Concept Design

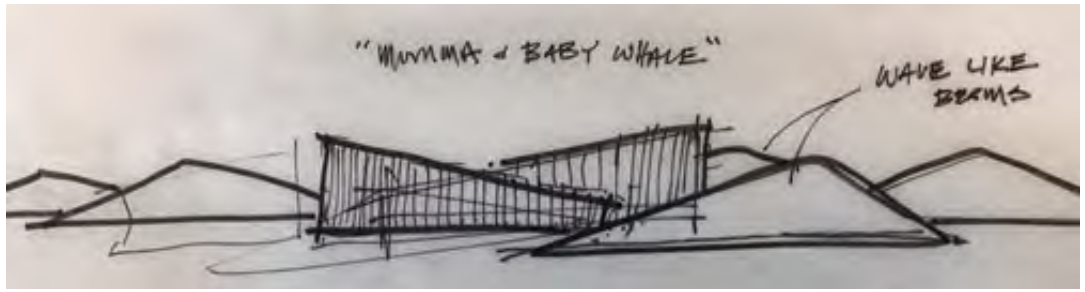
Perkins&Will Pfau Long

NOYO CENTER FOR MARINE SCIENCE

Design Inspiration

→ **Baleen Sunshades**

↓ **Mama & Baby Whale**



NOYO Center Program

ADMIN			
admin offices	7	100	700
admin storage	1	300	300
conference room	1	400	400
collab.	1	400	400
library	1	200	200
security	1	200	200
Subtotal			**2,200**

CORE			
Lobby + Reception	1	1600	1600
Lobby Storage	1	150	150
Gift Shop	1	550	550
GS Storage	1	200	200
Restrooms	2	200	400
Café	1	2000	2000
Prep Kitchen	1	500	500
Subtotal			**5,400**

EXHIBIT			
Exhibit Space	1	6,500	6,500
Mezzanine	1	4,500	4,500
Skeleton Exhibit (included in above)			
Aquaria (included in above)			
Multi-Purpose Room	1	1900	1900
Subtotal			**12,900**

SUPPORT			
Backup Generator	1	400	400
Electronics Shop	1	500	500
Exhibit and Lab Support	1	600	600
Subtotal			**1,500**

LABS			
Dry Labs(s)	1	700	700
Wet Lab(s)	1	800	800
Seawater Treatment	1	600	600
Maker Space	1	600	600
Teaching Lab	1	800	800
Specimen Storage (under ramp and in exhibit hall)			
Subtotal			**3,500**

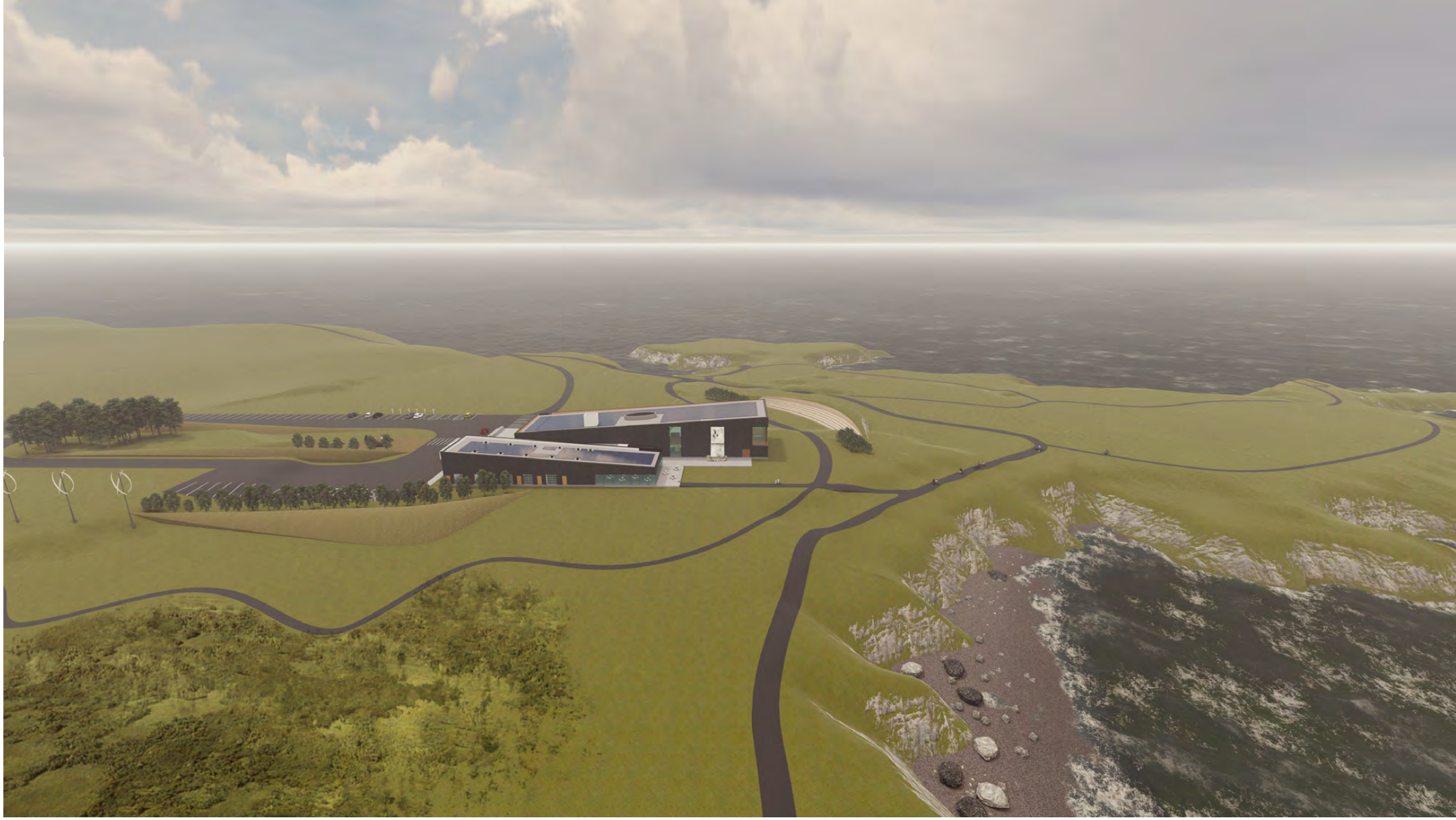
TOTAL	**25,500**

NOYO Center for Marine Science

NOYO Center at Dusk

Exhibit Hall

Kelp Tank



Bluff Edge Aerial

Coastal Trail


Crow's Nest
Whale Bone Workshop
Property Boundary
Wetland Setback
N

Site Plan

Ground Floor Plan

Mezzanine Plan


Roof Plan
N

Enlarged Floor Plan

N

NOYO Center Community Amenities

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Café

Publicly Accessible from Coastal Trail

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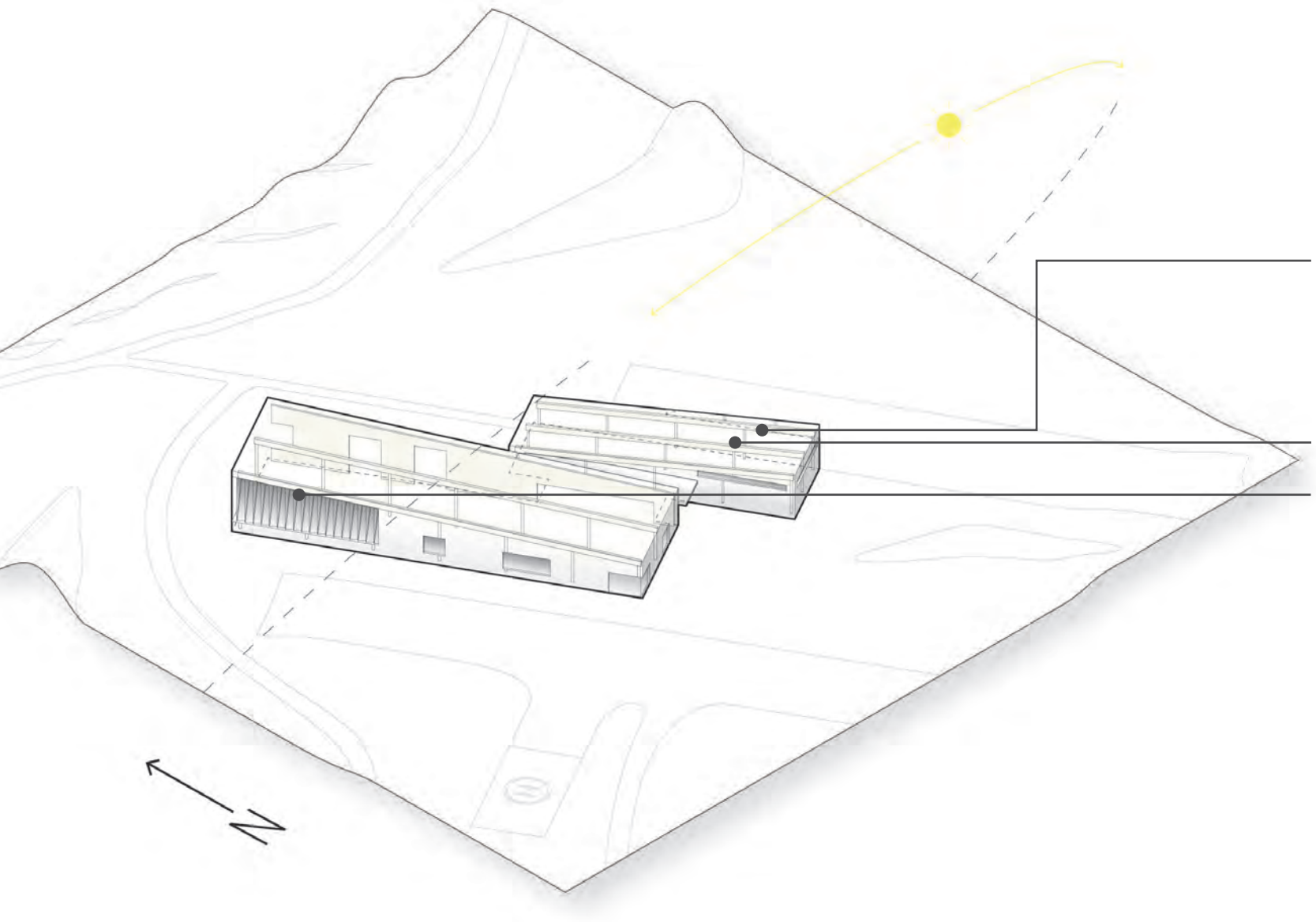
Multi-Purpose Room

Lectures, Rentals, or Temporary Exhibits

Whale Side View

Regenerative Design



Passive Strategies

1. High-Performing Envelope

Highly insulated and airtight

2. CLT and Glulam Structure

Low embodied carbon and renewable material that contributes to good envelope performance

3. Daylight Harvesting

4. Optimized External and Internal Shading

Minimize occupant visual discomfort and protect sensitive marine specimens

Baleen Sun Shade Design

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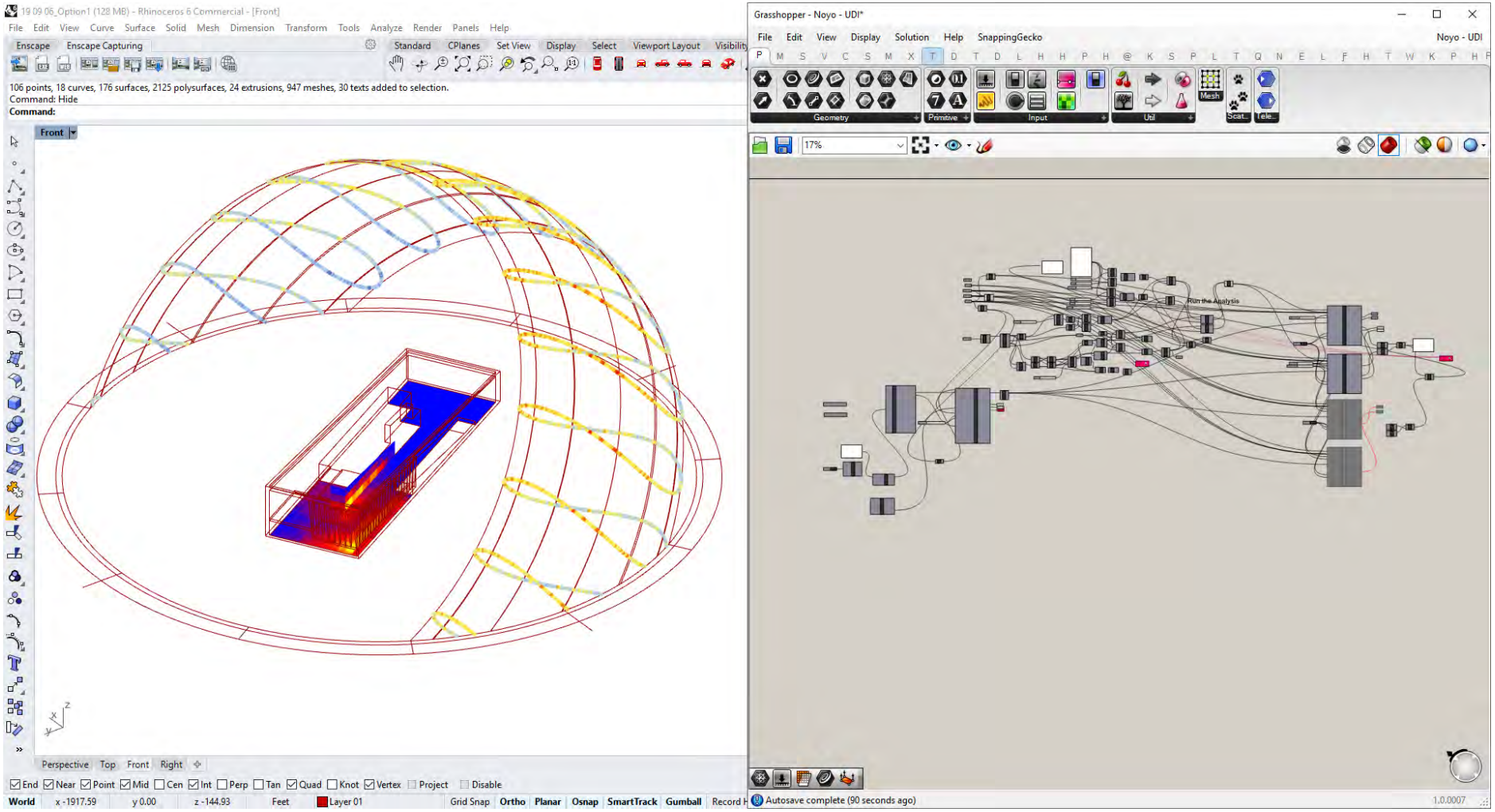
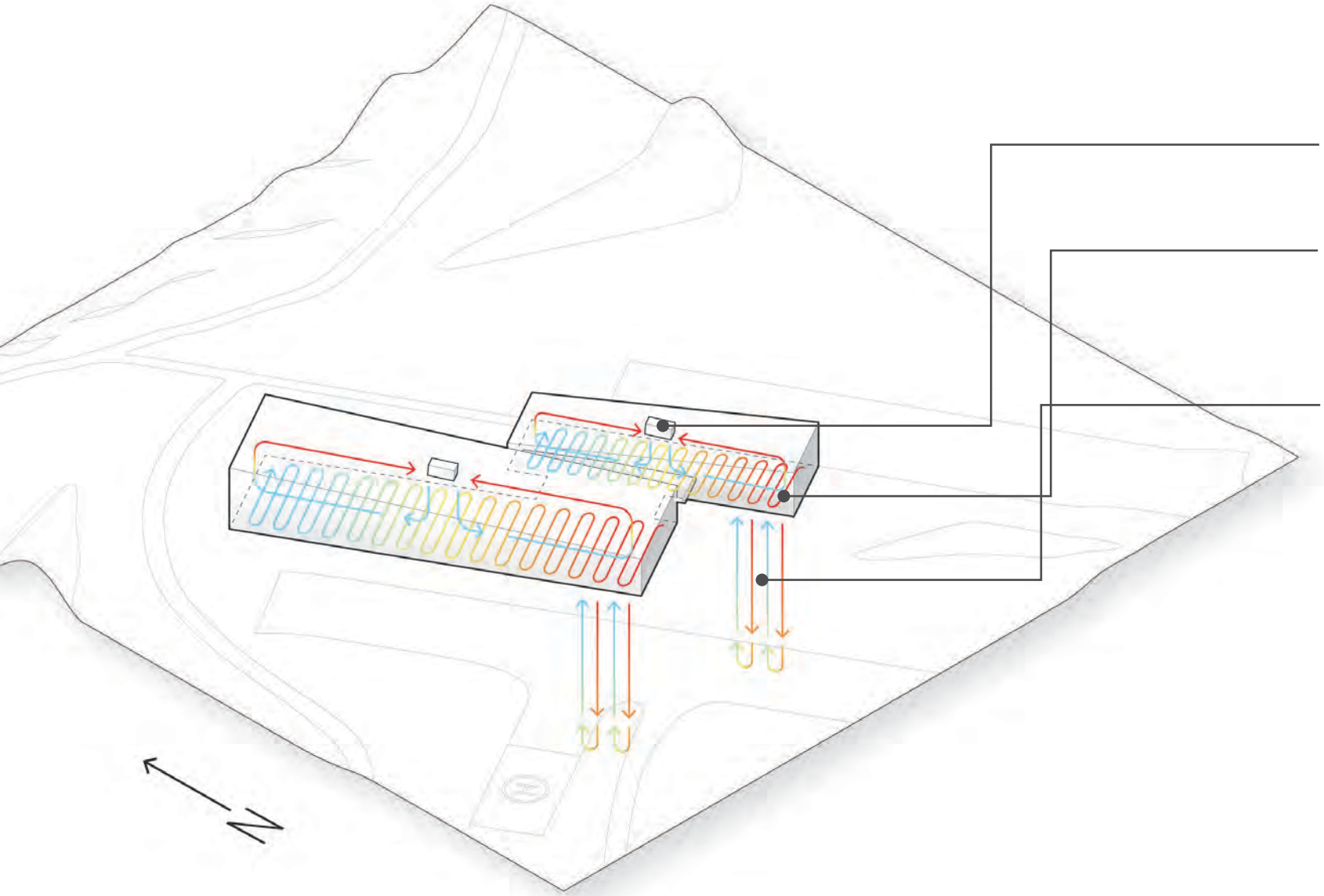
Baleen Optimization

Maximize daylight and views while minimizing UV exposure on Whale Skeletons



Active Strategies



1. Dedicated Outdoor Air System

With Energy Recovery Ventilator

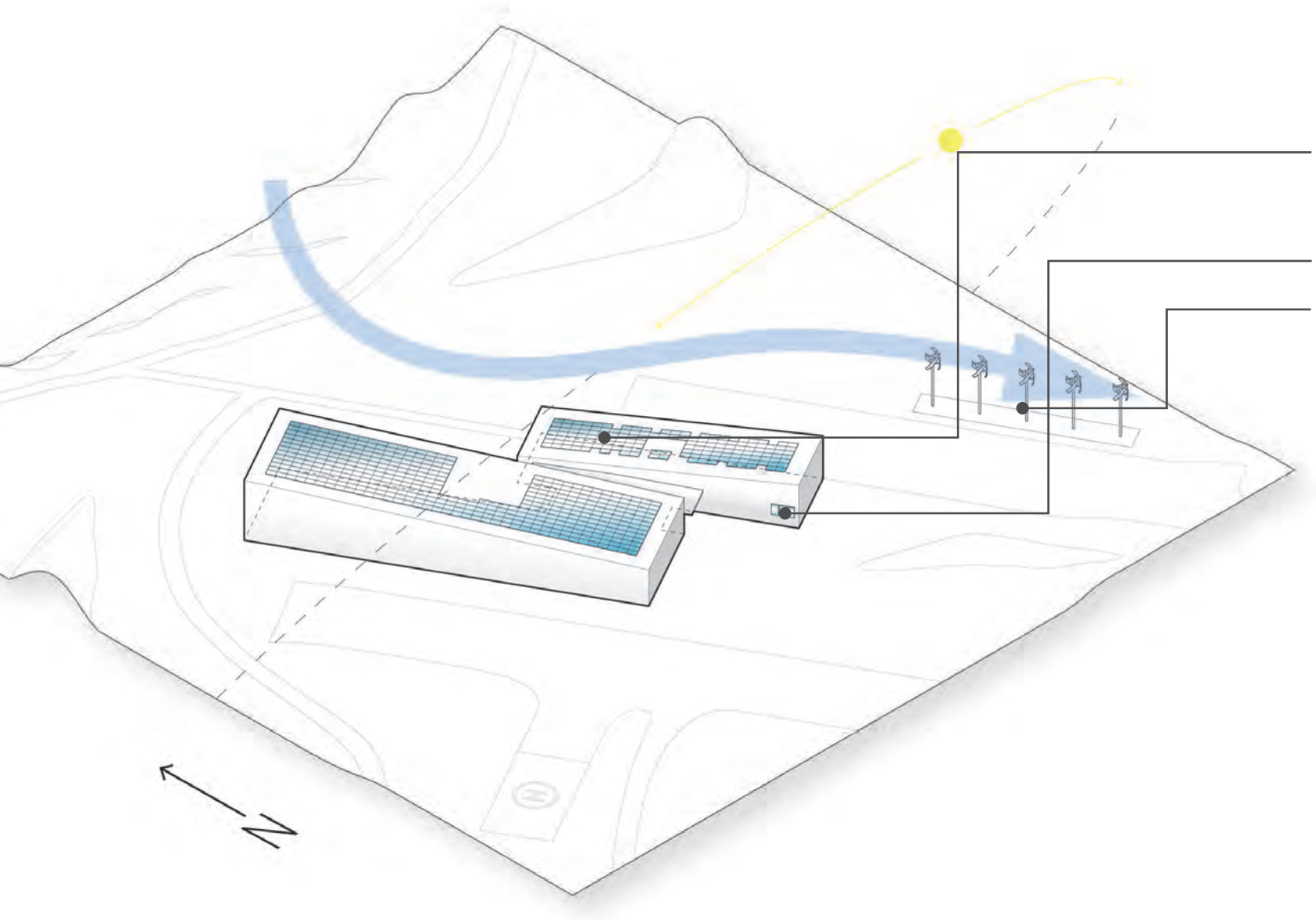
2. In-Floor Radiant Heating and Cooling

3. 100% LED Lighting

With Daylight and Occupancy Sensors

4. Ground Source Heat Pump

High-Efficiency Heating and Cooling



Energy Generation

1. Rooftop PV Array

To generate 100% of Annual Building Energy

2. Interactive PV Display

3. Vertical Wind Turbines

Testbed for Manufacturers

Maximize Solar PV on all Roof Surfaces

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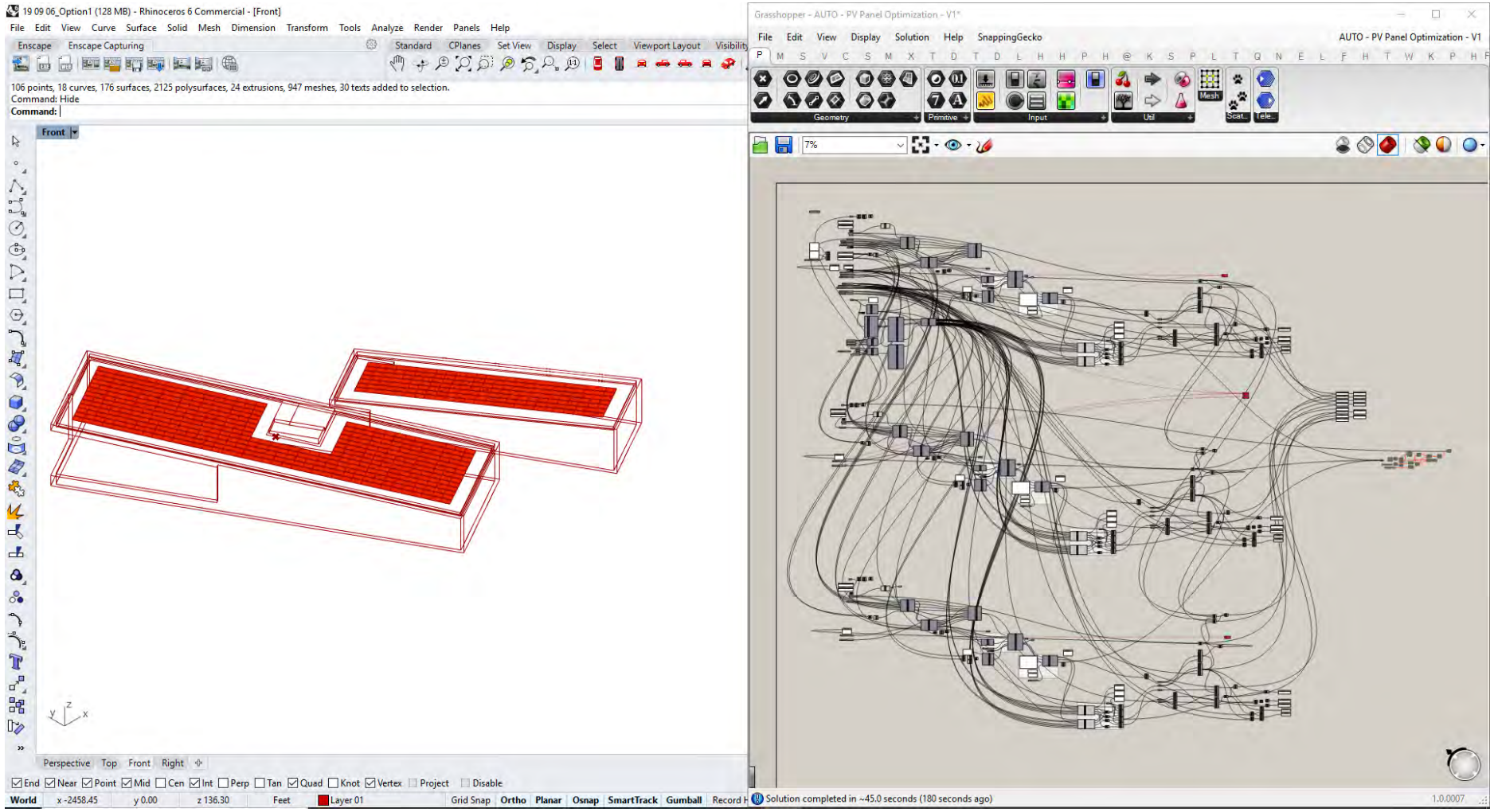
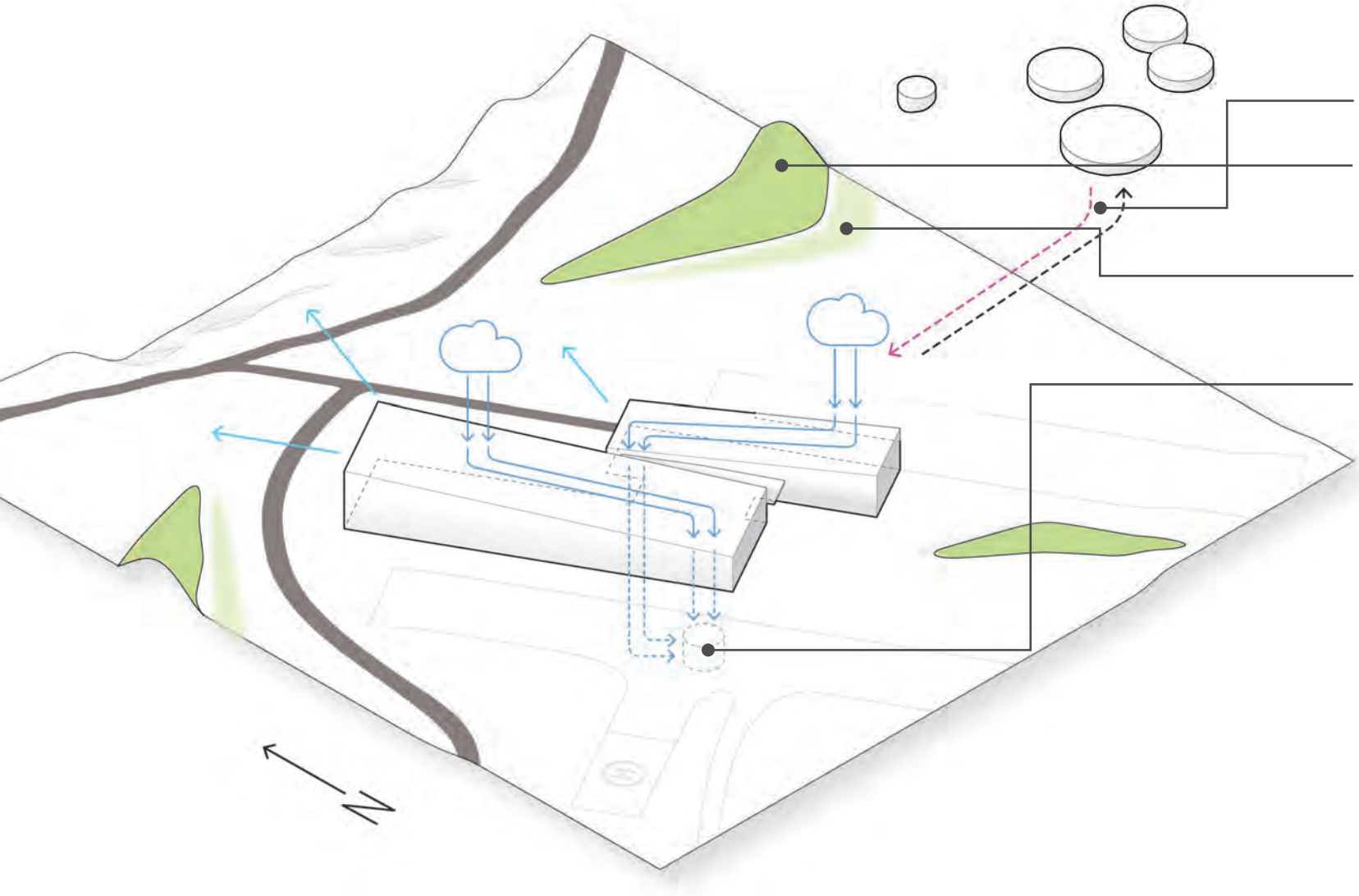
Solar PV Optimization

Maximize Solar Panel Output accounting for orientation and pitch of roofs





Landscape & Site Connection

1. **Treated Wastewater for Flushing**
2. **Integrated Vegetated Berms**

   Provide Wind Shelter
3. **Vegetated Swales Manage Stormwater**
4. **Rainwater Collection for Irrigation**
5. **Restoration of Site Permeability**
6. **Bluff Edge Views**
7. **Coastal Trail Access**

Building Materiality

Cross-Laminated Timber (CLT Construction)

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Cost Savings

Wood components represent a cost savings compared to a steel structure.

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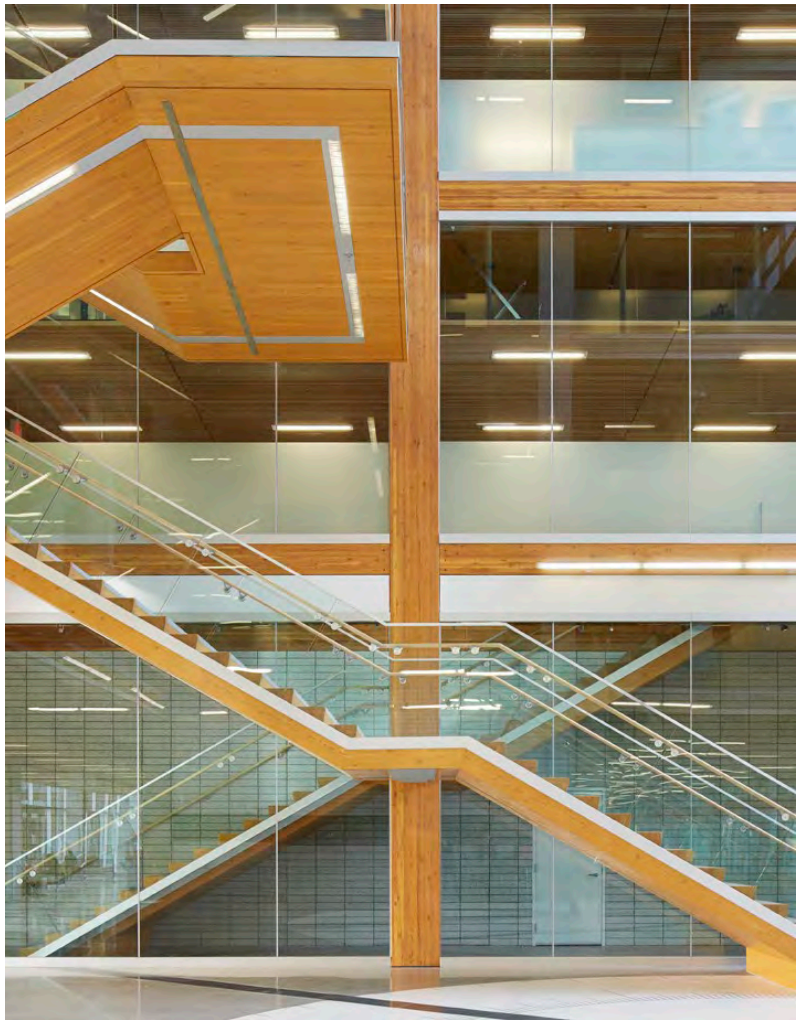
Prefabrication Efficiency

CLT and glulam will be fabricated off-site and arrive CNC milled for connections and MEP penetrations saving significant installation time both for structure and finishing.

Cross-Laminated Timber (CLT Construction)



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Quality of Space

Exposing the surface eliminates the need for a finishing material, creates warm inviting environment for this use that eliminates the need for more finishing materials. Integrates well with quality of light in the space.

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Performance Objectives

Wood contributes to optimized energy, high quality indoor environment for occupants, long term durability, and low embodied energy.

Why Wood?

Low Embodied Energy

Embodied Energy is the sum of all the energy required to produce a material

+

Long-term Carbon Sequestration

Trees absorb CO2 while they grow, but that stops when they mature. Cutting down, building, and replanting creates a continuous cycle of capturing carbon, and reforestation

Environmental Benefits

Long-Term Carbon Sequestration

Reduced Greenhouse Gas Emissions

Low Embodied + Operational Energy Footprint

Shift To Renewable Resources

Economic Benefits

Shorter Construction Schedule

Shorter Financing Schedule

Less Weather Exposure

Lower Material Weight

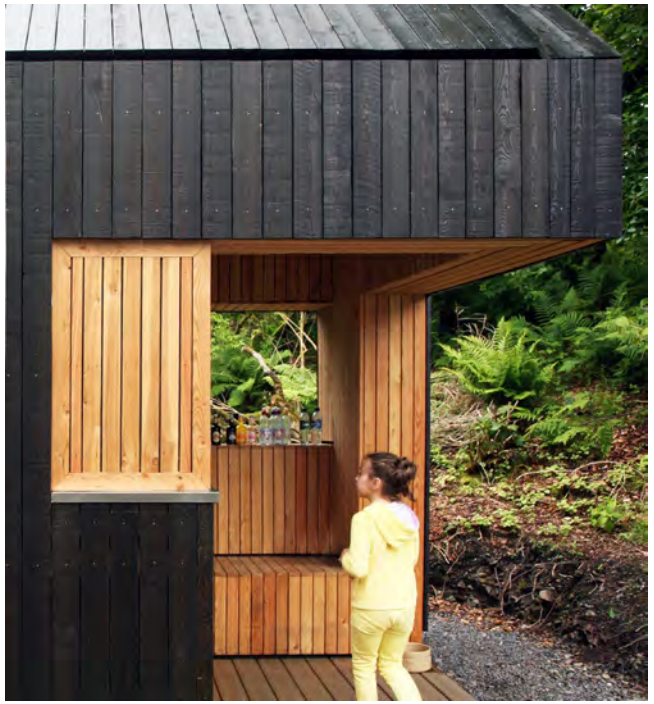
Socio-Cultural Benefits

Sustainable Grown and Density

Reconnect with Nature

Celebrate Natural Beauty and Quality of Life

Building Skin



Building Skin: Acetylated Wood:

- Emerging Wood Technology
- Process uses heat, pressure and introduction of a vinegar-based acid to transform the wood's cells – removing organic compounds from the wood cells, so it will not absorb water, expand, contract, or provide nourishment for insects or funghi
- Forces sugars and oils out of wood, closes off pores
- Increases hardness
- Moisture content 6%-8%
- No mildicide in the wood
- 50-year warranty