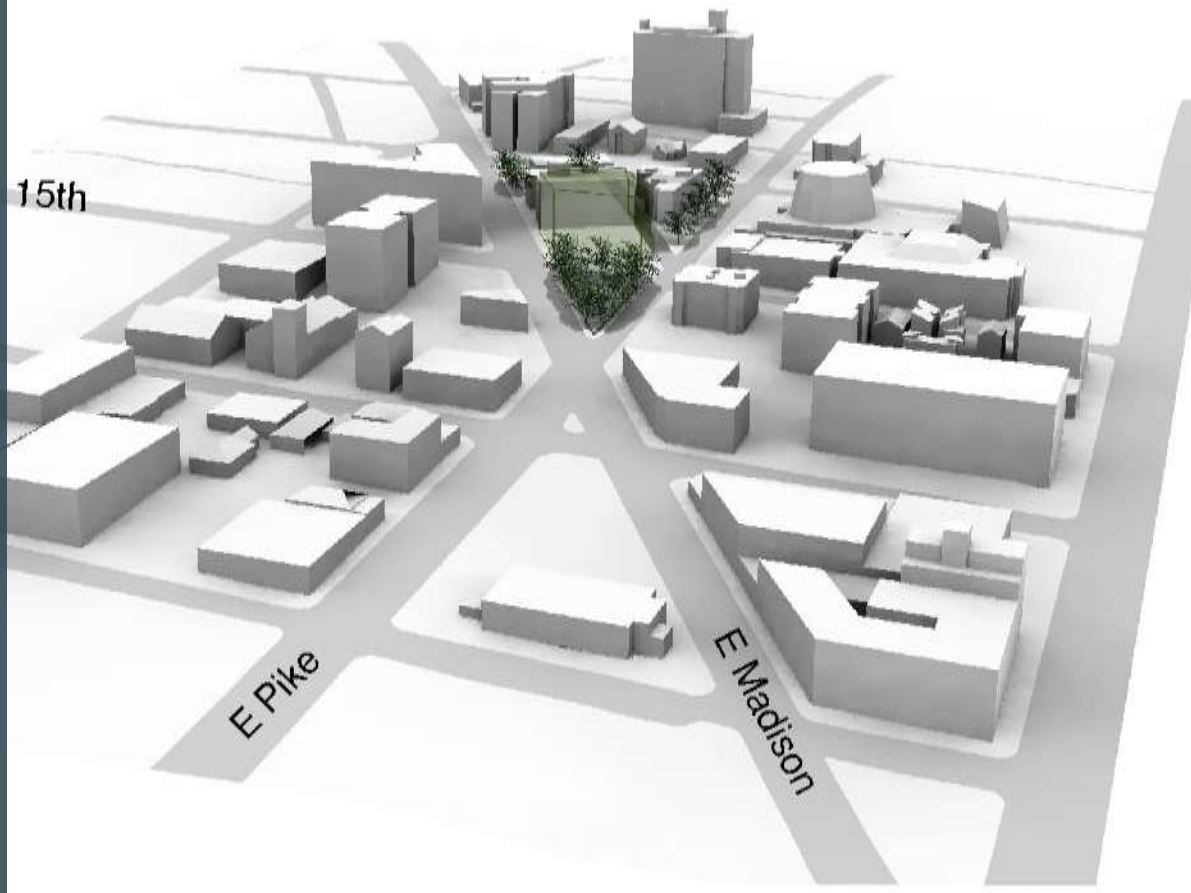
WHY CASCADIA?

Cascadia is emerging as ground zero for sustainable development.



WHY SEATTLE?

The City's adoption of a Living Building Ordinance paved the way to make this possible.



The Selection Process

Visit 22 Architects and 7 Engineers between Vancouver BC and Portland, OR

Shortlist 11 firms to respond to request for Proposal

Shortlist four firms to interview and spend the day with

Send four firms to overtime, double overtime, and triple overtime

Work with selected architect to choose consultants

Site Resources | Energy

Energy Requirement at 15 EUI	208,760 kWh/yr
Solar Array Required	190kW
Maximum Solar Envelope	
Roof	-76 kW
SE Wall	-42 kW
S Wall	-20 kW
W wall	-22 kW
Deficit	**30 kw**

Strategies

Passive Strategies

Building/Program Orientation
Daylighting
Natural ventilation
Thermal mass
Trombe walls?

Efficiency & Technology

R-10 Windows in a highly efficient envelope
Radiant floors with ground-source heat pump
Night flush of radiant floors
Dedicated outside air ventilation with heat recovery
Lighting and controls
Below-grade resources
Tenant energy budgets
DC loop for DC appliances 40% more efficient

Renewable Energy

Photovoltaics
Photovoltaic Scale Jumping
Solar Thermal
Wind?
Biomass?

2 Day Charette Participants

The Bullitt Foundation
Point32 – Developers
Miller Hull
PAE Engineers – MEP
Solar Design Associates
DCI Engineers – Structural
SVR – Civil/Landscape
Haley & Aldrich - Geotech
Schuchart Construction

Natural Systems International
New Buildings Institute
Rocky Mountain institute
World Changing
Jason McLennan – ILFI
UW Integrated Design Lab
City of Seattle

NET-ZERO ENERGY

ACHIEVING ENERGY INDEPENDENCE

Cost AND Performance Goals:

Demonstrate Feasibility

Educate Transparently

Create Replicability

Move The Industry

SET AGGRESIVE GOALS

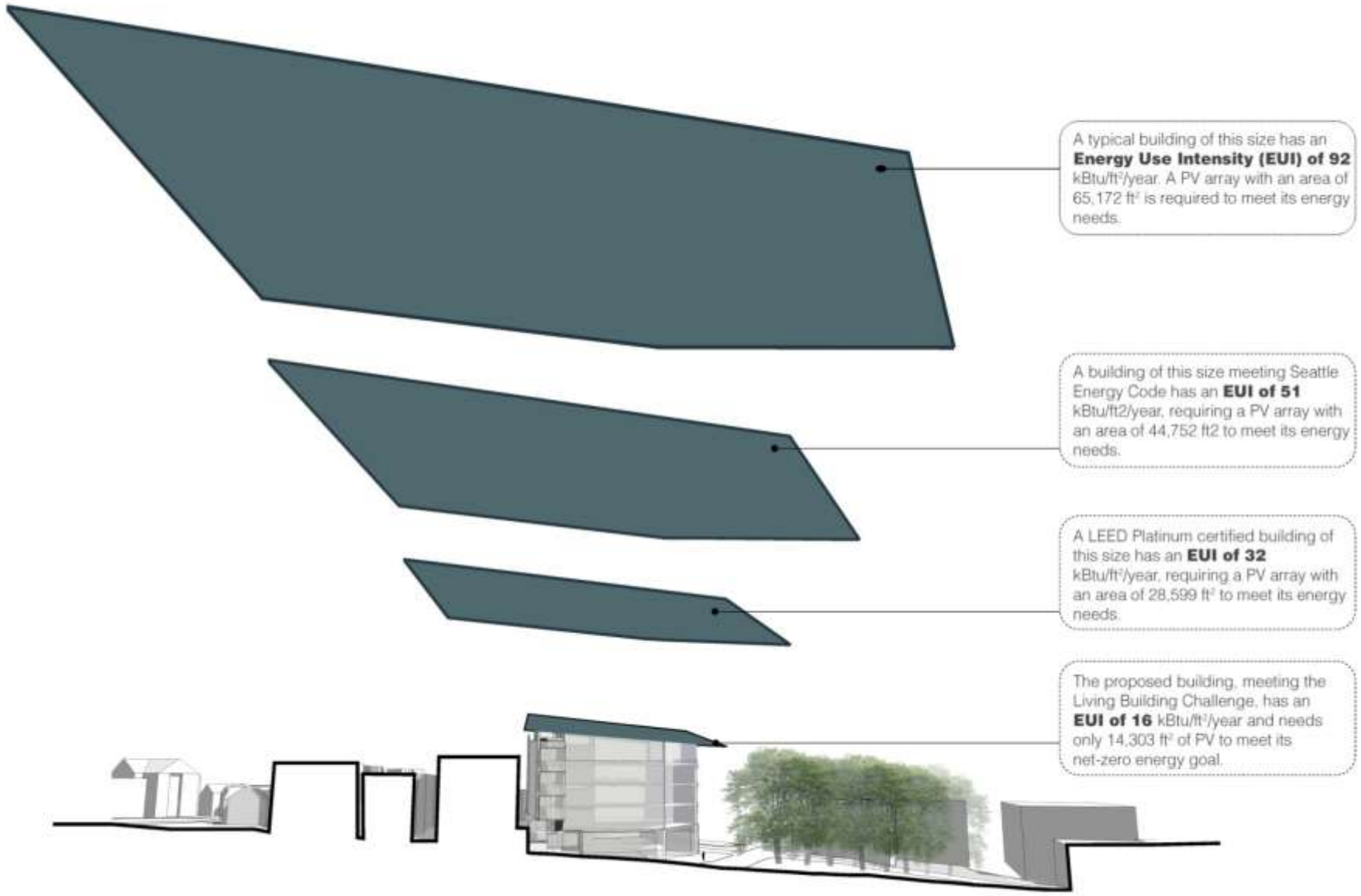
REDUCE ENERGY USE

Bullitt Foundation

Typical Seattle Office Building

USE EFFICIENT EQUIPMENT

USE RENEWABLE ENERGY



Relative sizes of PV array based on EUI

USE RENEWABLE ENERGY

Third Party Reviews:

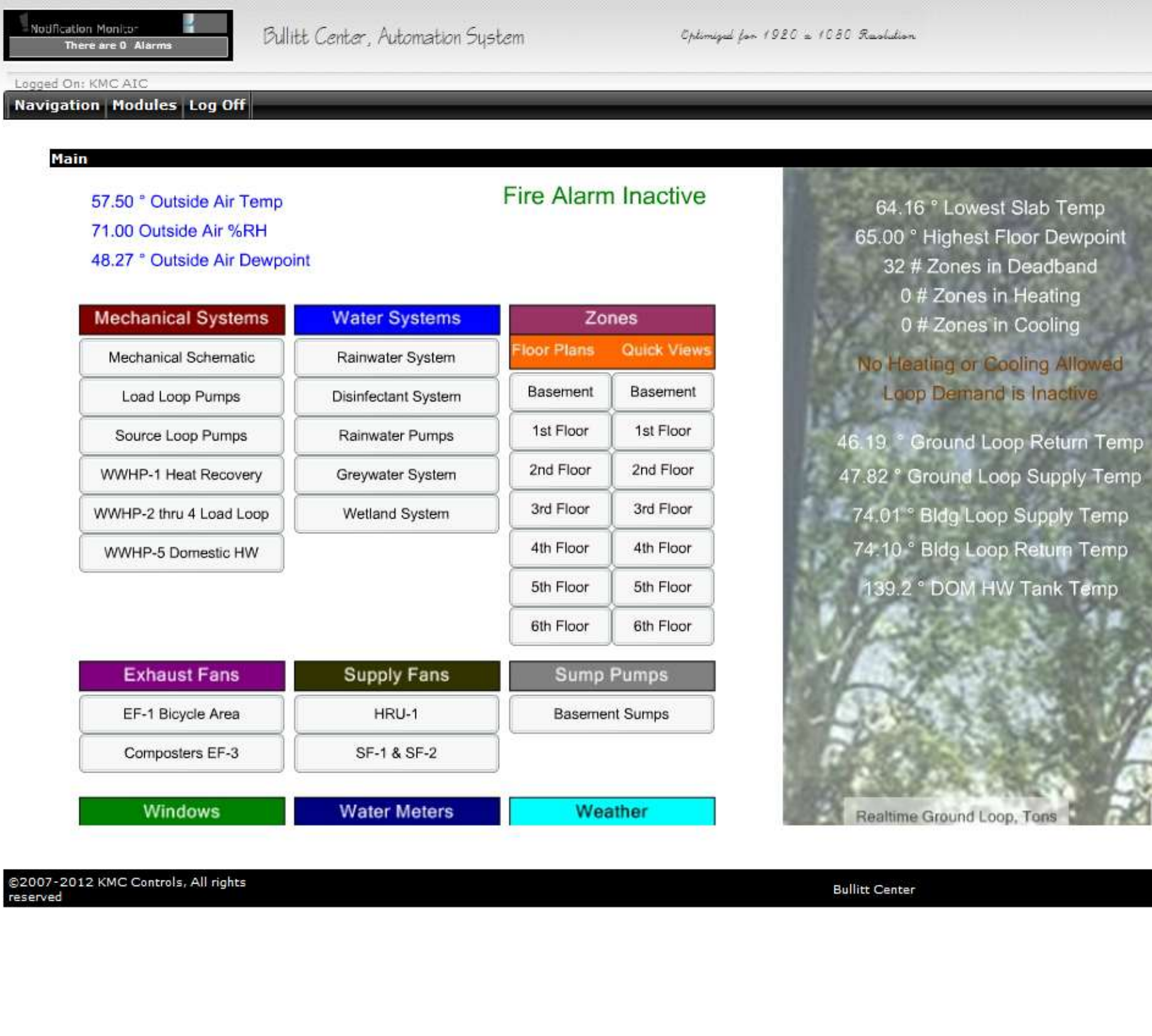
Pacific Northwest Labs

City of Seattle
Technical Advisory Group

City of Seattle
Neighborhood Design Review

Passivhaus USA

VERIFY PERFORMANCE



10 Qualifications of High Performance Design Teams:

1. A firm desire to change the world
2. Willingness and ability to do research
3. Holistic/Systems thinkers
4. Risk Takers
5. Creative Collaborators
6. Commitment to design technology
7. Commitment to Integrated Design
8. Excellent process managers
9. Strong advocates for change
10. The love of the challenge

Design & Construction Team —

The Bullitt Foundation	Client
The Miller Hull Partnership	Architecture
PAE Engineers	Mechanical & Electrical
Solar Design Associates	Solar Array Consultant
Luma Lighting Design	Lighting
The Berger Partnership	Landscape
Springline Design	Civil
DCI Engineers	Structural
2020 Engineering	Natural Waste Treatment Systems
Point32	Developer
Schuchart Construction	General Contractor

Ron Rochon, AIA
The Miller Hull Partnership
www.millerhull.com

The Bullitt Center
Bullitt Foundation
www.bullittcenter.org

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