

The Challenge of Building a Better NZ



Jerome Partington Sustainability Manager Jasmax
'translating sustainability into reality for people'

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NZ Lowest legal standard ? Lowest price ?
Leaking water, energy, health and capital!



**NZ Lowest legal standard ? Lowest price ?
Leaking resources! Leaking toxic waste!**



SUSTAINABILITY

A GLOBAL PERSPECTIVE



NZ and Climate Change impacts

2-4⁰c rise

10 - 20% increase in rain intensity

0.8 – 2.0 m sea level rise by 2090

NIWA + MofE scenarios for NZ

Different Future Visions – Our Choice!



Laissez faire global techno
business as usual, peak
everything?

Reactive & Incremental Change

Pro-active local, community,
regenerative & ecological?
Strategic & Step Change



A strategic approach offers Opportunities;

- Envision the future together
 - Resilience in our community, economy & nature
 - Values alignment with community
 - Leadership and new solutions
 - Creating long term asset value
 - Enhanced Health
 - Real low operating costs
 - Capacity to grow without inefficiency and waste
 - Positive environmental & social impacts
-
- Alignment nature = walking in the right direction



**IT'S TIME TO
IMAGINE A
LIVING FUTURE
AND A WORLD OF
LIVING BUILDINGS**



LIVING BUILDING CHALLENGESM 3.0

A Visionary Path to a
Regenerative Future



INTERNATIONAL
LIVING FUTURE
INSTITUTE™

PLACE



Limits to growth
Urban Agriculture
Habitat Exchange
Human Powered Living

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WATER



Net Positive Water

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ENERGY



Net Positive Energy

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Rooftop Solar Array at the Bullitt Center
Seattle, WA
Photo: Benjamin Bernhardt

HEALTH &
HAPPINESS



Civilised Environment
Healthy Indoor Environment
Biophillic Environment

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MATERIALS

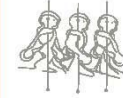


Red List
Embodied carbon Footprint
Responsible Industry
Living Economy Sourcing
Net Positive Waste

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University Graduate Center
University of Washington
Photo: Peter Dinklage

EQUITY

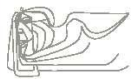


Human Scale
Universal Access
Equitable Investment
Just Organisations

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University of Washington
Photo: Benjamin Benschneider

BEAUTY



Beauty & Spirit
Inspiration and Education

VanDusen Botanical Garden
Visitor center, Vancouver, BC
Photo: MTC Lohman / Courtesy: Perkins+Will

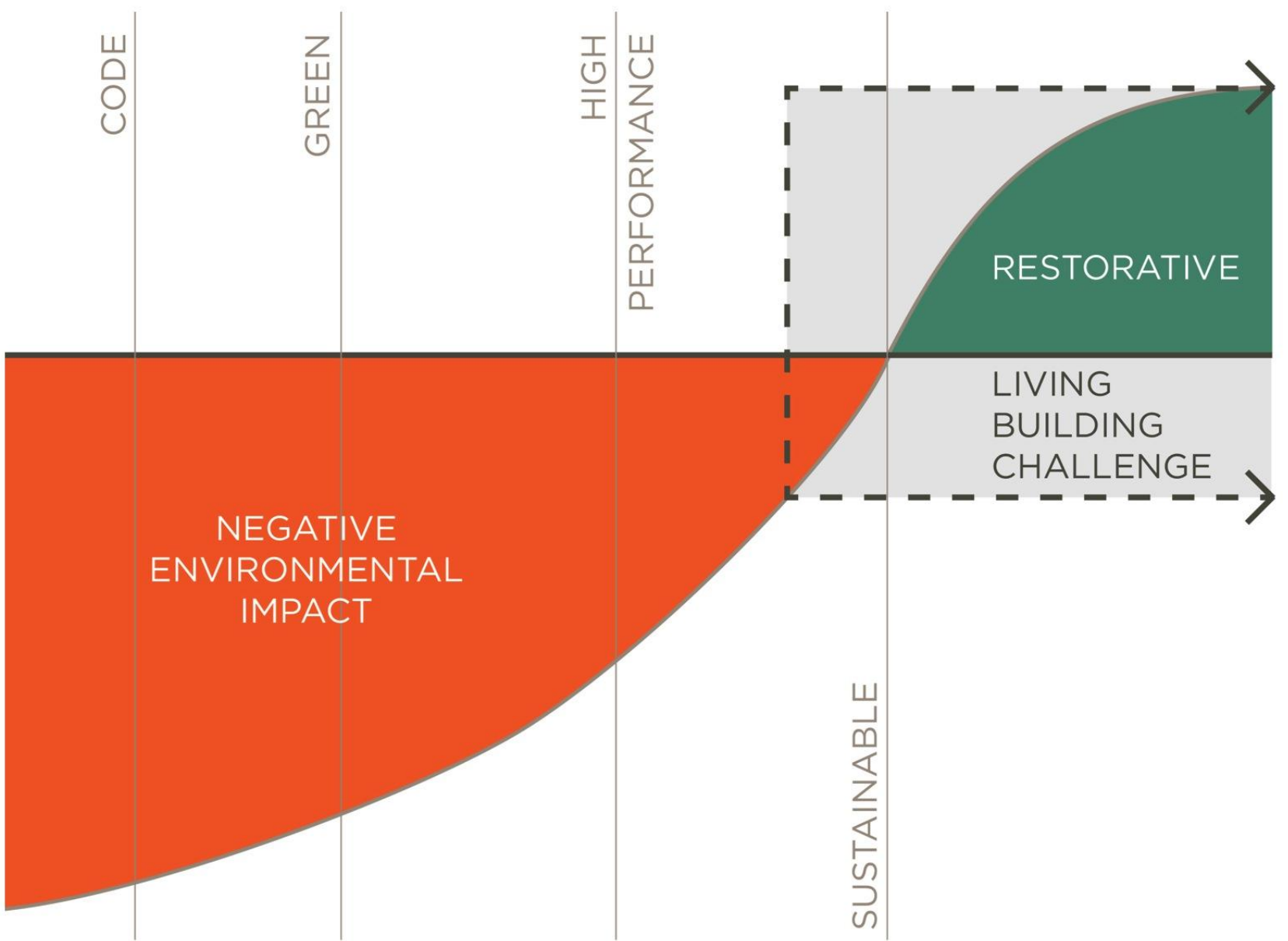
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**True sustainability at home,
work, towns cities.**

- ***Socially Just***
- ***Culturally Rich***
- ***Ecologically Restorative***

NET ZERO ENERGY BUILDING





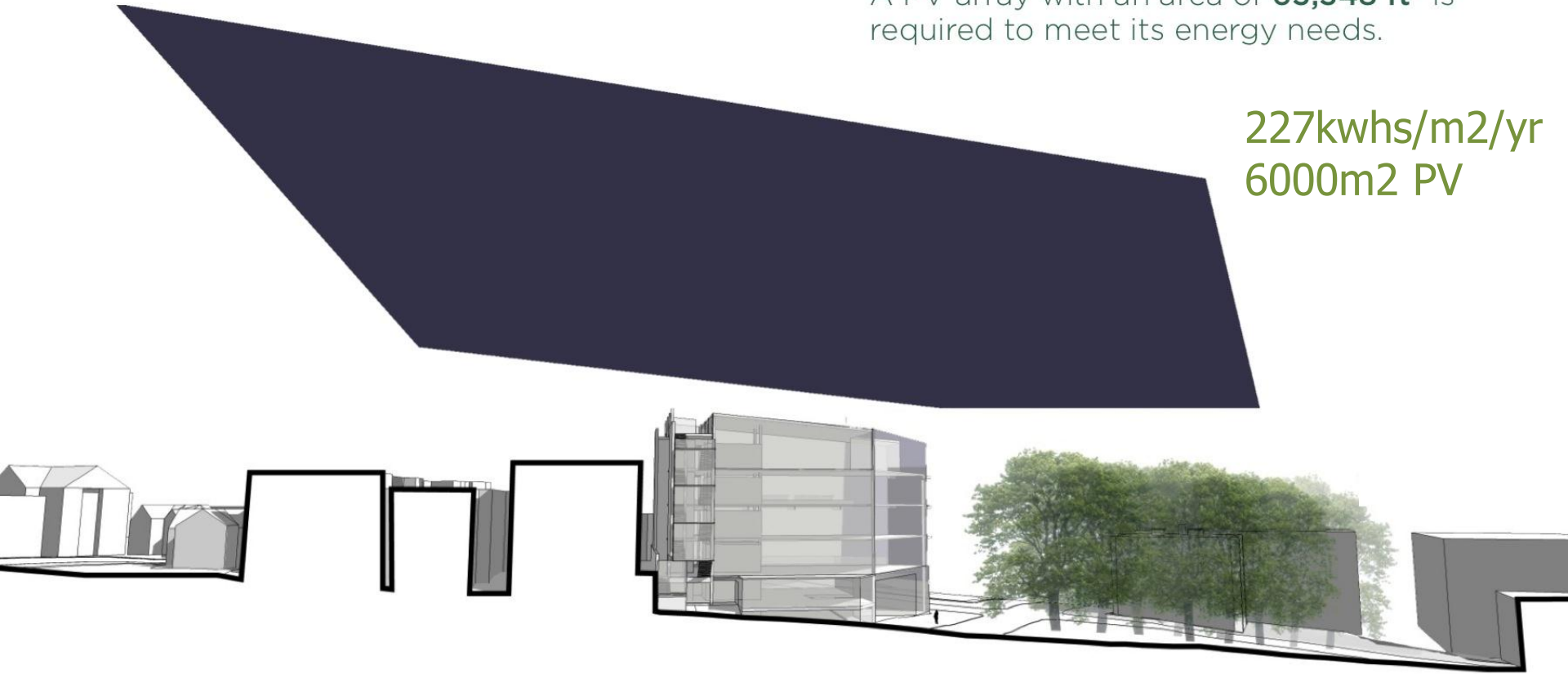
Bullitt Centre Seattle WA Commercial



A typical building of this size has an
Energy Use Intensity of 72 kBtu/ft²/year.

A PV array with an area of **63,348 ft²** is
required to meet its energy needs.

227kwhs/m²/yr
6000m² PV

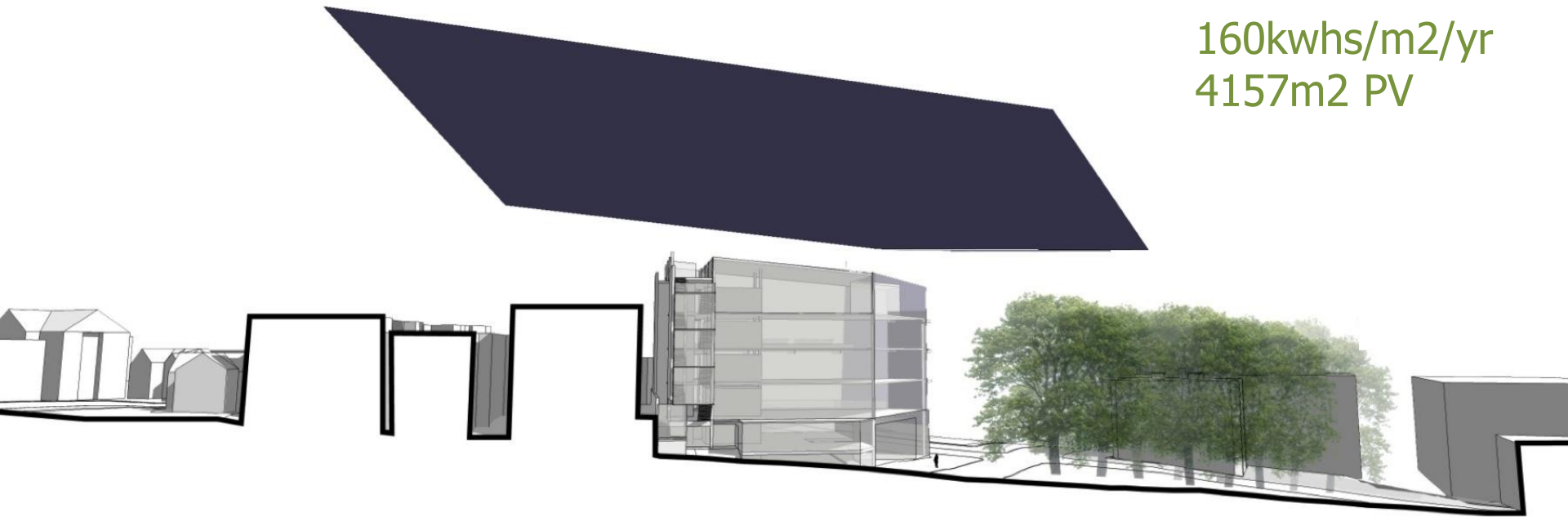


BULLITT CENTER
SEATTLE, WASHINGTON

A building of this size meeting Seattle energy code has an **Energy Use Intensity of 51** kBtu/ft²/year.

A PV array with an area of **44,752 ft²** is required to meet its energy needs.

160kwhs/m²/yr
4157m² PV

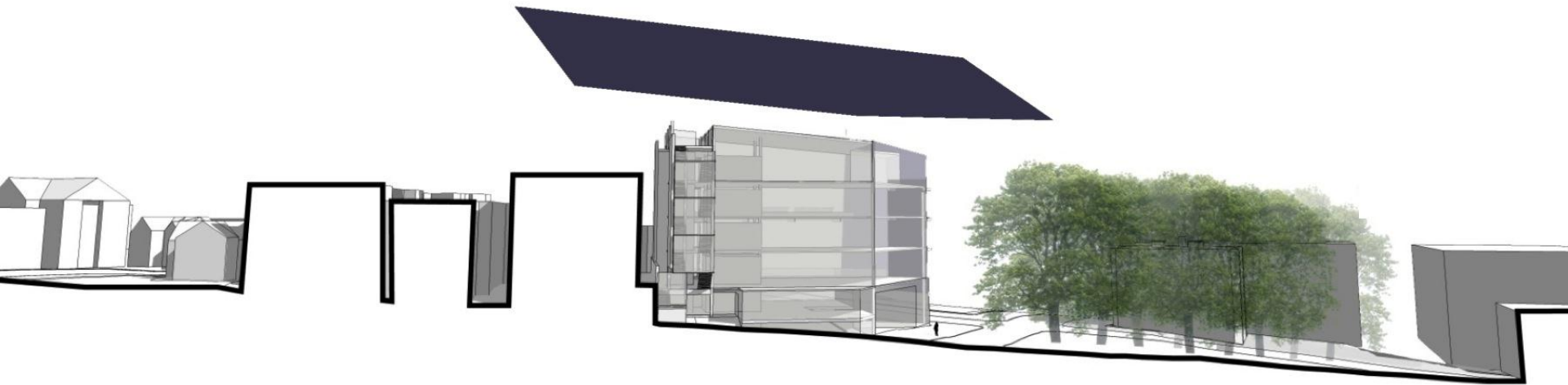


BULLITT CENTER SEATTLE, WASHINGTON

A LEED Platinum certified building of this size has an **Energy Use Intensity of 32 kBtu/ft²/year.**

A PV array with an area of **28,599 ft²** is required to meet its energy needs.

100kwhs/m2/yr
2656m2 PV

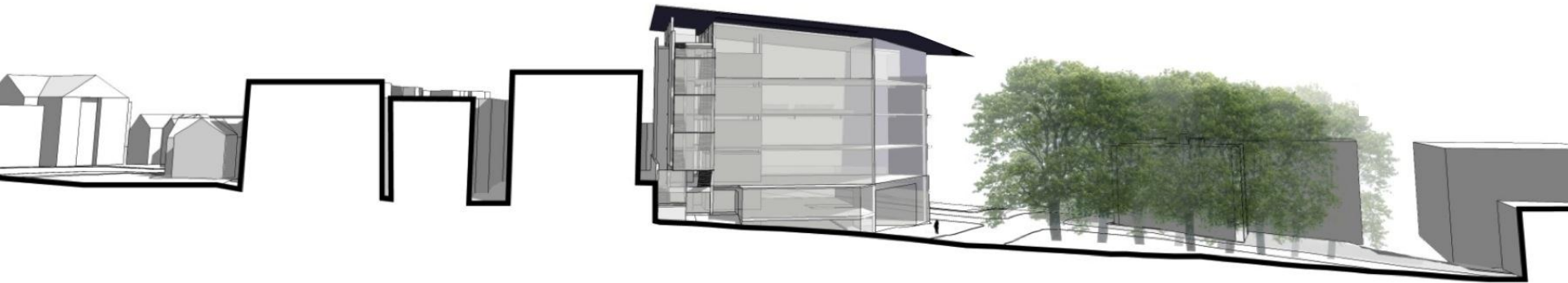


BULLITT CENTER SEATTLE, WASHINGTON

The proposed building, meeting the Living Building Challenge has an **Energy Use Intensity of 16** kBtu/ft²/year.

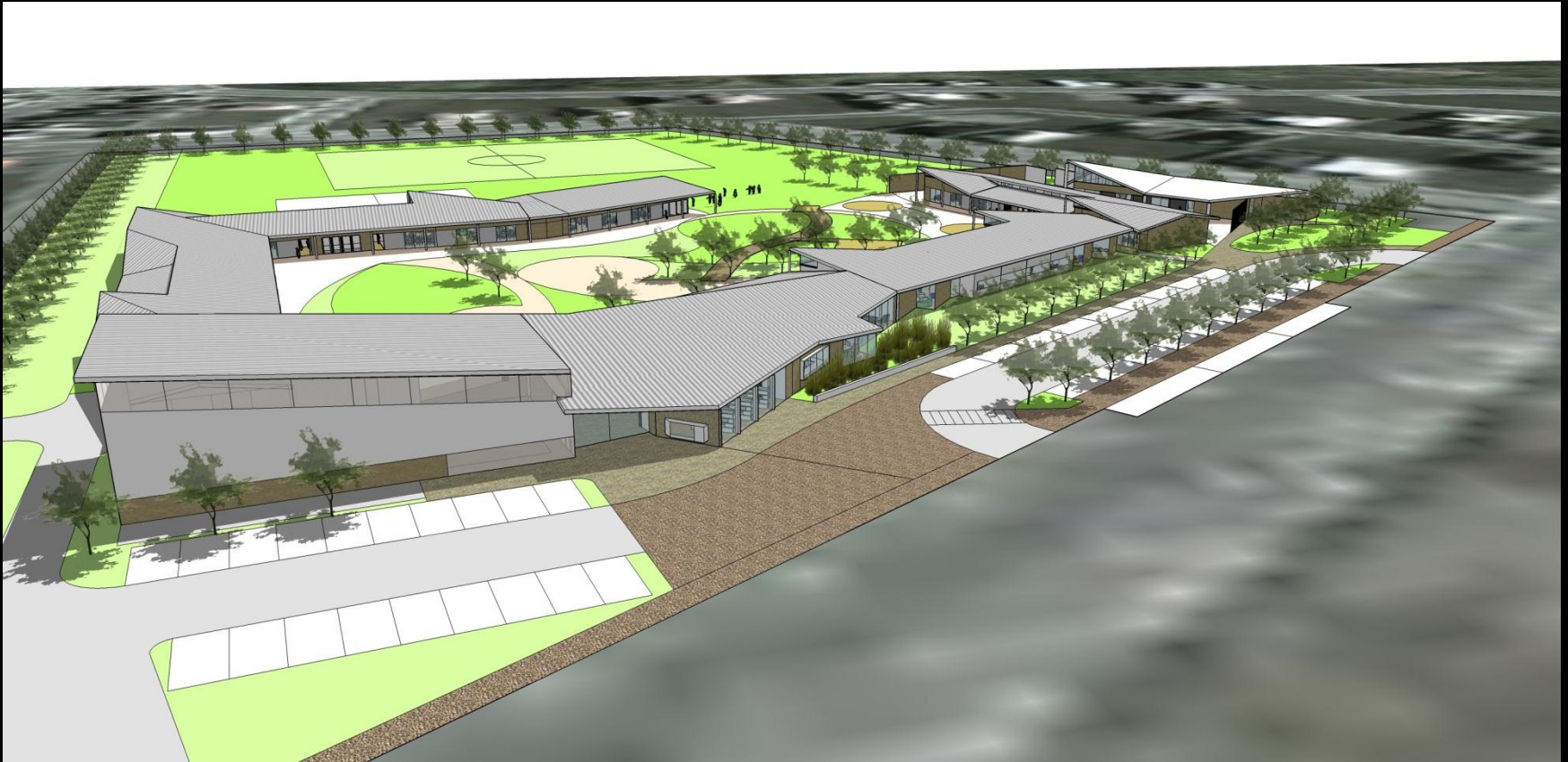
A PV array with an area of **14,303 ft²** is required to meet its energy needs.

50kwhs/m²/yr
1330m² PV



BULLITT CENTER SEATTLE, WASHINGTON

Net Zero NZ - Pegasus Junior School Canterbury



- 450 Students
- Green Star 5 Primary School – about 65kwh/m²/y
- Pegasus Net Zero Energy - target 36kwh/m²/y

Net Zero NZ - Pegasus Junior School Canterbury



Strategy -

Envelope -

Controls -

Heating -

Light -

Hot water -

Appliances -

Reduce Demand

Good; R values, airtight & glazing for low energy comfort

BMS & EMS

Efficient ASHP

Good daylight and controlled artificial lighting

Distributed Solar dominant with electric back up

Efficient kit & fit out

No **Combustion** permitted for Net Zero Energy Certification

Net Zero NZ - Pegasus Junior School Canterbury

Strategy – Meet demand with Renewable Electricity

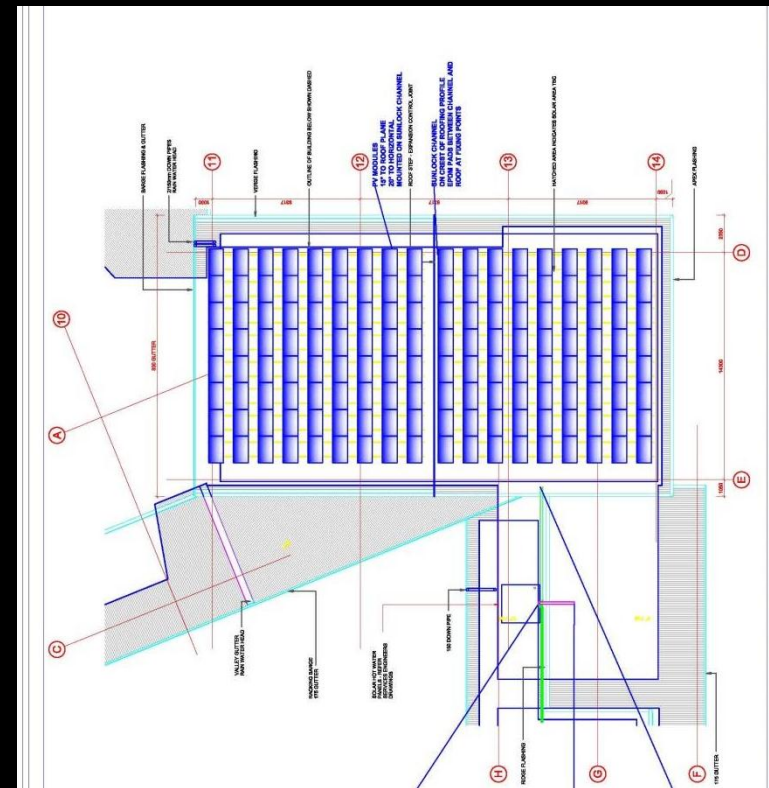
Energy demand target: **110,000 kWh/yr**

Required PV array: 84 kWp

PV array: 336 panels REC 250PE

PV panel surface area: 555m²

About \$30K in electricity/yr



Tuhoe Te Uru Taumatua 'Our Living Building'



Iwi administration and tribal chamber HQ

Net Zero Energy

Net Zero Water

Net Zero Toxicity

Local people

Local materials

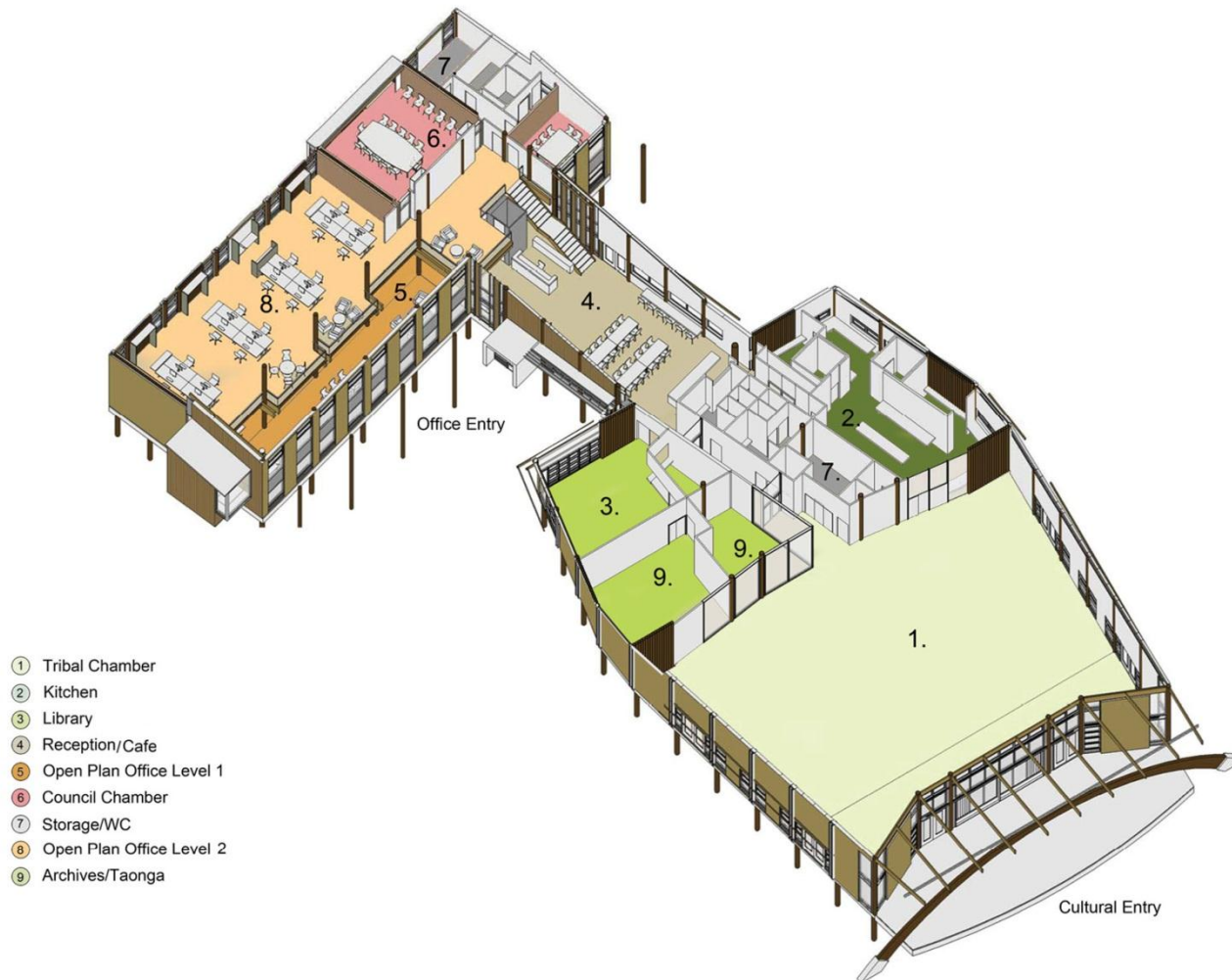
Disassembly

Beauty & Spirit Healthy

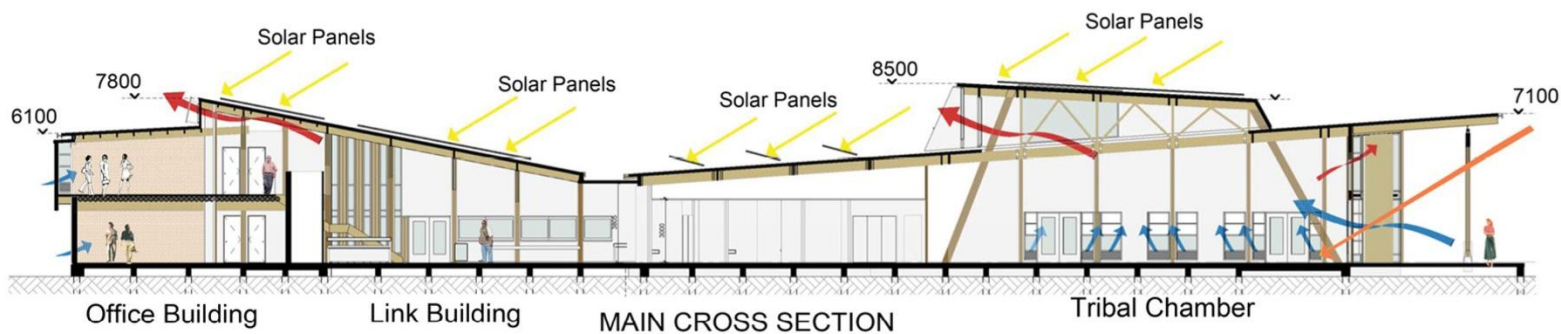
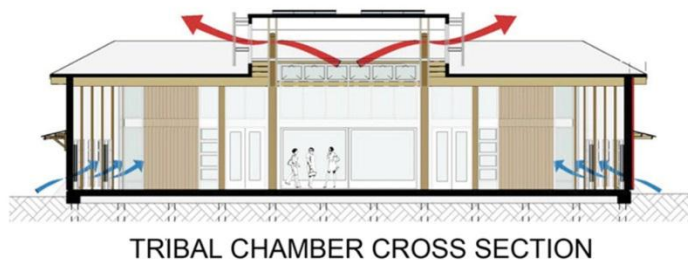
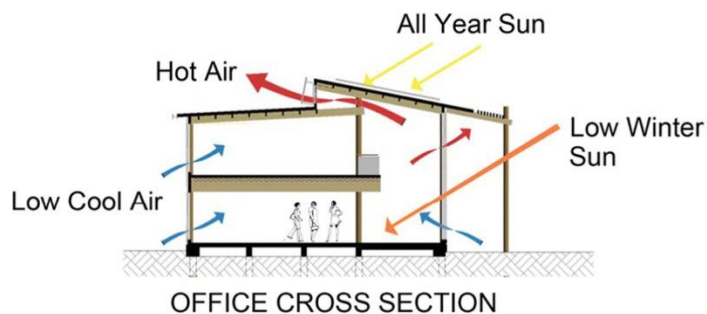
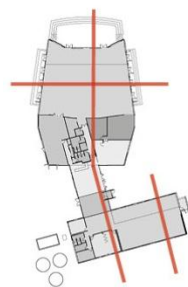
Bio-phillia

Education & Inspiration





- ① Tribal Chamber
- ② Kitchen
- ③ Library
- ④ Reception/Cafe
- ⑤ Open Plan Office Level 1
- ⑥ Council Chamber
- ⑦ Storage/WC
- ⑧ Open Plan Office Level 2
- ⑨ Archives/Taonga







LIVING MATERIALS

TE WHAREHOU O TUHOE
IS MADE OF HEALTHY,
LOCAL MATERIALS



ARROW

TUHOE







http://link.brightcove.com/services/player/bcpid1616124092001?bckey=AQ~~,AAABd-dKrZk~,1hmbLv7aVc_LVdCjLTbeI99CfYEDGf08&bctid=3321258442001



Tuhoe Te Uru Taumatua, Taneatua



Photo: Ana Dermer, Arrow International

The Challenge for building a better NZ

- Design, build and enjoy a Living Building in every community in NZ
- Upskill our industry; designers, builders, users
- A new economy of living non toxic materials and resource re-use
- A new positive relationship with Nature

Thank you jnp@Jasmax.com

Living Building Challenge <http://living-future.org/lbc>

IMAGINE a building

designed and constructed to
function as elegantly and
efficiently as a flower: a building
informed by its bioregion's
characteristics, that generates all
of its own energy with renewable
resources, captures and
treats all of its water, and that
operates efficiently and for
maximum beauty.