THE SUSTAINABLE MIDDLE SCHOOL OF VANCOUVER

Project Introduction
How can we create a more widespread knowledge of sustainability?

Claim

Through education and observation of sustainable practices people can better understand their surroundings and become more knowledgeable of the actions needed to care for their environment.

...my project...

The Sustainable Middle School of Vancouver

A school in Vancouver, British Columbia that combines traditional education with sustainable practices.
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Curriculum

The Sustainable Middle School of Vancouver combines traditional education with classes that include, gardening, fine arts and animal care. Animal care is a class taught by a licensed veterinarian who also runs the on-site “Farm Sanctuary” program.

Farm Sanctuary

Mission: Farm Sanctuary works to end cruelty to farm animals and promotes compassionate living through rescue, education and advocacy. We envision a world where the violence that animal agriculture inflicts upon animals and the environment has ended, and where instead we exercise values of compassion.
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Site

Vancouver and Surrounding Suburbs
Map of Parks and Land Reserves

Map of Site with Street Context
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Map Of Building Usage in the Sites Neighborhood
Key Research

Vancouver, embracing sustainability

- In February 2009, Mayor Gregor Robertson launched the Greenest City initiative, with a goal to map out how Vancouver can earn that title by 2020.
- Since 2005 the provincial B.C. government has more than tripled their number of hybred vehicles.
- The Province government of Vancouver has committed $40 million over four years to help build cycling and pedestrian pathways, improve safety and accessibility, and support children’s activity programs in playgrounds.
- Vancouver has the worlds greenest convention center.

Youth

- Vancouver has a variety of youth volunteer systems. Three of the major ones are Environmental Youth Alliance, Youth4Action and Green Street.
- Middle School aged kids: It is a phase when the kid is not yet mature but he is no longer a kid, difficult period, finding out who they want to be, lots of energy.
- A dissertation titled, “Feeling Safe at School,” stated that the whole community is an integral part of the school. In any situation where the community is cut off from the school, the school suffers greatly,
- It is Important to embrace a community but also be aware that feelings of safety and security are related to a person’s experience of feeling like they belong.
My parti was a representation of the elements of nature and how together they are completely self sustaining. All elements of nature work together and they all rely on the sun. I knew I would want my school to also rely on the sun and other elements from nature.
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Site Plan Process

Program:
- Small Show Space
- Farm Sanctuary Office
- School Head Office
- Parking
- Gym Space
- Lab Space
- Indoor Green House
- Classrooms (6 with 2 for each grade)
- Cafeteria
- Outdoor Garden
- Outdoor Sports Field
- Outdoor eating and gathering

Site Plan Analysis

Site Plan Development
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Site Plan Process
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Site Plan
* The open green spaces on the site have a combination of open grass and tree cover. The trees will provide some shelter on days when there is a light rain.

* The mound adjoined to the cafeteria provides a visual barrier to the industrial view of the back of the train station and when students sit on top of the mound they can see the ocean.
This is a designed space entirely for the community. It has benches, vegetation and info panels that tell about the school and Farm Sanctuary. This space is adjacent to a heavily used park and bus station. In the summer the fence gates in this space can open, providing the community with an open field for summer fairs or shows.
Parking is lowered to help conceal the parking lot.
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Classrooms
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Process
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Final Classroom Design

* Balance of Indoor and Outdoor
* Coverings for Outdoor Spaces Account for Vancouver Rainy Climate

Classroom Perspective
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1st Floor Classroom Plan

- Sliding “Barn” doors exits to back outdoor space
- Personal “Wheel Chair Lift” moves between first floor and second floor landing
- Indoor plants are mostly small herbs and flowers

2nd Floor Classroom Plan

- Mt. Views (vista from 2nd Floor)
- Sliding “Barn” doors on each side

Classroom Plans
Classroom Elevations

Materiality:

Siding: FSC (Forest Stewardship Council) certified cedar siding from Vancouver Island.
Sun Shades and Overhangs: C/S Sun Shades, manufactured in Langley, British Columbia
Roof: Green Roof and Cedar Shakes manufactured in Surrey, BC
Windows: 3M Windows in Victoria, BC makes windows that block 97% of solar heat gain.

Heavy timber frame construction is the main structural material.
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* A “Solar Wall” is used for the primary control of heating and cooling in the classrooms, in addition to this, there is cross-ventilation, thermal solar panels and radiant floor heating.

* Blue Jean Insulation

Analysis of Sun Angles
Sustainable Features:

- Solar wall for passive heating and cooling,
- Thermal Solar Panels,
- Radiant Floor Heating,
- Water Collection,
- Green Roof,
- Indoor Garden,
- Low-Flow Toilets,
- Sustainable/Local Materials and Orientation.

Thermal Solar Panels

Thermal Solar Panels use the sun to heat water instead of photovoltaic panels. Thermal Panels have a lower carbon footprint than photovoltaics, twice the life span and they are cheaper.
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Cafetería
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Process

1. Trans station building
2. Earthform to block unwanted views of buildings
3. ... or 2
*The outdoor covered space allows for outdoor seating in all types of weather, and it also provides openings for southern light exposure.*

Cafeteria Perspective
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Cafeteria Plans
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Classroom Elevations

Perspective of Cafeteria Roof, with Ocean View
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Cafeteria Perspective

The End