

Revitalizing Our School: Implementing Biophilic Design for Sustainable and Engaging Outdoor Spaces

Problem statement: Douglas College's outdoor space revitalization project leverages biophilic design to address ecological and educational shortcomings—high plant mortality, invasive species, and underused green spaces.

high plant mortality



To be utilized available space



Vacant planters to be filled



Can be more Green!



Research Question:

How can biophilic design principles enhance plant survival, sustainability, and student engagement in our school's outdoor spaces?

Literature review

1. Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life by Stephen R. Kellert, Judith Heerwagen, and Martin Mador

2. Education for Sustainable Development Goals: Learning Objectives, by UNESCO



What's Douglas Did on LAND, Climate Action Environmental Sustainability

- Green rooftop decks at both campuses reduce the amount of storm water runoff that flows into city systems to slows surges of rainwater and reduces the pollution of water. (since 2010)
- Green roofs also reduce heat fluctuations from the sun and air.
- The green roof at the New Westminster Campus is planted with less water and less maintenance than traditional grass.

Findings:

- Biophilic design in school settings enhances student engagement, well-being, and environmental awareness.
- Shifting perceptions and social norms towards nature and sustainability can be achieved through thoughtful integration of natural elements into educational environments.
- Functional benefits of biophilic design contribute to the health and sustainability of the school community, aligning with broader environmental goals and policies.
- Practical insights from case studies and research suggest that successful implementation depends on careful planning, species selection, and ongoing maintenance strategies.

Conclusions and recommendation

1. Planting Solution with Native or Localized Plants

- Research and select native or climate-adapted plants for low maintenance and high survival rates.
- Integrate plant selection and care into the curriculum for hands-on learning in ecology and environmental science.
- Enhance biodiversity with a variety of species that support local wildlife.

2. Utilization of the External Space

- Design spaces for diverse uses: study areas, interactive learning zones, and recreational spaces.
 - Ensure accessibility and inclusivity for all students and faculty.
- Incorporate sustainability features like rain gardens, permeable paving, and solar lighting.
- Student Involvement in Renovation Ideas

3. Host design competitions or workshops for students to contribute ideas.

- Encourage collaborative projects across different disciplines.
- Establish a feedback mechanism for ongoing suggestions and improvements.

