

DUCHESS PARK SECONDARY SCHOOL

2012 James D. MacConnell Award
CEFPI



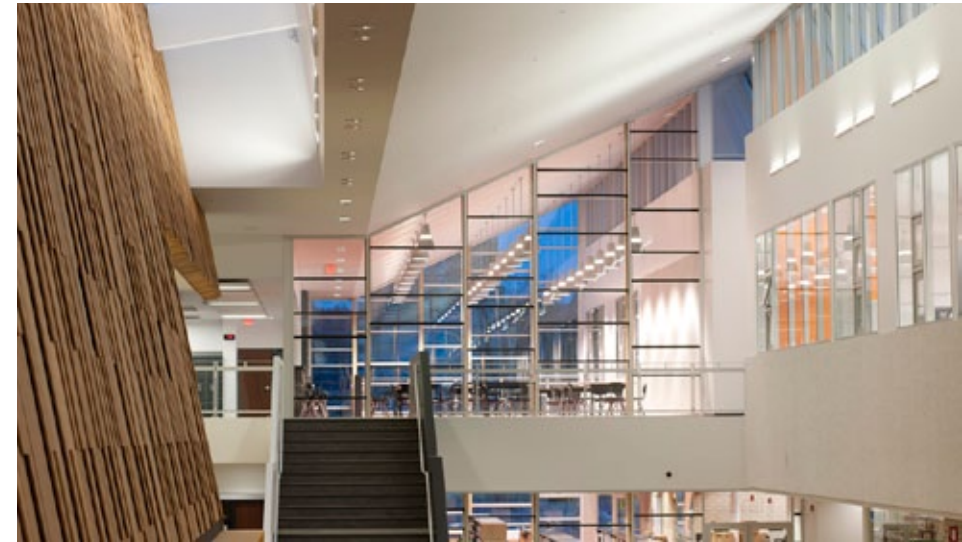
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EXECUTIVE SUMMARY

Category:	New Construction/Replacement School
Project Name:	Duchess Park Secondary School
Location:	Prince George, British Columbia, Canada
District:	School District No. 57 Prince George
Grades:	8-12
Student Capacity:	1000
Size:	11,040m ² (20% more than Ministry Standards)
Occupancy date:	March 2010
Tendering Process:	Design-Build
LEED® Certification:	Applied LEED® Gold Certification
Budget:	\$36.5m



Duchess Park Secondary School has a storied tradition in the community. It is centrally situated within an area of Prince George where history and heritage are critical considerations for any new development. In the planning stages of the new Duchess Park Secondary had to recognize this lineage and yet be state-of-the-art and modern in its design and built to meet challenges of the 21st Century learning.

The Province of British Columbia in conjunction with the local School District, Duchess Park Secondary School (DPSS) is an inner city school located on Winnipeg Street in the downtown of Prince George. The school's total population exceeds 1000 students who attend both part time and full time programs. What makes DPSS so unique is that it is a triple-track school serving mainstream, French Immersion, and Francophone (Ecole Franco- Nord) students. The student body is culturally diverse with a wide-ranging program to meet a variety of student needs.

"Duchess Park Secondary is a unique composite school. The design challenges for this school were significant. It needed to meet the educational needs of a very diverse student population. These needs include an English-based regular curriculum, a French Immersion program, a program that houses a cadre of Francophone students, a population of Aboriginal students and students with unique special needs, including those that are socio-economically vulnerable. It had to be designed and built to recognize a tradition of academic and athletic excellence. It had to include modern amenities that would support both industrial and fine arts programming. Because of its central location, a broader community use had to be considered. The project had to meet B.C. Government specifications of being LEED® Gold-certified. The Ministry of Education stipulated that a design-build method of procurement and delivery must be used. From a building owner's point of view, the new Duchess Park Secondary School has met or surpassed each of these objectives. It has become the prime feature of a community where

renewal and infill is not only a topic of discussion but a civic political platform for many.

From a building owner's point of view, the new Duchess Park Secondary School has met or surpassed each of these objectives. Since its opening in April 2010, the new school has taken its rightful place as the senior education center of the inner city. It has become the prime feature of a community where renewal and infill is not only a topic of discussion but a civic political platform for many. The City of Prince George has adopted the building and is including a community park on the grounds in its planning. The park is to be completed early 2012. Needless to say, the new Duchess Park is a worthy candidate for any program that recognizes the need to meet unique and complicated challenges."

**Brian Pepper, Superintendent of Schools
School District 57**



DUCHESS PARK SECONDARY

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PLANNING PROCESS

Through a comprehensive planning process by the local School District and a third-party consultant team, a detailed specifications and program requirements document was developed. The School District gave the design/build team a list of project objectives and desired outcomes. They can be summarized as follows:

State of the Art 900-Student Secondary School (grades 8-12)

- A triple track school with a wider variety of programming than normal for a school its size and location.

Forward-Thinking (Future-Oriented)

- The facility needs to be designed to incorporate the programs that meet the needs of a diverse school community, rich in tradition for academic and athletic excellence; a school that provides service to a cross section of clients with differing socioeconomic situations.

Value for Money

- A project that meets the Board's stated financial commitment and maximizes the value of each dollar spent to build the facility.

Integrated Services of Two Public Boards of Education

- A facility that involves the program requirements of both Prince George School District and School District No. 93 (Conseil Scolaire Francophone de la Colombie-Britannique). Integrating these environments requires a creative solution that recognizes the unique needs of an independent yet communal learning environment.

Optimized Academic and Athletic Opportunities

- A school that embraces and promotes the "success for all" philosophy, where student achievement, including athletic opportunities, is available to all of its students.

Project Completed in 2010

- Complete the Project in a timely fashion to realize benefits for students, staff and the community.



The Duchess Park Secondary School (DPSS) project is an example of a truly integrated process of planning, design and construction. The design-build arrangement ensured effective communication between the School District, construction team and the consultant team from the earliest possible stages. However, what makes the DPSS project unique is the exceptional involvement of the community in the process. The General Contractors' head office is in Prince George where it has strong ties with the community and particularly the school whose graduates are among the company's staff up to its highest ranks. Several consultants (e.g. landscape architect, civil and electrical engineers) are based in Prince George as well as the majority of subcontractors and trades. As a

result, not only was the project a boost to local economy but it also created a strong sense of belonging for almost everyone involved in the process.

As the integrated design approach produced numerous sustainability features in the building, the design team employed a number of initiatives to ensure active participation of the users (students, teachers and staff) and the local community. For example, a student focus group was formed to provide direct input throughout the design and construction. The design and construction team also constantly consulted teachers and staff. At the same time, regular tours of the construction site provided a deep understanding of the building sustainable systems

and strategies. To ensure sustainability will be an integral part of the curriculum and student activities, the General Contractor has established a 5-year sustainability scholarship to be awarded each year to a student(s) who makes a significant contribution to advancing sustainability in the school and community. The Duchess Park Secondary School building is a LEED® Gold candidate project. However, what differentiates DPSS from other buildings is a genuine interdisciplinary and inclusive approach to design, which has turned the school into a lasting legacy in the community.



"Community acceptance and appreciation for the new Duchess Park Secondary School has been extraordinary. Not only is the building exceeding the expectations of the staff, parents and students on a daily basis the community has embraced it as one of the key components of community renewal. The Board of Trustees who were involved in the process throughout have continually extolled praises for the forethought and the execution of the architectural/contractor team who delivered this wonderful building."

**Bryan Mix, Secretary Treasurer
School District 57**

Staff developed a Vision Statement that is current with their best practices and representative of the student body at Duchess Park.

Vision Statement:

"To foster an adaptive learning community that supports the growth of all learners to meet the demands of a changing world."

The school wide goal at Duchess Park Secondary is:

"Students to be able to coach themselves for improvement"

Duchess Park continues to build capacity towards becoming a Professional Learning Community where educators are committed to working collaboratively in ongoing processes of collective inquiry and action research in order to achieve better results for the students they serve.

This approach means guiding students to be more aware of and be responsible for their own learning. Learners need to have ownership of their own learning. In other words, they need to be genuinely engaged in learning and confident they can learn and think about their own learning.





SOCIAL HEART

A fundamental design concept in our proposal is the creation of the Multi-purpose room as a vibrant and versatile social heart for the school. The existence of a significant communal space cannot be overestimated. The Multi-purpose becomes a meeting place, a forum, a town plaza. This central space is critical in creating a sense of

community to this modern learning institution. Display areas allow for thematic changing exhibits, TV screens transmit latest school news and bulletins, the Library offers the latest in wireless technology... the different dimensions of interaction are almost limitless.

The most successful institutions have a strong identity and a feeling of tight community. This fosters a sense of belonging, togetherness and purpose and lessens problems with marginalization, separation and vandalism. A space that offers an uplifting yet personal environment is bound to raise the spirits of all who use it.

STUDENT DEDICATED SPACES

A school is primarily a learning community and students are its main occupants. It is important to create spaces within the design that promote and foster the best sense of recognition and identity that create a strong and vibrant community. The dedicated feature Student Union room is a bonus to the program that recognizes the value of independent student activity and growing leadership. It is very relevant that this space is given a centrally important location in the spatial hierarchy of the facility. Additional student dedicated spaces are the high recess

lounge above the Winnipeg Street entry in the academic block, and an expanded study area at the Library mezzanine. In recognition of many students bringing their healthy lunches in, a dedicated bank of microwaves is provided for lunchtime use.

A student / PAC store marks the very centre of the Multi-purpose with lockable storage for both user groups.

Designing for flexibility of uses and adaptability have been paramount throughout this proposal. Starting with the

centrally located Multi-purpose room which forms the social heart of the school, several collective spaces open into it creating a lobby / mingling space / gallery for a variety of functions. The Multi-purpose room is large enough to adapt to small performances, readings, video screenings, lunch concerts, career fairs, as well as serving as a study hall, break out space and cafeteria. The feature Student Council room and Student /PAC Store also open to the Multi-purpose.

"Today in my semi-regular scan of your wonderful building, I noticed with interest the benches you have built on the second floor student lounge. They are wonderful! I love the large beam-like construction and believe they are yet another thoughtful wood addition to the new school. As a former principal, I know the students will make good use of these window seats - can't think of a better place to read or chat with friends - I can visualize young people sitting and laying on the benches as they soak up the spring sunshine through the windows. What a great collegiate experience!"

Brian Pepper, Superintendent of Schools
School District 57

EDUCATIONAL COMPONENT

As a state of the art educational facility with a strong sustainability agenda, the building itself serves as a modern educational tool. Provision has been made for an educational display of the project's sustainability features near the Main entrance. However, the most tangible experiences will be the day to day reminders the building users get when using the building, from the waterless urinals, to the showers with auto shut-offs, or just observing the lighting being automatically shut off or on based on the amount of daylight available.

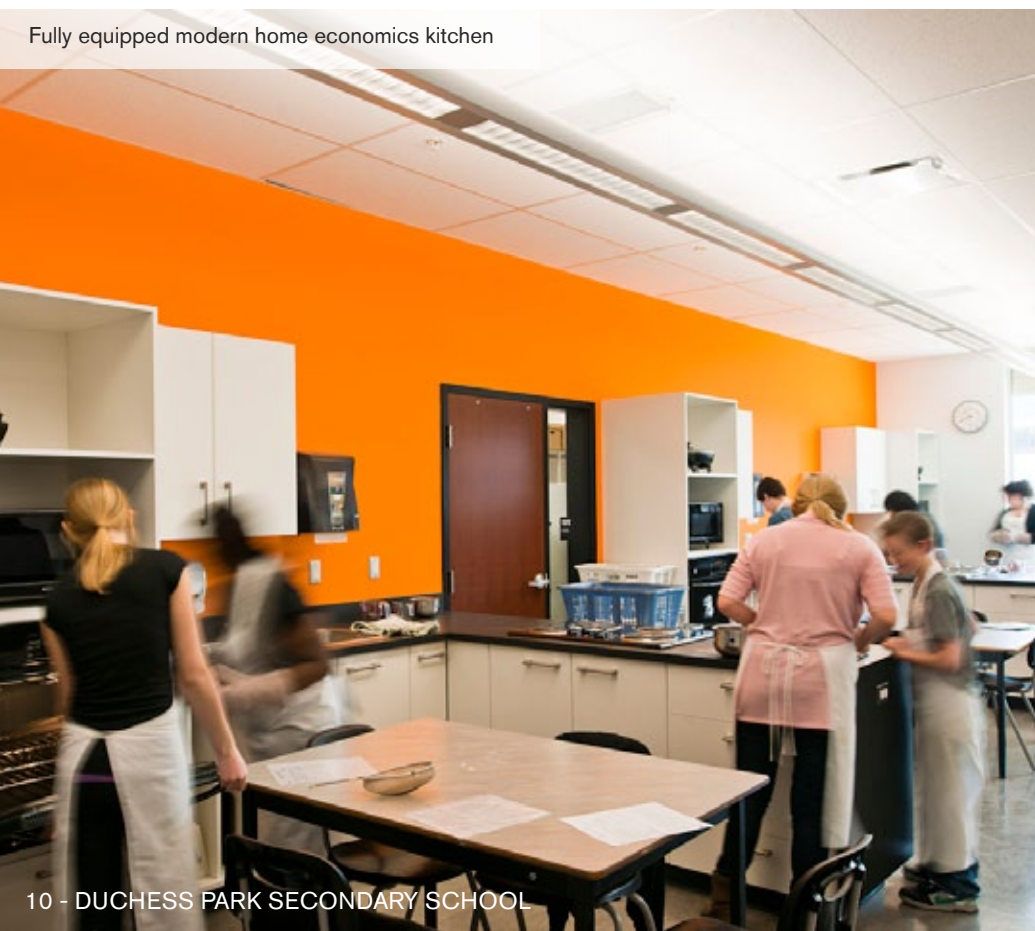




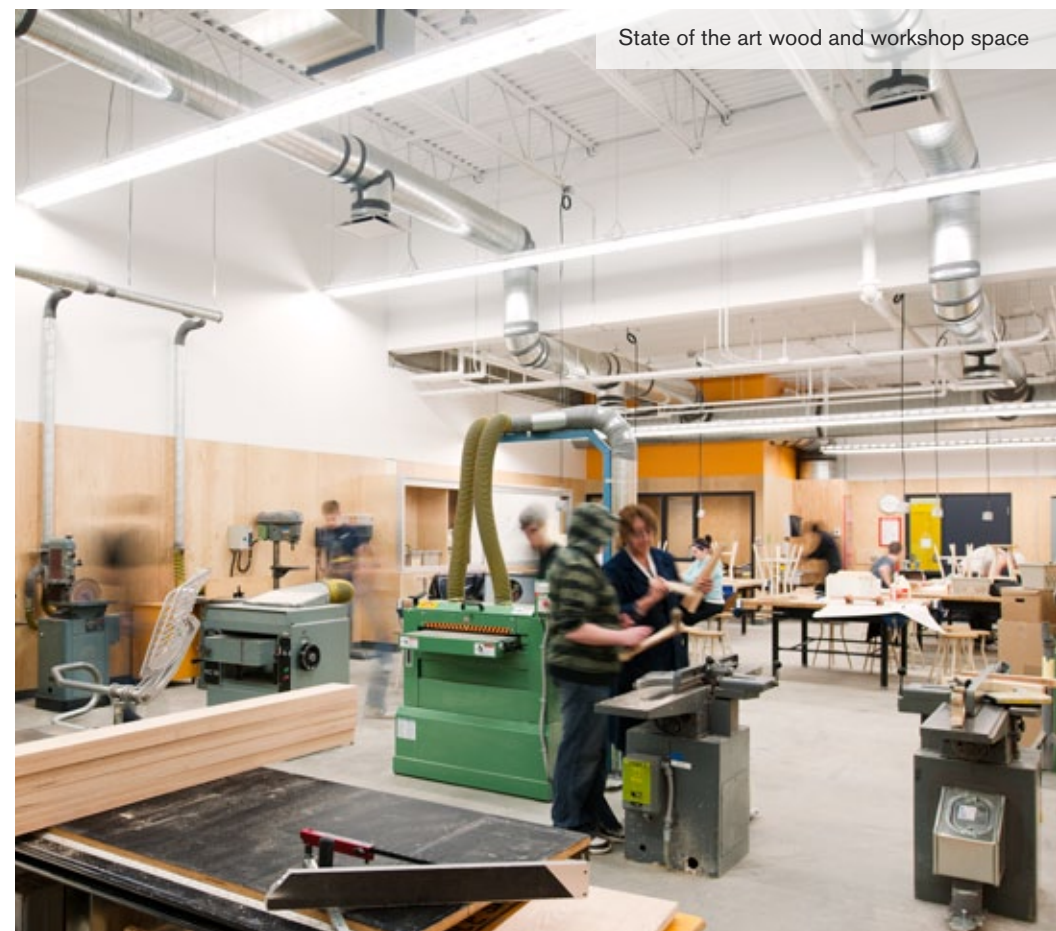
Naturally lit library with large glazed north-facing wall and east skylight.



High-tech performance theatre designed for universal accessibility

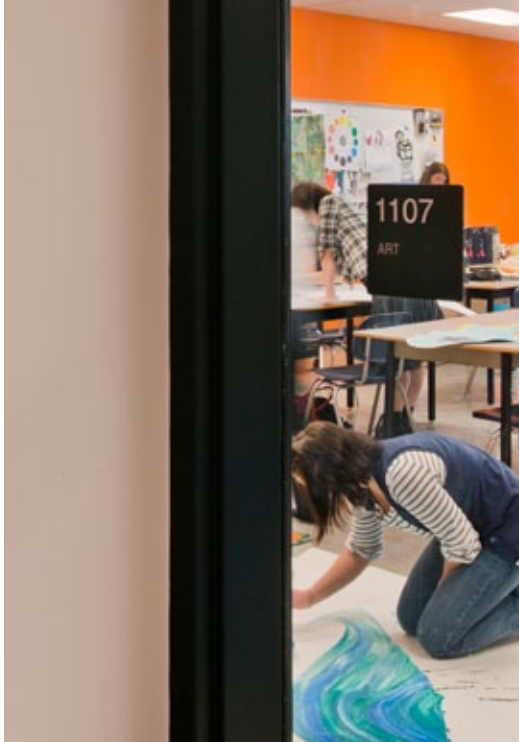
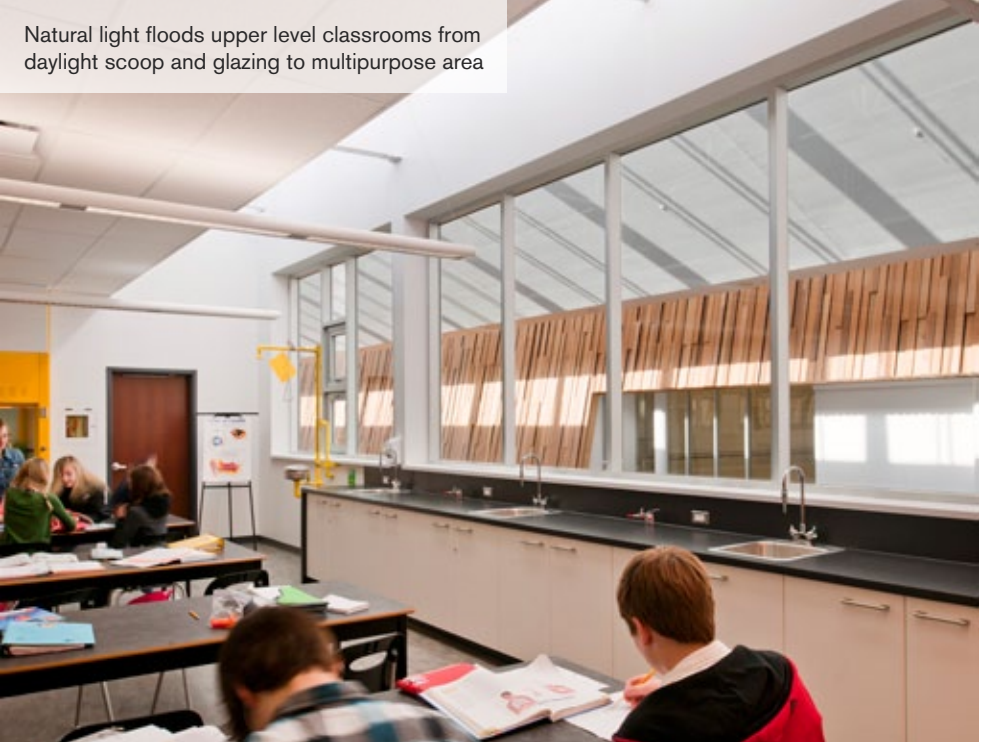


Fully equipped modern home economics kitchen



State of the art wood and workshop space

Natural light floods upper level classrooms from daylight scoop and glazing to multipurpose area



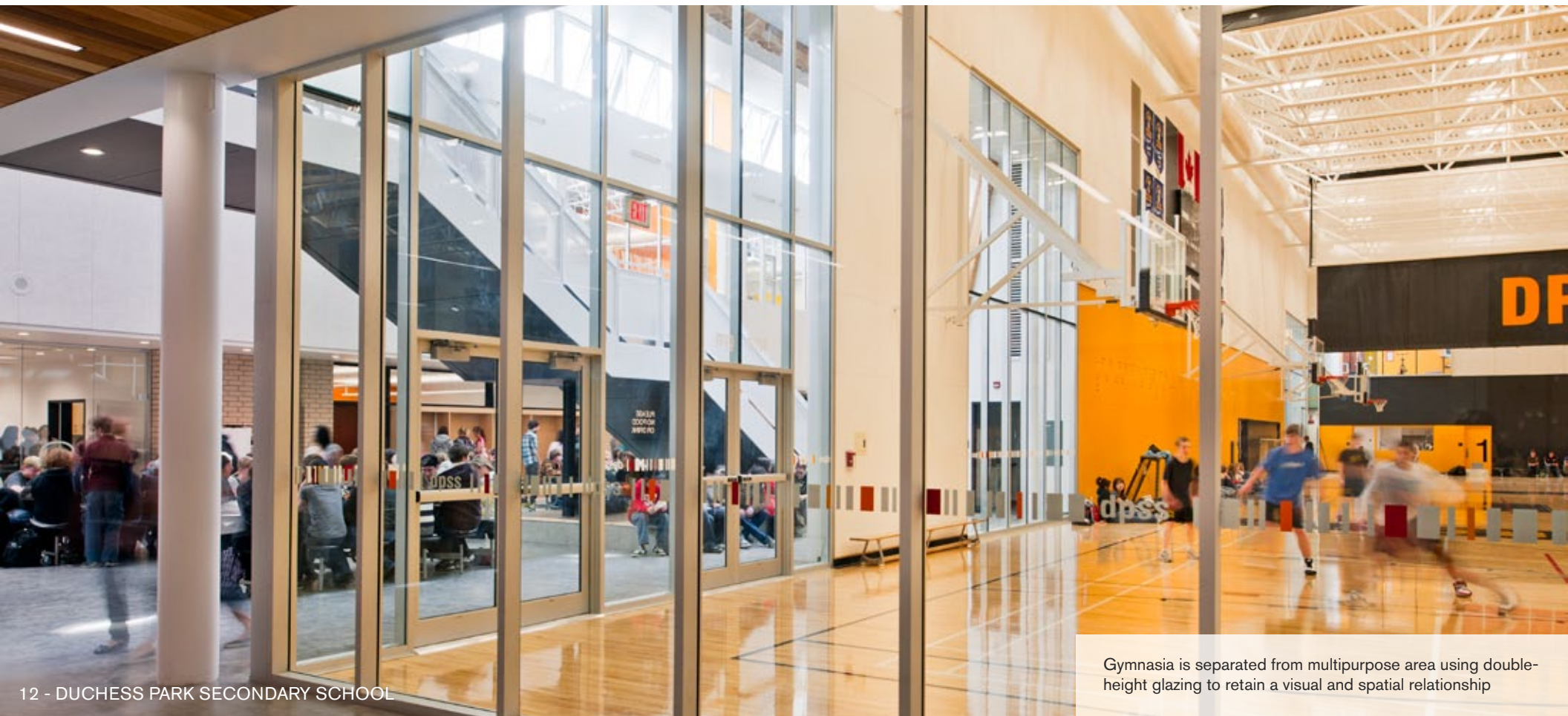
Light sensors automatically adjust interior lights based on amount of natural light in the space.





SHOWCASING ATHLETICS

DPSS is a school with a distinguished and long standing record of athletic achievement. Alongside with providing brand new, top of the line facilities for the academic programs and hosting AA tournaments, the Physical Education spaces have been given special emphasis in the design. A third Gymnasium adds area to the main instructional space, which is centrally located with direct visual and circulation access from the Multi-purpose. Electronic score board and shotclock set have been included over and above the minimum requirements as a way to highlight a positive competitive spirit. An additional fitness room provides for stretching and weight training, and a dramatic 30-foot climbing wall can be installed to the North wall of the Gymnasium. Team-sized change rooms, ease of viewing into the Gym and special provisions for outdoor programs (both exterior accessed storage and washrooms) complete the outdoor package.

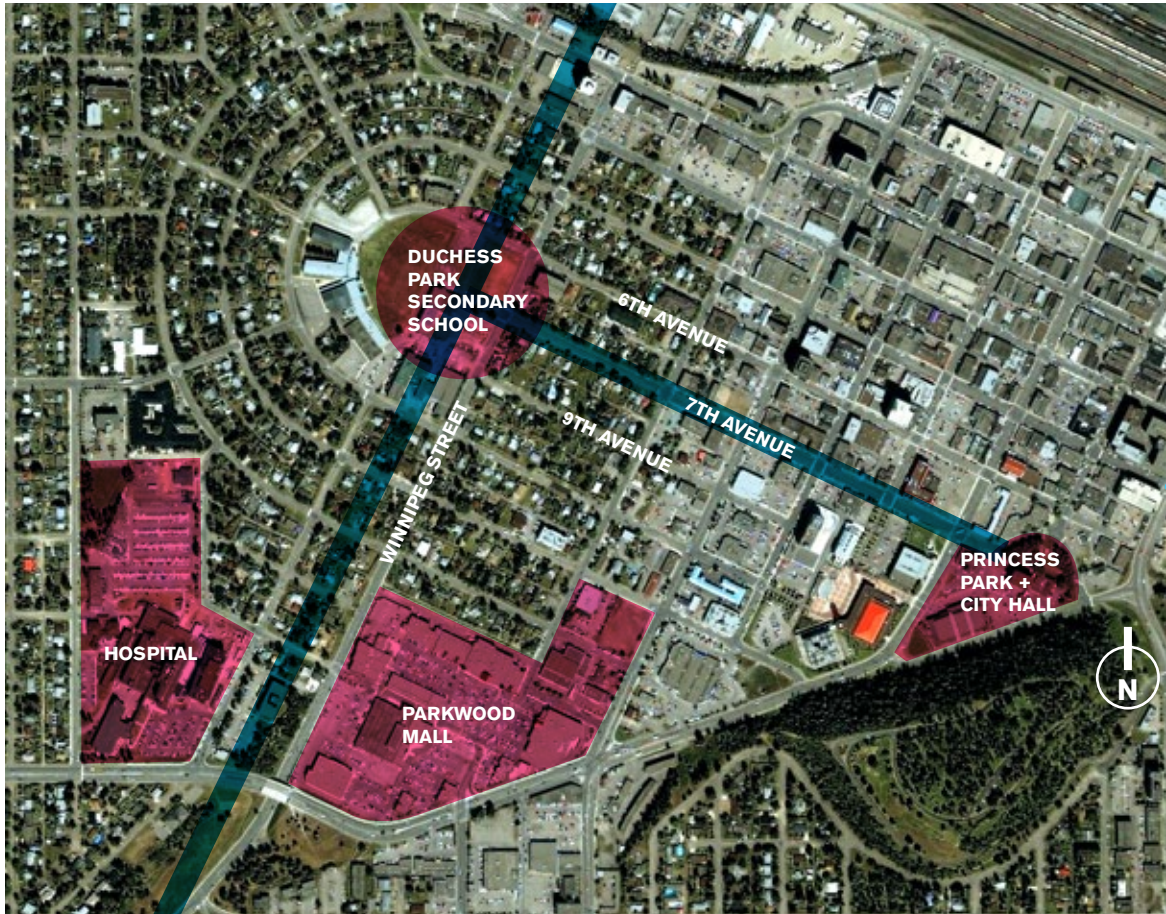


Gymnasium is separated from multipurpose area using double-height glazing to retain a visual and spatial relationship

The arrangement of the three gymnasias (side by side) allows for the entire space to be used as one large collective area or alternately three separate instructional areas separated by divider curtains.



CONTEXT OF THE COMMUNITY

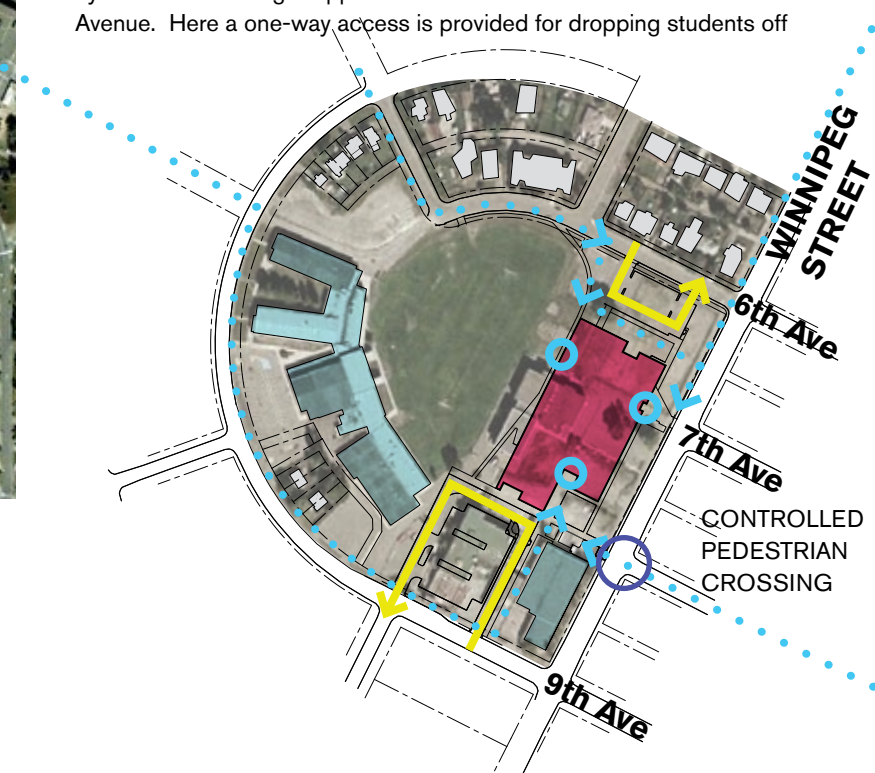


SITE DESIGN

The siting of the school provides a building fitting the end of the hierarchical urban axis along 7th Avenue. Playing fields are retained in their current location, and access to the property is provided from 9th Avenue and 6th Avenue. The site planning, orientation and massing of the school are carefully considered to provide the following benefits: prominent presence along Winnipeg Street, minimal glazing to South and West, maximizing optimal classroom exposure to North and East, utilizing the natural slope of the site (2nd floor access to Fields), pulling in the first floor along Winnipeg to create a covered walkway along the front of the building as well as shading the first floor windows, and creating an outdoor student space between the new school and the existing Soccer building.

ARRIVAL

The layout of the site has been designed for minimal conflict between vehicles and pedestrians. Buses enter the site off 9th Avenue and can align with the access door exiting and picking up students directly from a generously wide sidewalk that is on axis with the South entry. Students do not need to walk between buses to reach the school. Students arriving by car – either being dropped off or in their own vehicle will enter off 6th Avenue. Here a one-way access is provided for dropping students off



DESIGN CONCEPT

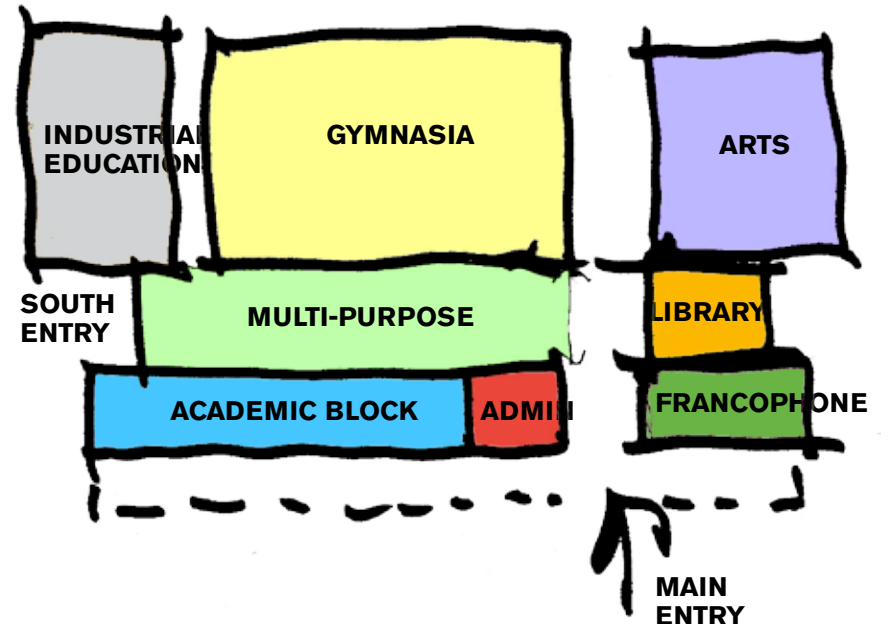
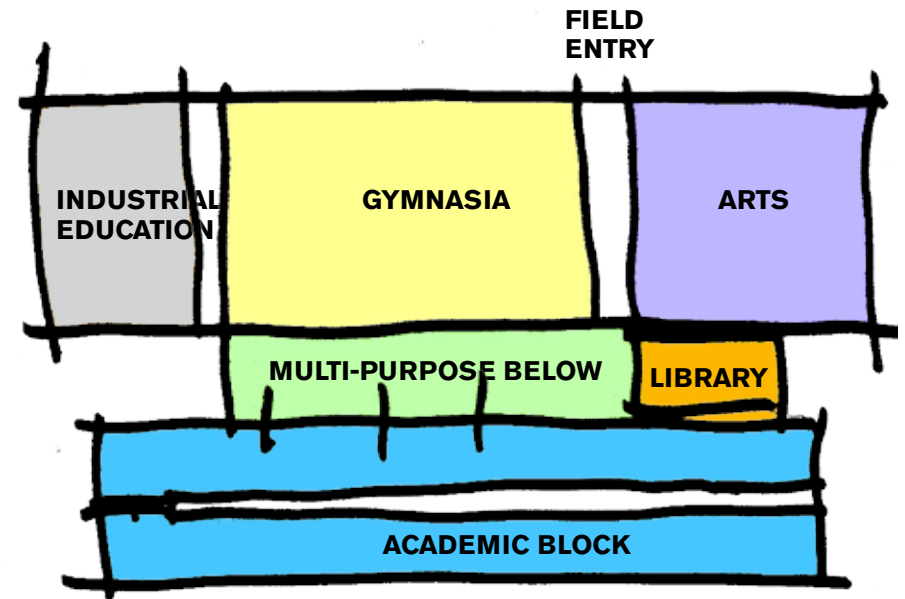
The approach for the design of the school can be summarized in the following points:

1. *Clarity of organization*
2. *Compact configuration*
3. *Creation of a "Heart" for the school*

The design has been developed to create clarity in program relationships that is helpful in the legibility of the school as a whole. Double height spaces such as the Gymnasia, Shops, Drama and Band are placed together with their massing mitigating the grade change from Winnipeg to the playfield's higher elevation. The Academic spaces are grouped along the East to not only capture the morning daylight but to create a formal frontage to Winnipeg Street that gives the opportunity to express a modern structure that is clearly a school. Upon arrival within the main entrance to the school, the layout of the public areas is clear. The multipurpose space is central to the School. From this entrance point, the location of the Gymnasium, Library, Student/PAC Store, Drama Theatre, Classrooms and Sports Fields are visible. This clarity in the organization of program allows students, faculty and visitors to find their way intuitively without additional directing.

Overall, the integrated design team favoured a compact configuration for the school which reduces the building envelope which in turn reduces heat loss (in winter) and heat gain (in summer). This compact configuration and the collective placement of the large over height spaces realize efficiencies in mechanical and electrical design and simplify the structural design.

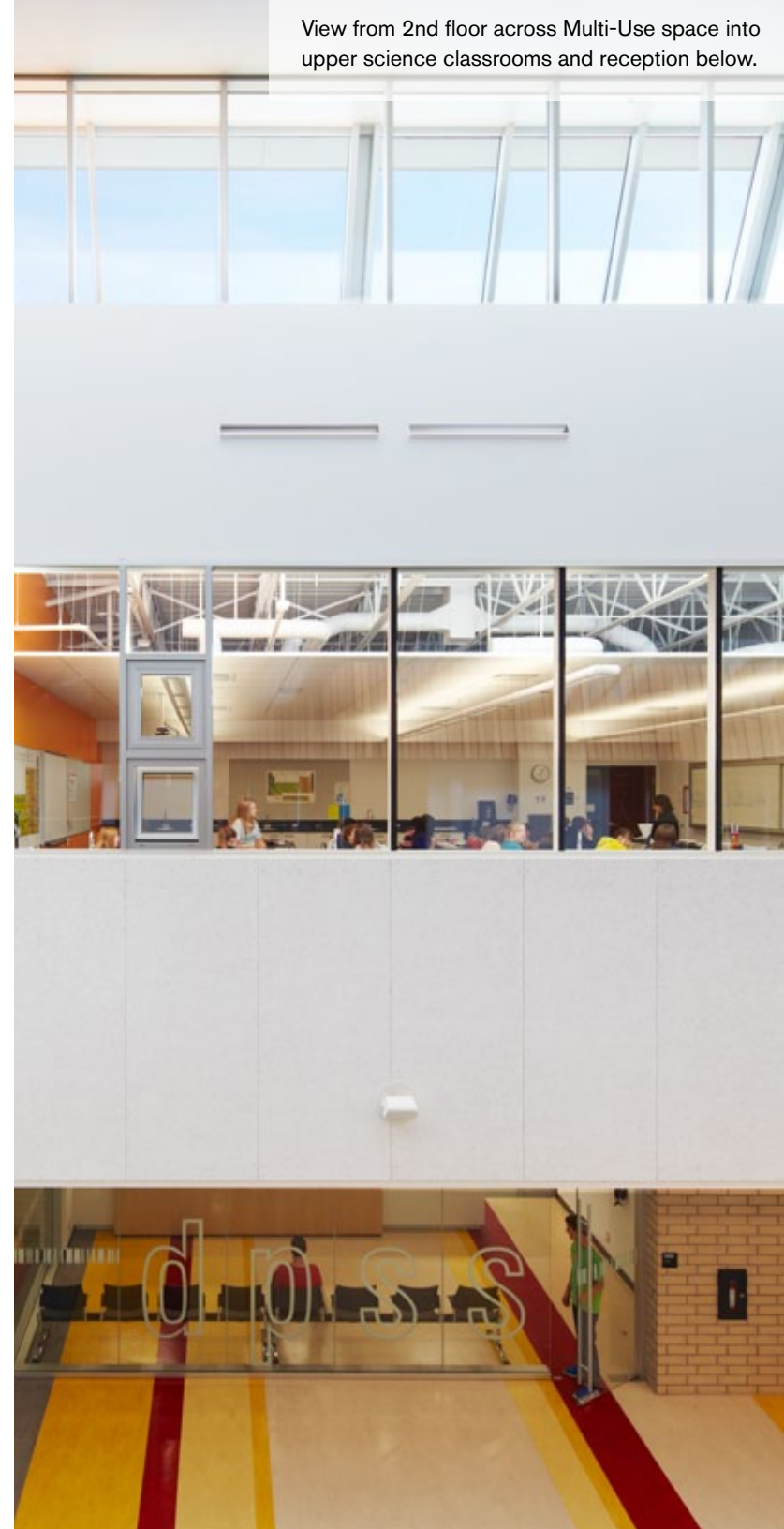
It was a goal of the design team to create a "Heart" for the new School that would give a spatial identity to the School's philosophy of "success for all". We envision this "Heart" as a place where all students feel welcome to meet, greet, eat, study, play, perform, promote, debate, observe and learn in a memorable place.

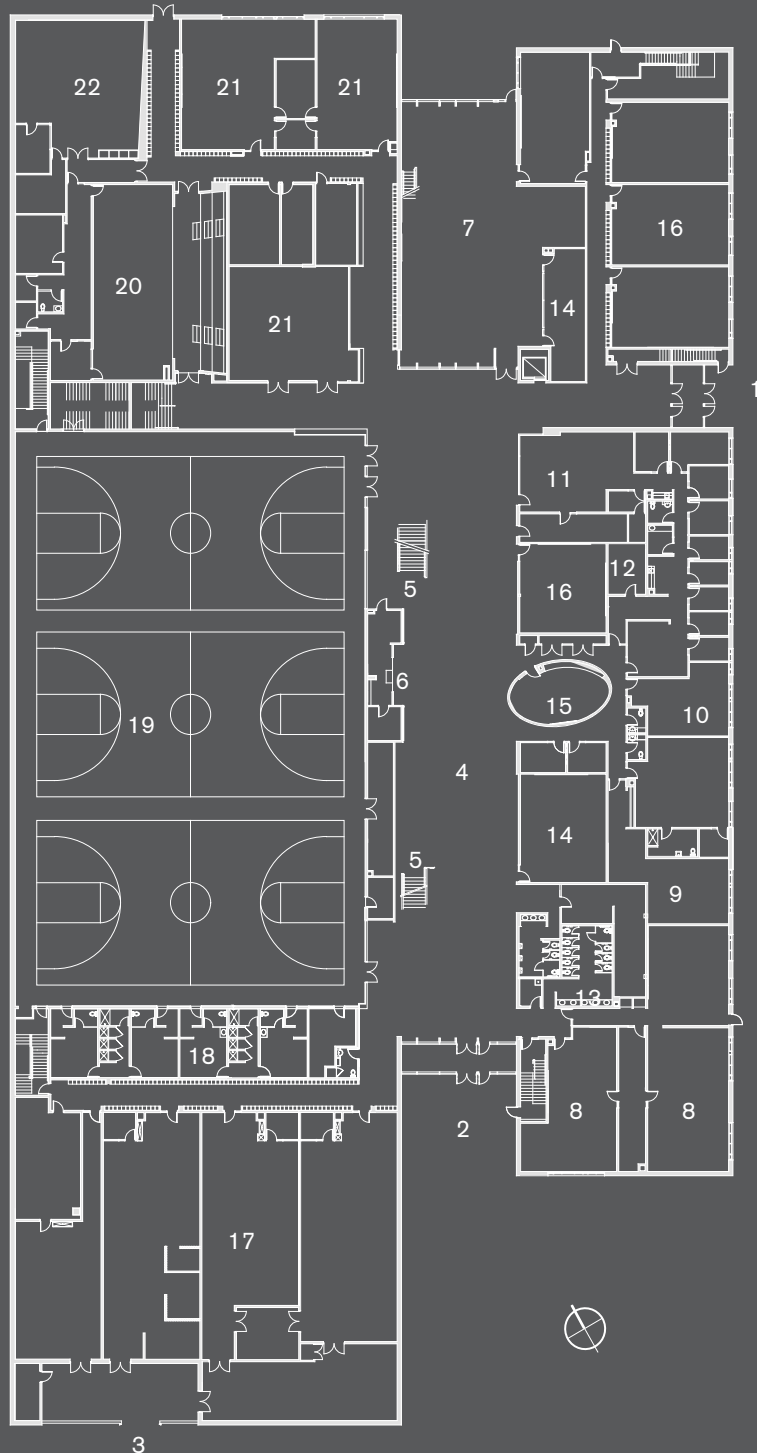


2nd floor library space.



View from 2nd floor across Multi-Use space into upper science classrooms and reception below.





GROUND FLOOR

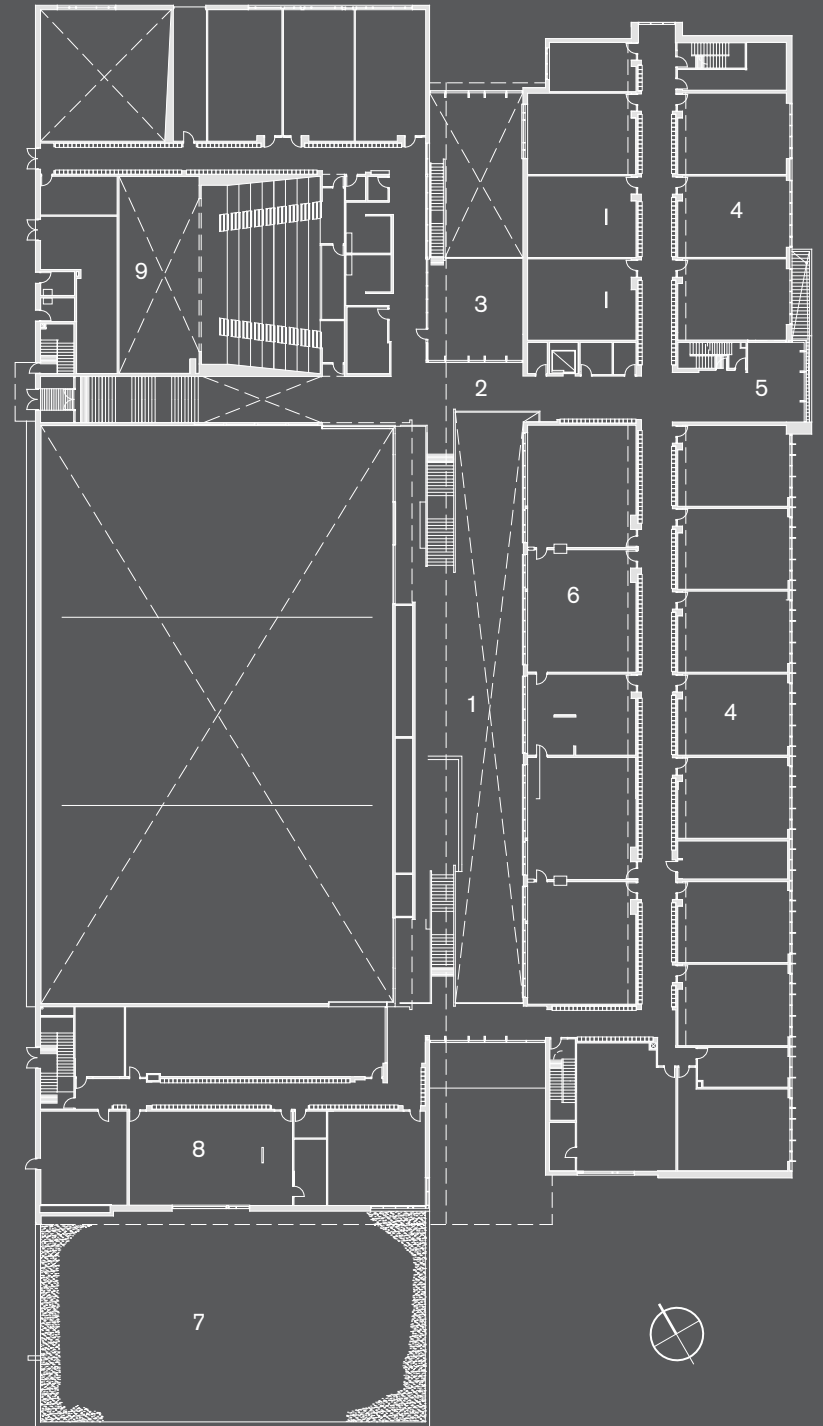
- 1 Main Entrance
- 2 South Entrance
- 3 Woodshop Supplies Entrance
- 4 Multipurpose
- 5 Stairs to 2nd Floor
- 6 PAC Store
- 7 Library
- 8 Home EC Classrooms
- 9 Staff Room
- 10 Learning Assistance
- 11 Reception & Offices
- 12 Records
- 13 Restroom
- 14 Computer Classrooms
- 15 Boardroom
- 16 Classrooms
- 17 Shop Classrooms
- 18 Change Rooms
- 19 Gymnasium
- 20 Theatre
- 21 Arts Classrooms
- 22 Double Height Band Room
- 23 Francophone Classrooms





2ND FLOOR

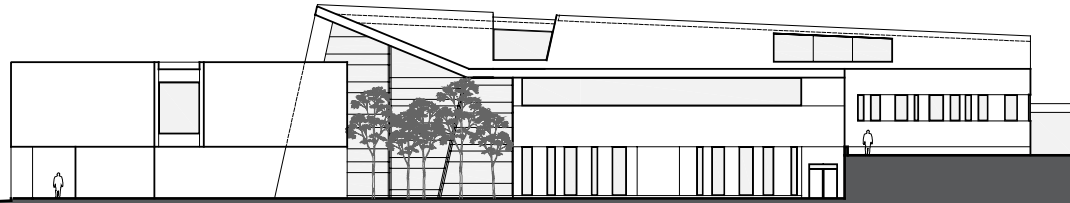
- 1 Multipurpose (Below)
- 2 Bridge
- 3 Upper Library
- 4 Classrooms
- 5 Student Lounge
- 6 Science Classroom
- 7 Roof of Shops
- 8 IT Classrooms
- 9 Theatre



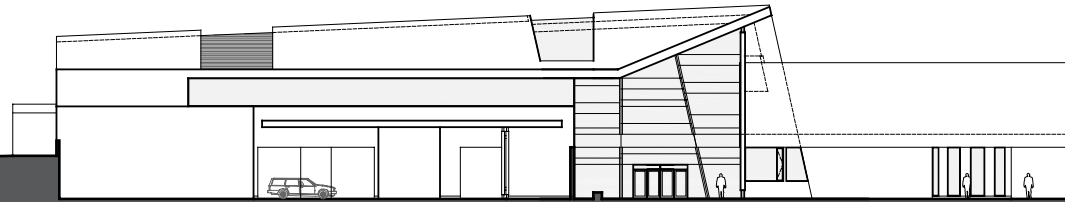
The building is designed as a modern feature public building. The location in the historically significant park is important, as is the termination of the 7th Avenue axis. Materials for the school include fired brick, painted concrete block, anodized aluminum, clear glass, and cementitious fibre panel as well as prefinished metal cladding.



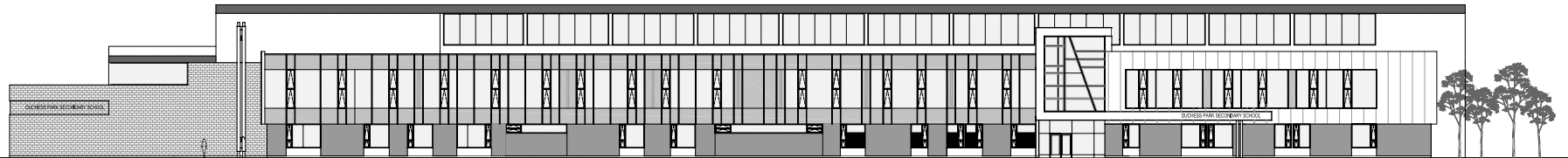
ELEVATIONS



NORTH ELEVATION



SOUTH ELEVATION



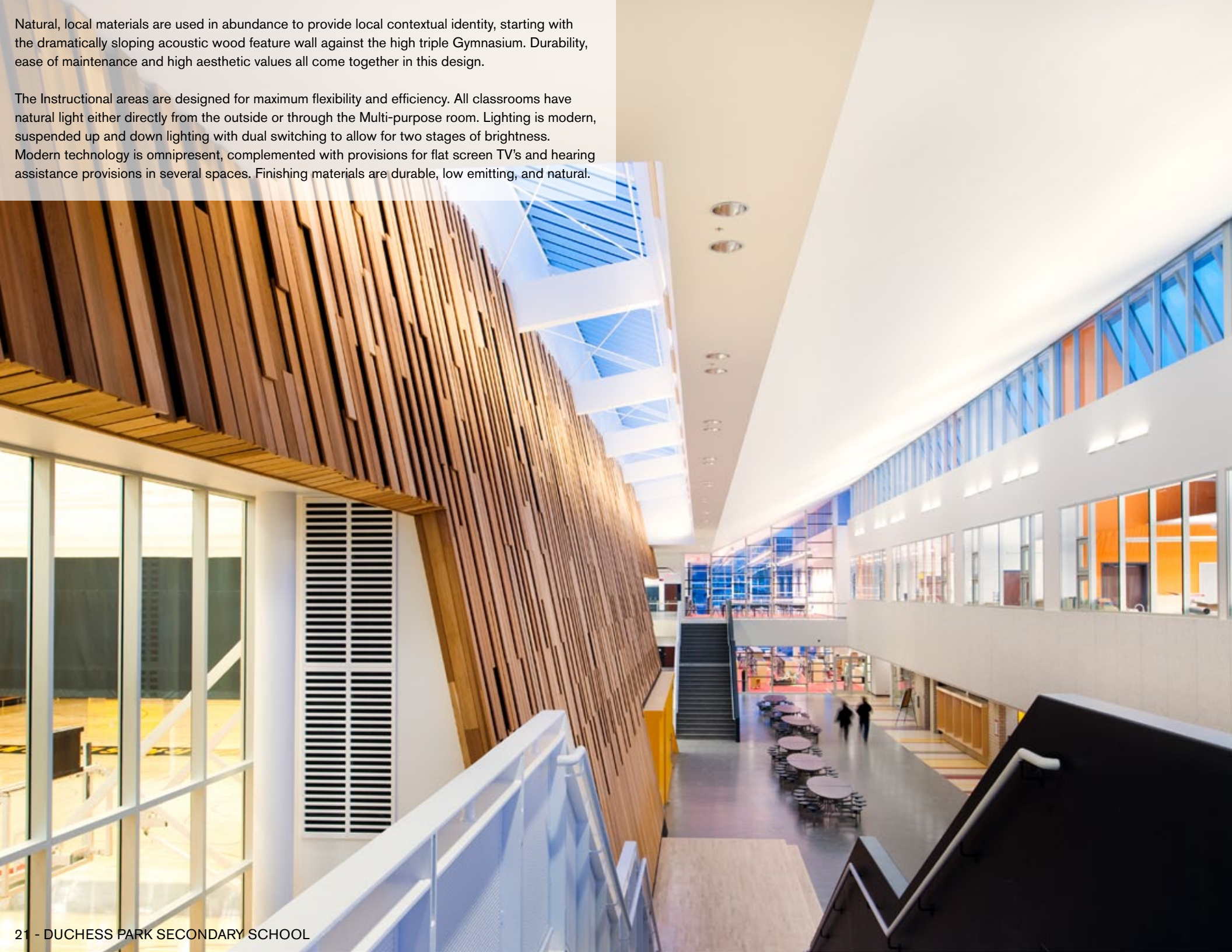
EAST ELEVATION



WEST ELEVATION

Natural, local materials are used in abundance to provide local contextual identity, starting with the dramatically sloping acoustic wood feature wall against the high triple Gymnasium. Durability, ease of maintenance and high aesthetic values all come together in this design.

The Instructional areas are designed for maximum flexibility and efficiency. All classrooms have natural light either directly from the outside or through the Multi-purpose room. Lighting is modern, suspended up and down lighting with dual switching to allow for two stages of brightness. Modern technology is omnipresent, complemented with provisions for flat screen TV's and hearing assistance provisions in several spaces. Finishing materials are durable, low emitting, and natural.



ENVIRONMENTAL

The project's sustainable features are numerous and diverse in range. Providing visual and thermal comfort as well as excellent indoor air quality was among the top design priorities. Students, teachers and staff enjoy ample daylight in classrooms and various other spaces in the building. In-floor heating, double-glazed Argon-filled windows and a well-insulated building envelop ensures a thermally consistent environment. Operable windows and CO2 sensors combined with an effective ventilation system, guarantee access to fresh air throughout the year while the installation of low-emitting materials and finishes has minimized the amount of indoor pollutants.

ECONOMIC

Employing various energy efficiency measures has resulted in a building that saves 58% in annual energy costs and reduces its CO2 emissions by 460 tons per year (compared to a reference building defined by Canada's Model National Energy Code for Buildings). These strategies range from a high-performance building envelope, a ground-source heat-pump system and heat recovery units, to a 44% more efficient lighting system. In terms of water, low-flow fixtures and dual-flush toilets contribute to 30% savings in potable water use in the building. Meanwhile the use of potable water for irrigation has been reduced by 63%. Although located in the northern region of Canada and far from major manufacturers of building materials and products, regionally sourced materials, FSC-certified wood and materials with high-recycled content were extensively used in the project. Regional materials constitute over 10% of the project's products and the recycled content of the materials exceeds 20%.

SOCIAL

A fundamental design concept is the creation of a multi-purpose space as a vibrant and versatile social heart for the school. Upon arrival, the layout of the public areas is clear. Students, faculty and guests of all ages quickly feel at home and can find their way intuitively and without direction. The multi-purpose space becomes a meeting place, a forum, a town plaza – a space that promotes and fosters a sense of recognition and identity that creates a strong and vibrant learning community.

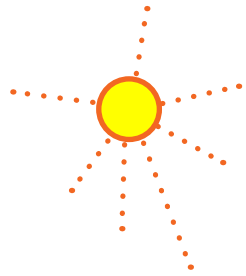
"A simple way of picturing sustainable development is to think of it as a stool with three legs, representing the environment, the economy and society. If any leg is more or less important (i.e., shorter or longer) than the others, the stool will be unstable (but perhaps still usable— at least for a while). If any leg is missing, the stool simply will not work. But if all three legs are the same length (i.e., environmental, economic and social considerations have been given equal weight), the result will be a well-balanced stool which will serve as a sustainable stool."

Scottish Environment Protection Agency 2002

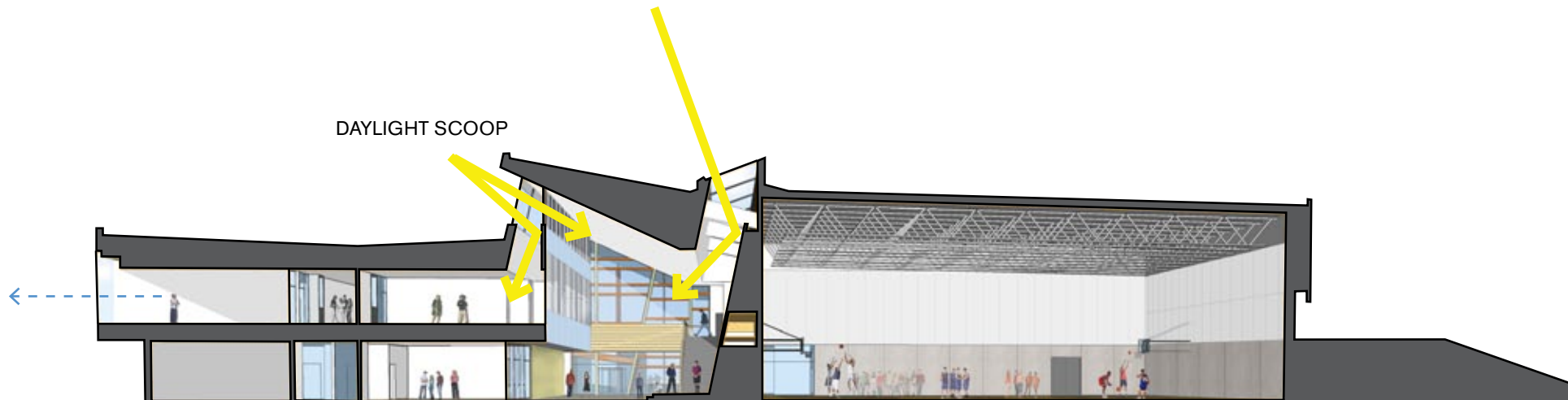


Abundant natural light is introduced into the Multi-purpose space through the use of a glazed ceiling, and interior classrooms are lit with a light-scoop that reflects natural light.

The airy, light-filled Multi-purpose room unites the school between the Academic block and Gym / Shops / Art wing and terminates in the two storey Library in the North. Individual program areas for Conseil Scolaire Francophone, Business Education, Home Economics, Science and Special Education have all been provided in the academic block, and Art (Music / Drama / Fine Art) and Industrial Education are adjacent to the Gymnasium.



Daylight scoop enriches interior spaces with natural light and glazing provides views to multipurpose room below and wood feature wall.





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