

The Mulgrave
Senior School Addition





Introduction

The new Senior School on Mulgrave's campus is informed by 21st Century Learning, principles that reflect the realities of the world today. The goal was to create an environment that feels more like a university than a high school; a space that is stimulating, welcoming, flexible, and supports quality learning.

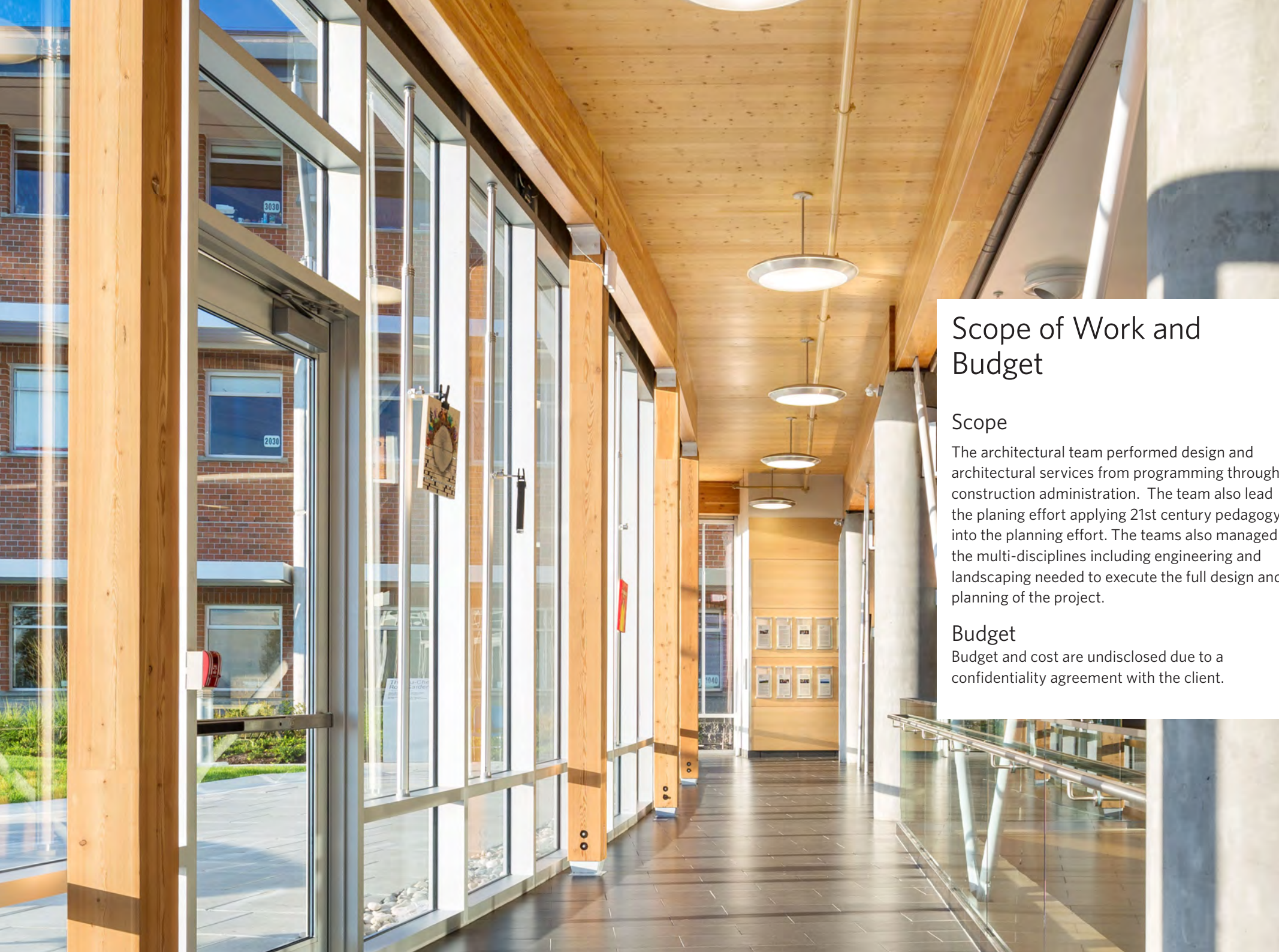
The addition provides a variety of educational space. A meandering east-west artery provides an organic means of circulation with informal gathering places for studying, collaboration, and socialization. The building also hosts community events and activities.

The school responds to a challenging site by nestling into the steep slopes below the existing school. It's situated to be virtually invisible from properties down slope from it, while also resolving previous traffic and parking issues. Its forested context was maintained by planting additional trees, and not interfering with existing ones.

The building incorporates sustainable features. Passive ventilation promotes natural air flow without using mechanical equipment. The design makes the most of natural daylighting, and is equipped with occupancy light sensors. Stormwater is retained and reused for irrigation, and solar thermal panels are used for preheating hot water.

Flexibility to adapt to changing education delivery occurs on three levels:

- Concrete structural system: future reconfiguration of spaces is unrestricted with a context of concrete columns and structural slabs. This will facilitate dismantling and shifting wall locations.
- Movable partitions: Space can be manipulated to suit education delivery demands.
- Varying furniture heights: students have a choice in what is most comfortable for them. All furniture is on wheels for quick and easy rearrangement.



Scope of Work and Budget

Scope

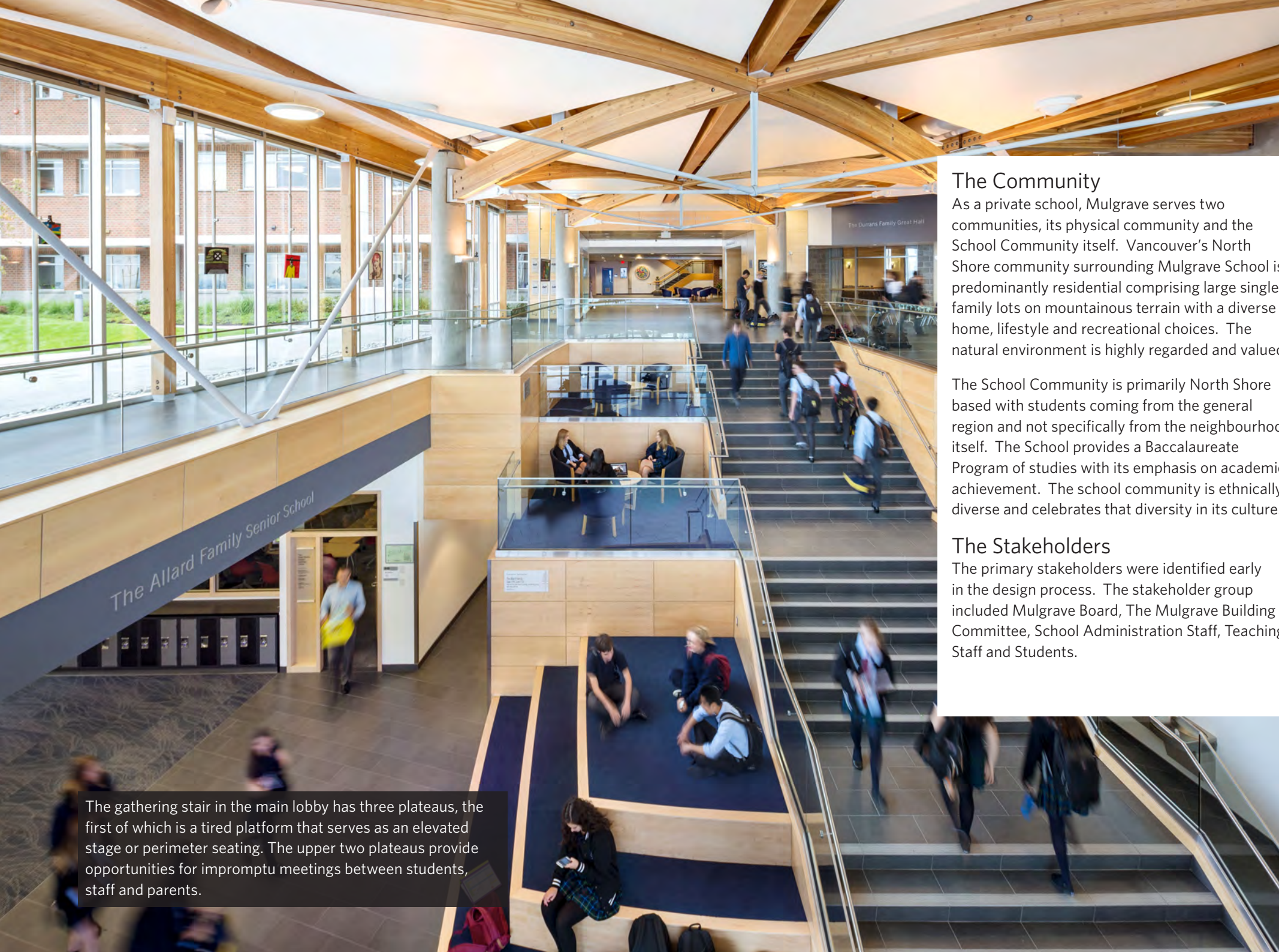
The architectural team performed design and architectural services from programming through construction administration. The team also lead the planing effort applying 21st century pedagogy into the planning effort. The teams also managed the multi-disciplines including engineering and landscaping needed to execute the full design and planning of the project.

Budget

Budget and cost are undisclosed due to a confidentiality agreement with the client.

School & Community Engagement





The Community

As a private school, Mulgrave serves two communities, its physical community and the School Community itself. Vancouver's North Shore community surrounding Mulgrave School is predominantly residential comprising large single family lots on mountainous terrain with a diverse home, lifestyle and recreational choices. The natural environment is highly regarded and valued.

The School Community is primarily North Shore based with students coming from the general region and not specifically from the neighbourhood itself. The School provides a Baccalaureate Program of studies with its emphasis on academic achievement. The school community is ethnically diverse and celebrates that diversity in its culture.

The Stakeholders

The primary stakeholders were identified early in the design process. The stakeholder group included Mulgrave Board, The Mulgrave Building Committee, School Administration Staff, Teaching Staff and Students.


The gathering stair in the main lobby has three plateaus, the first of which is a tired platform that serves as an elevated stage or perimeter seating. The upper two plateaus provide opportunities for impromptu meetings between students, staff and parents.



Value of the Process to the Community at Large

The collaborative process taken with the School Community supported and enhanced their sense of ownership and recognition that they had been listened to. This was particularly important to the teaching and student community and how their visions for a connective environment for learning were heard, interpreted and ultimately met. The neighbouring community looked for a school that respected the physical environment, provided amenity opportunities and celebrated the natural heritage of the region.

Educational Environment

A wide-angle photograph of a modern educational environment. The room is filled with students sitting at long, light-colored wooden tables, engaged in collaborative learning. They are using various colored chairs (orange, blue, green). The room features large glass windows and sliding glass doors, providing a bright and open atmosphere. A large flat-screen monitor is mounted on the wall to the right. The ceiling has recessed lighting and air vents. The overall design is clean, functional, and conducive to flexible learning styles.

Classrooms support different learning styles through flexible configurations, with smaller collaborative areas and larger group spaces supporting a variety of pedagogical styles. Learning spaces are equipped with flatscreen monitors, projection screens and projectors to facilitate flexible instruction and learning.

Educational Vision and Goals

The client's goals for the project involved creating a new Senior School that feels more like a university environment and less like a high school; a space that is stimulating, warm, and welcoming, flexible, and above all, that supports quality learning.

The new Senior School is a state-of-the-art 42,000-square-foot facility comprising 10 classrooms, an advanced tech room, administrative space, a new main entrance atrium, art gallery, Great Hall dining room and kitchen, roof garden, outdoor theatre and expanded parking.

The layout divides spaces into "learning pods," which are groups of rooms, nooks and niches focused on a particular subject area. The English hub entry area is designed as a mini-amphitheatre.



Illustrate How the Environment Supports the Curriculum

In keeping with the Mulgrave's 21st century pedagogy, the design veers away from the traditional double-loaded corridor and instead has a more organic means of circulation. Five academic learning spaces or "pods" – Math, English, Humanities, Languages and Film – have been placed along a meandering east-west artery and each features seminar rooms and a learning hub as its "front door." This is part of the focus on open circulation space, enabling these hubs to provide unique insight to the studies within the pods, which have been separated to form additional learning spaces by partial height eco-resin panels.

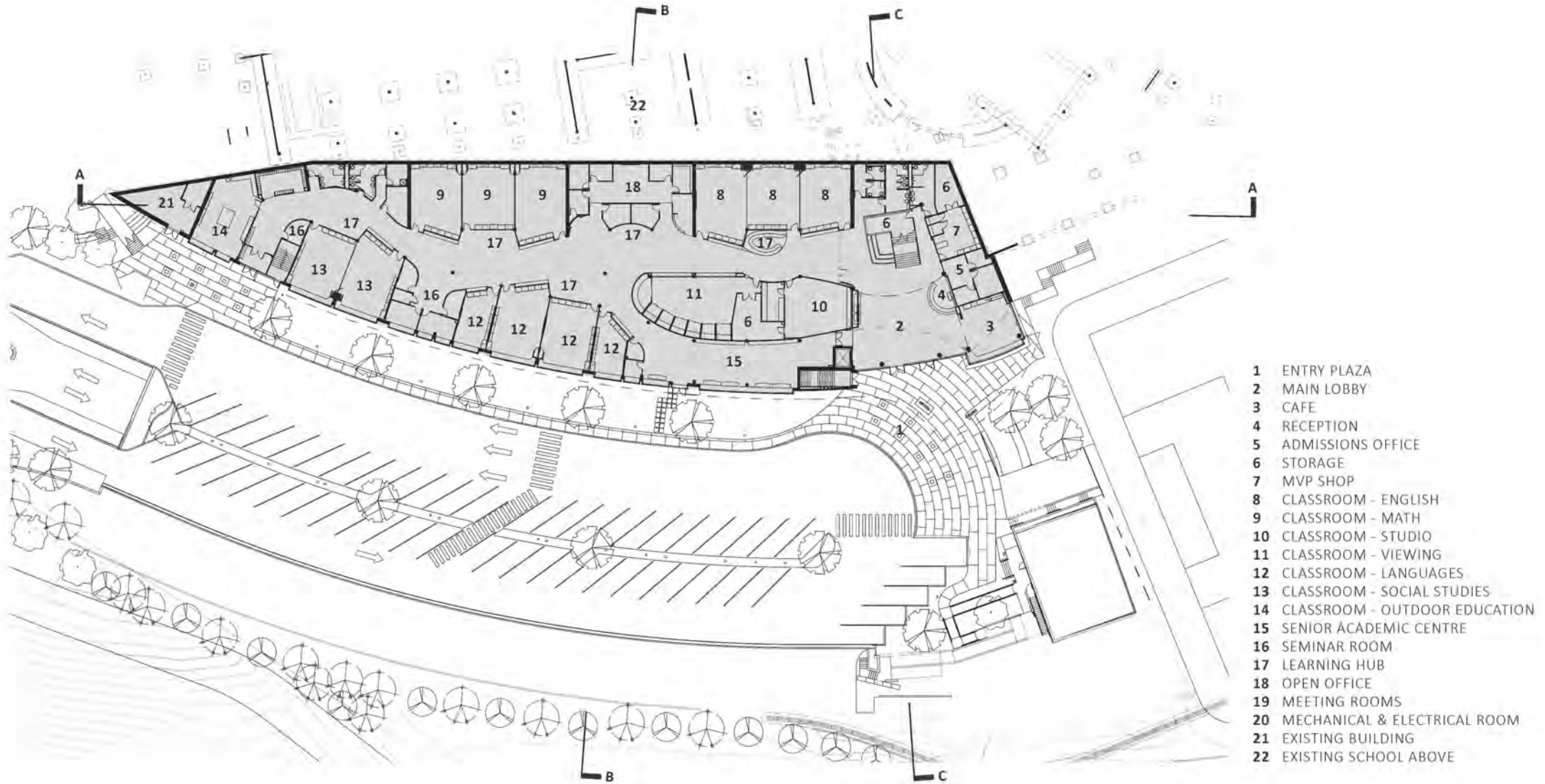


The Environment Supports a Variety of Learning and Teaching Styles

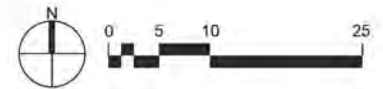
The design is based on 21st Century Learning principles, and provides educational space in a variety of configurations and sizes. Common and circulation areas offer break-out space, informal places for individual study and small group collaboration, and socialization for the senior student body.



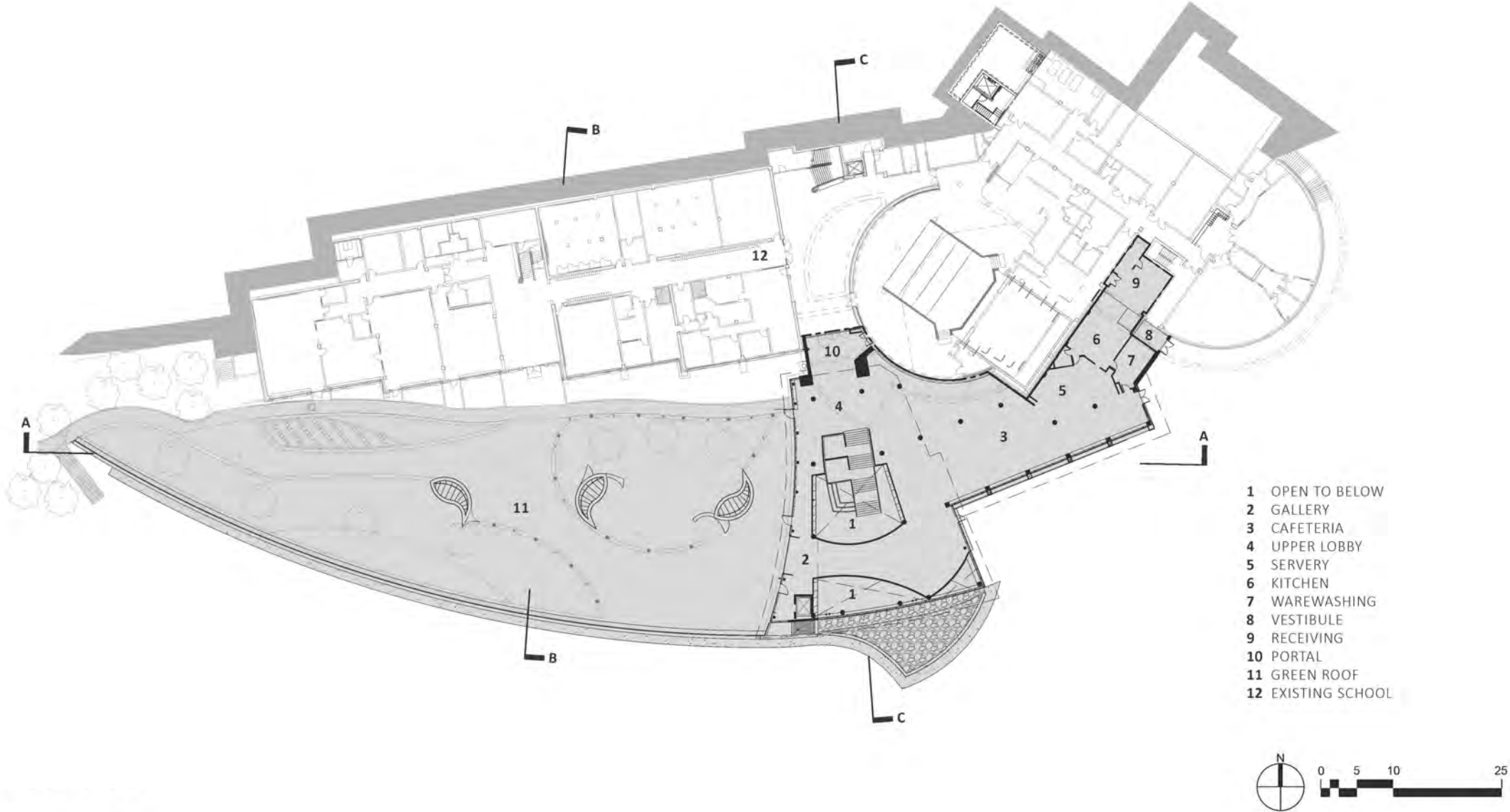
Lower Floor Plan



- 1 ENTRY PLAZA
- 2 MAIN LOBBY
- 3 CAFE
- 4 RECEPTION
- 5 ADMISSIONS OFFICE
- 6 STORAGE
- 7 MVP SHOP
- 8 CLASSROOM - ENGLISH
- 9 CLASSROOM - MATH
- 10 CLASSROOM - STUDIO
- 11 CLASSROOM - VIEWING
- 12 CLASSROOM - LANGUAGES
- 13 CLASSROOM - SOCIAL STUDIES
- 14 CLASSROOM - OUTDOOR EDUCATION
- 15 SENIOR ACADEMIC CENTRE
- 16 SEMINAR ROOM
- 17 LEARNING HUB
- 18 OPEN OFFICE
- 19 MEETING ROOMS
- 20 MECHANICAL & ELECTRICAL ROOM
- 21 EXISTING BUILDING
- 22 EXISTING SCHOOL ABOVE



Upper Floor Plan





Adaptable and Flexible

Flexibility to easily adapt to changing education delivery occurs on three basic levels within the school. The first is at the macro level where the concrete structural system creates unrestricted future reconfiguration of spaces with a context of concrete columns and structural slabs. This system choice will facilitate dismantling and shifting wall locations in the future, as need arises. This is further supported by centralized locations for servicing stacks.



The Graham and Angela Lee Family Atrium

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SCHOOL

Inspired by village plazas, the entry space offers ample opportunities for impromptu connections, performances, presentations, social interactions, visual connectedness, and intuitive wayfinding.



Adaptable and Flexible

The second level of flexibility is in the numerous movable partitions which allow space to be manipulated to suit education delivery demands. Rooms can be combined or made small as the need arises. This adaptable space approach is further supported by the numerous breakout / study rooms of various sizes, spread out within the Senior School.

The third level of flexibility rests with the furniture selection. Furniture heights vary, giving students a choice in what is most comfortable for them. In addition, all furniture is on wheels, making its rearrangement easy and fast, allowing learning to be dynamic and immediately responsive to the need for individual study, small group study or large group study..

Classrooms and common areas include a range of surfaces and seating to engage students, support their comfort to facilitate stimulation and interest, along with a variety of learner preferences.

Physical Environment



Main entrance, featuring glu-lam structural components and linear wood soffit, with new lobby featuring a cross-laminated timber roof deck and glu-lam structure.



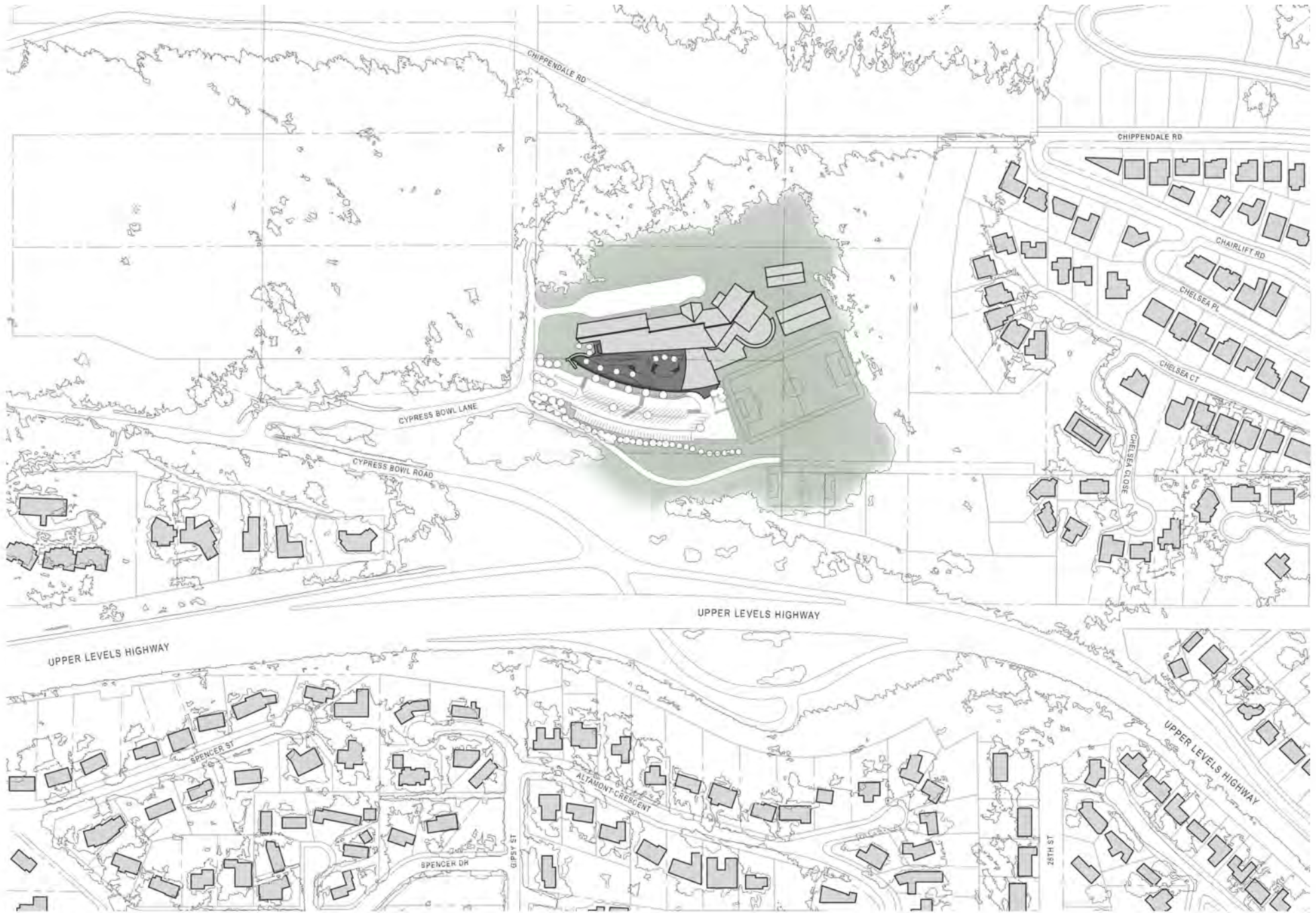
How Does the Facility Fit Within the Larger Context of the Community

This design solution responds and contributes to the surrounding community by:

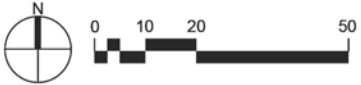
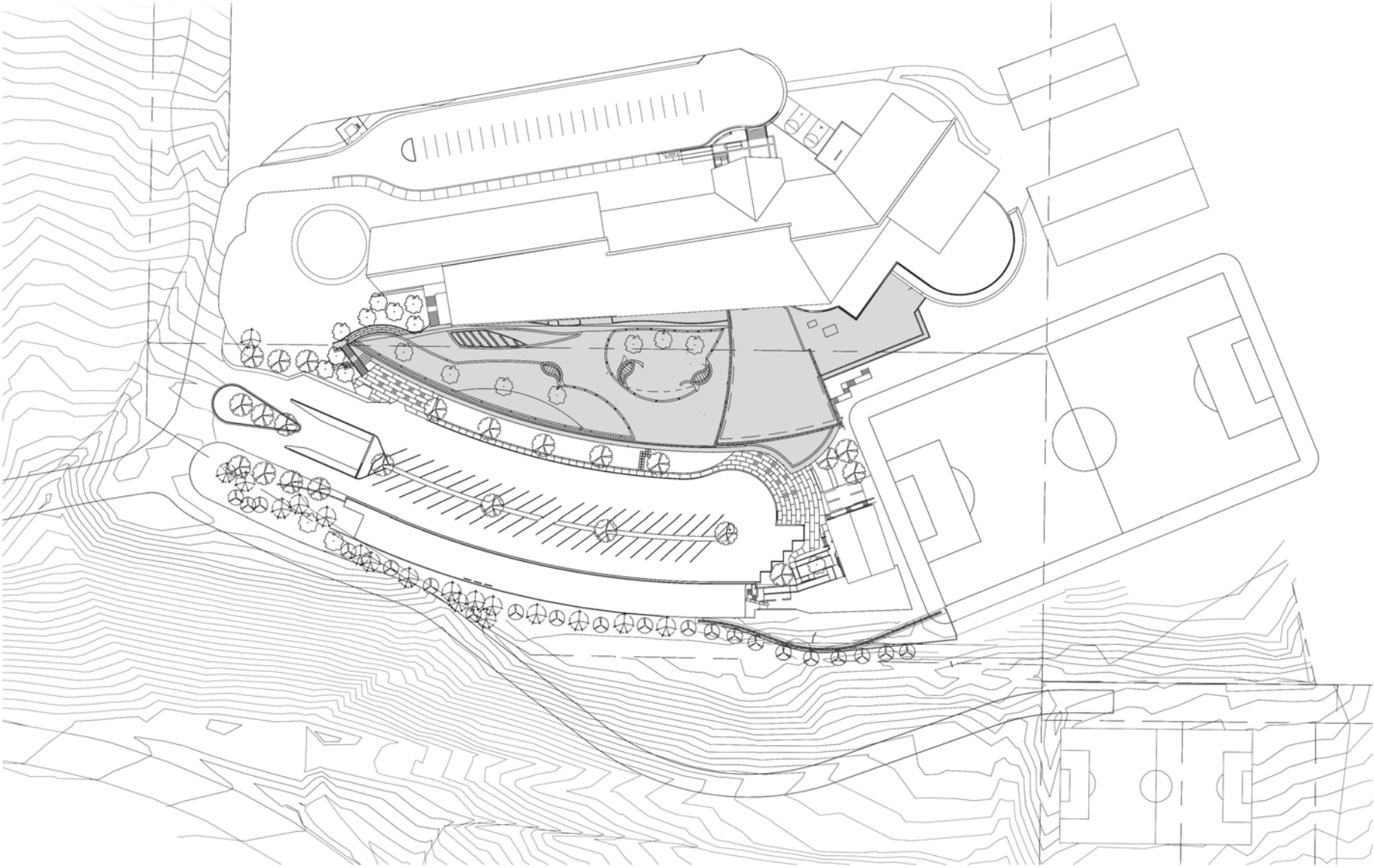
- Located so as not to obstruct views from uphill residential properties.
- Located to create a new entry to the school and resolve traffic and parking issues that have plagued the school over the years.
- Creates an attractive venue that host community events and activities.
- Creates an intensive green roof for student, staff and facilitated community use.
- Its siting makes it virtually invisible from properties down slope from it.
- The location of the Senior School did not interfere with existing stands of trees, maintaining Mulgrave's forested context and further enhanced it with additional planting.



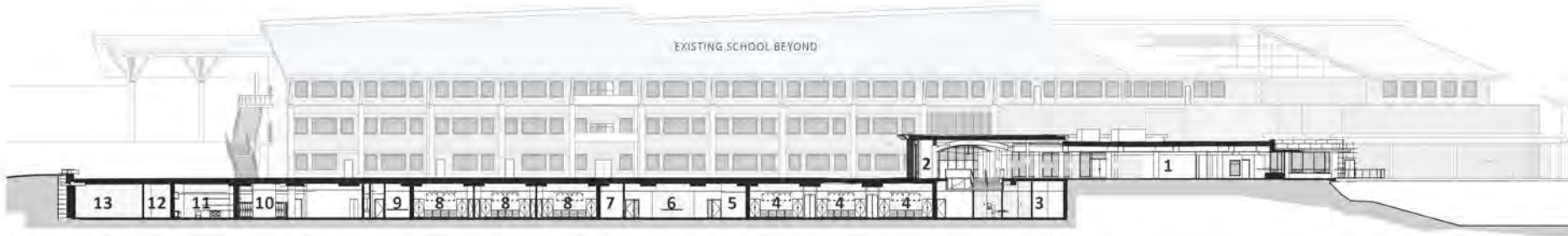
Site Plan



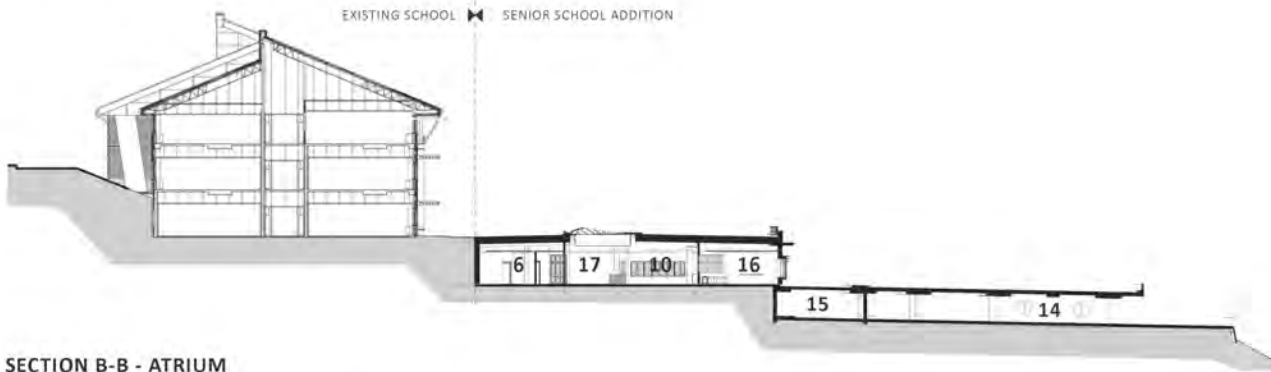
Roof Plan



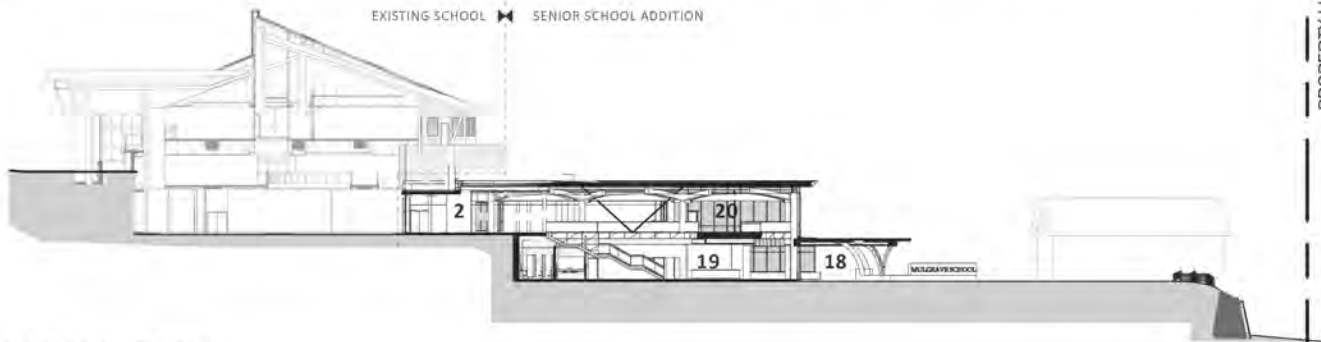
Building Sections



SECTION A-A -



SECTION B-B - ATRIUM

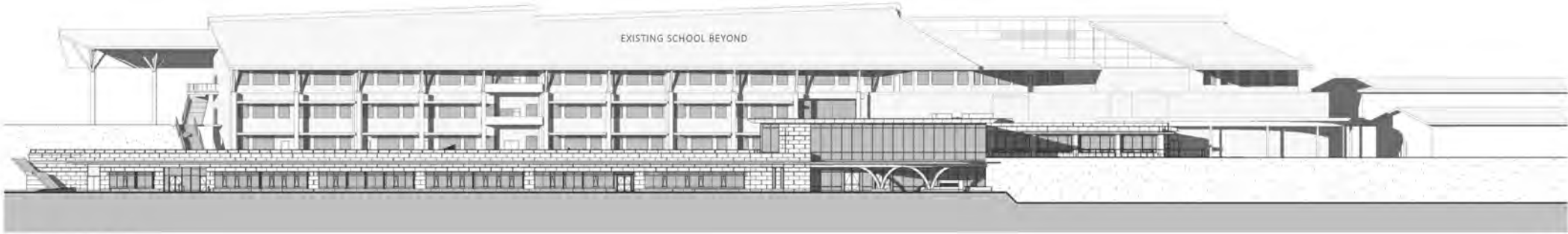


SECTION C-C - ATRIUM

- 1 CAFETERIA
- 2 UPPER LOBBY
- 3 STORAGE
- 4 CLASSROOM - ENGLISH
- 5 SENIOR SCHOOL ADMIN
- 6 OFFICE
- 7 HIGHER EDUCATION OFFICE
- 8 CLASSROOM - MATH
- 9 SEMINAR ROOM
- 10 ARTERY
- 11 CLASSROOM - OUTDOOR EDUCATION
- 12 ELECTRICAL
- 13 MECHANICAL
- 14 COVERED PARKING BAYS
- 15 STUDENT DROP-OFF & PICK UP
- 16 CLASSROOM LANGUAGE
- 17 CENTRAL LEARNING HUB
- 18 ENTRANCE CANOPY
- 19 MAIN LOBBY
- 20 BRIDGE



Exterior Elevations



SOUTH ELEVATION



WEST ELEVATION



EAST ELEVATION





Inspiration and Motivation

Inspiration and motivation come from the connections that project facilitates.

- Connecting students and staff to nature – from sweeping views, to a green roof, a forested context and large expanses of windows providing both views and daylight, connecting to nature enhances both well being and the ability to learn.
- Connecting to ideas – students are provided a university like setting, where they are encouraged to discover and learn through a variety of teaching and collaboration spaces, supporting how different individuals learn. The university like setting provides students with a sense of independence inspiring them to take ownership of their education.
- Connecting to technology - Technology enabled classrooms and an advanced tech room keep students abreast of the latest technology and keep them facile with tools of tomorrow.

Results of the Process & Project



How Did the Project Achieve Educational Goals and Objectives

The design supports 21st century pedagogies and allows for flexibility to adapt to new ways of teaching and learning. The addition provides a variety of educational space. A meandering east-west artery provides an organic means of circulation with informal gathering places for studying, collaboration, and socialization.

A main artery connects the interior spaces, with flowing edges as opposed to barriers, to achieve transparency between learning hubs. Glass walls, skylights and expansive windows allow natural light to enter classrooms and corridors.



Sustainability

The building incorporates sustainable features. Passive ventilation promotes natural air flow without using mechanical equipment. The design makes the most of natural daylighting, and is equipped with occupancy light sensors. Stormwater is retained and reused for irrigation, and solar thermal panels are used for preheating hot water. The green roof provides an area of respite for students and faculty and helps reduce stormwater runoff, energy use, and the heat island effect.

A fully accessible green roof provides stormwater retention and roof insulation, and serves as an outdoor play area and learning space. The green roof creates green space in what was previously a hard surface. A low-profile, tiered amphitheatre creates seating that looks onto a temporary stage location with a spectacular background view of Burrard Inlet and beyond.



"I can attest to the immediate success of this new learning environment. Over the past few months, as our students and teachers made the rooms their own, we have seen the space encourage collaboration, independence, and a renewed focus on achieving excellence."

—John Wray, Head of School

How Did the Project Achieve Community Goals

The building hosts community events and activities. The siting is located so as not to obstruct views from uphill residential properties addressing concerns stated at project inception. Located to create a new entry to the school and resolve traffic and parking issues that have plagued the school over the years.

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Unintended Results and Achievements of the Process & Project

The process and completed project has drawn parents into the school community more so than any other time. The welcoming, warm environment with areas designed specifically for parents to use has proven to be wildly popular. At any given time during the school day, and after hours, parents can be seen in the café area adjacent the main entry with their laptops out and a cup of coffee beside them. It is not uncommon for a parent to spend a morning or afternoon working in this area, at home and perfectly comfortable. This was an intended outcome however, we did not anticipate how popular it would become.

