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Sustainable Features Summary

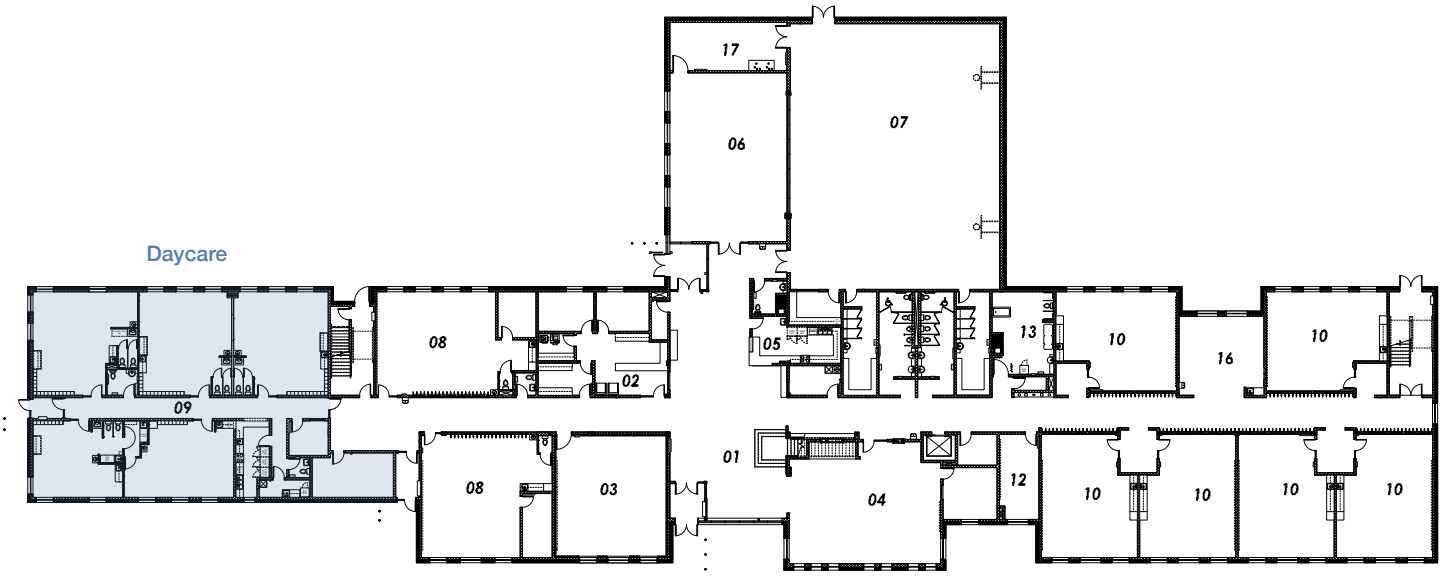
ÉCOLE RIVIÈRE-ROUGE

SEVEN OAKS SCHOOL DIVISION
55 SWINFORD WAY, WINNIPEG, MB

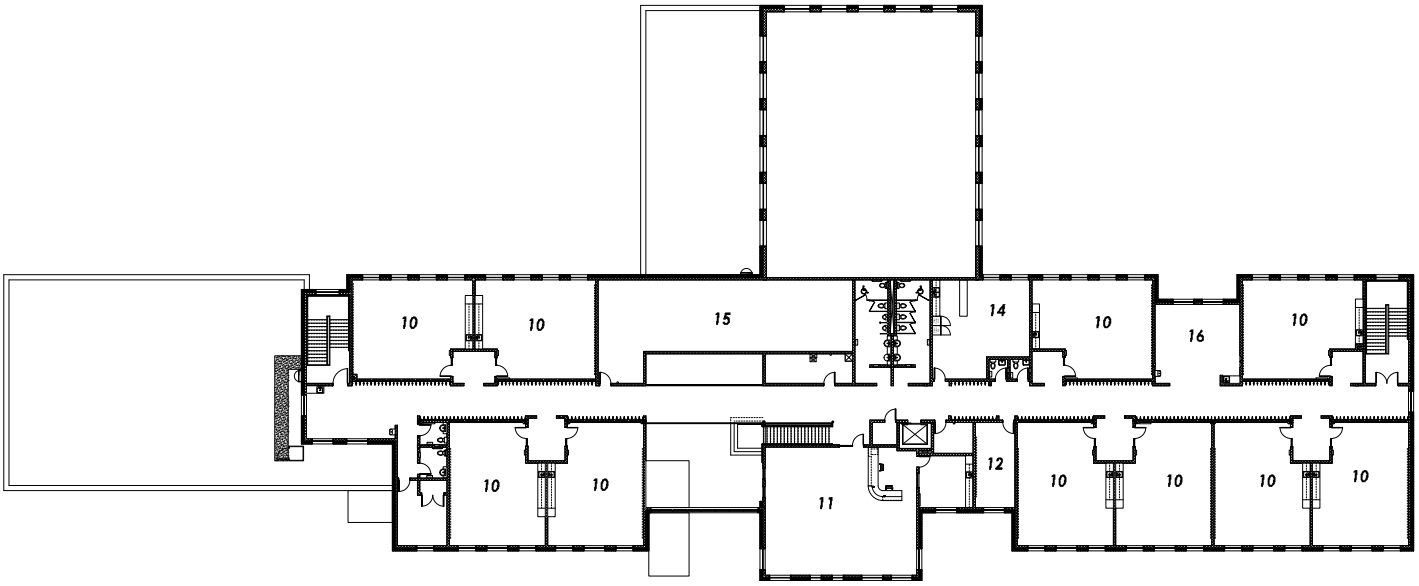
^ Front elevation and main entrance of the school.

Located in the Riverbend area within the Seven Oaks School Division, the 51,562 square foot building incorporates the expanded early learning and child care centre into the new K-5 French Immersion school. École Rivière Rouge and incorporates sustainable design features in a visible and educational manner.

This new generation of school serves dual-function as a community centre in the evenings with a design that supports and creates a welcoming environment for parents and community members in recognition of the community's diversity and cultural traditions. During non-school hours, the classroom wings can be locked off and the school can function as a community space with access to the gymnasiums, the library, the kitchen and open commons space. The school is designed with active learning in mind and inherent flexibility, which supports a variety of activities and opportunities for learning. The school opened in the Fall of 2016 and has achieved LEED Gold certification.



Main Floor Plan



Second Floor Plan

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1	Commons	6	Mini-Gym	11	Library	16	MPR
2	Admin	7	Gymnasium	12	Resource	17	Storage
3	Music	8	Kindergarten	13	Grooming Room		
4	Learning Commons	9	Childcare	14	Staff		
5	Kitchenette	10	Classroom	15	Mech.		

▲ *Looking from Entry Commons to the open Learning Commons with Library above.*

▲ *Main Entrance and Entry Commons with second storey catwalk.*

▲ *Learning Commons.*

▲ *Gymnasium with plenty of clerestory light.*

▲ *Typical classroom wing corridor with windows into classrooms.*

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▲ *Front elevation with the Learning Commons / Library front and centre.*

Following is a summary of the health, performance and environmental ***features of the building based on LEED® (Leadership in Energy and Environmental Design)*** *criteria:*

quick facts

LEED®:	LEED® Gold
client:	Seven Oaks S.D.
location:	55 Swinford Way, Winnipeg, MB
contractor:	Parkwest Projects Ltd.
consultants:	S/ Wolfrom Eng. Ltd. M&E/ MMM Group L/ HTFC
area:	51,560 SF
cost:	$15 Million
status:	Opened 2016

Integrated Design Process

École Rivière Rouge has been designed using an Integrated Design Process, whereby team members are able to advocate how system/design decisions impact their specific discipline. This results in decisions that have been critically evaluated and that aren't made without full understanding of their impact. During the design process, the project team reviewed several options for HVAC systems and compared them among many criteria, such as: energy savings, capital cost, life-cycle cost, and Greenhouse Gas emissions. The team decided on the option that eliminated the use of Natural Gas in the building, making the largest impact on Greenhouse Gas emissions projected for the project

Sustainable Sites

École Rivière Rouge (ERR) is built within the Riverbend area, sitting at the heart of a residential community. Shower facilities and bike storage have been provided for staff to encourage cycling to work, as well as bike storage to accommodate the students. The school design also includes electric-vehicle charging stations to further promote alternative transportation options.

More open space than required by zoning has been provided for the children to enjoy the natural environment, occupying over 40% of the site area. Exceeding minimum requirements, the space will remain open and vegetated for the life of the school.

Stormwater management strategies using landscape and rainwater collection address the rate and treatement of stormwater on-site.

Careful thought and planning were put into the interior and exterior lighting design, so as to reduce light pollution into the night sky and adjacent land.

Water Efficiency

The school maximizes water efficiency by capturing rainwater for flushing water-closets in the building, minimizing the use of potable water. Water use reduction of 46.12% with the use of dual flush toilets, aerated faucets, and the use of rainwater for flush fixtures.

There is no permanent irrigation equipment needed for the school's green spaces, as landscape design includes native, drought-tolerant species that will not require irrigation once established

Energy & Atmosphere

Elements of the building design were selected to maximize occupant comfort and minimize energy consumption. The HVAC system will contribute to 62% energy cost savings of compared to a baseline building designed with the Model National Energy Code for Building's standards. Mechanical design features include :

- ground source heat pump system
- high performance heat recovery ventilators
- zone radiant floor heating & chilled beam cooling
- variable speed pumps with premium efficiency motors
- low-flow hot water fixtures
- LED interior and exterior lighting
- high performance building envelope with triple glazing

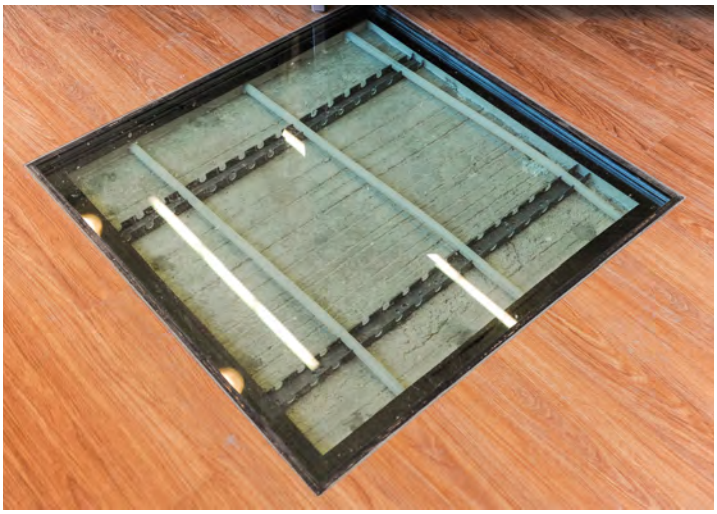
To ensure the mechanical system is functioning as the design team intended, a commissioning agent has been apart of the design process, acting as a third-party reviewer for the Owner.

To minimize the impact of the building on the depletion of the ozone layer, all systems are CFC and HCFC free, and the fire suppression system is halon free.

▲ *An example of the controls provided to each classroom.*

▲ *Outdoor Learning Environment / Rain Garden.*

▲ *A window allows students to see into the mechanical room.*



▲ *A recessed vision panel reveals the infloor heating system to students.*

▲ *Large windows bring bright light deep into all teaching spaces of the school and most other spaces as well.*

Regional Priority

Regional priority focuses on giving extra weighting to existing credits that are important to a particular region. Stormwater Management, Optimized Energy Performance, and Water Use reduction are all identified as important for urban Manitoba sites. CSA Guidelines on Durability of Buildings were adhered to during design and followed during construction.

Materials + Resources

The contractor and sustainability team have diverted 74.70% of construction waste from the landfill for reuse, recycle, or repurposing. Currently, over 15% of new materials, including rebar, concrete, and millwork, contain recycled content and over 50% of new building materials used were extracted and manufactured within an 800km radius of the project site (or transported by rail within a 2400km radius).

Over 55% of all permanently installed wood, such as the gym flooring and millwork, in the building is FSC (Forest Stewardship Council) Certified. This certification requires chain-of-custody documentation accompany wood products to confirm wood is sourced from sustainable and responsibly managed forests.

École Rivière Rouge is designed for a 60-year lifespan. A durable building ensures the selection of durable materials and components, quality control during construction, and increases the service life of the building.

Indoor Environmental Quality

École Rivière Rouge is a non-smoking building, following guidelines of the Seven Oaks School Division's no-smoking policy on all school grounds. The building has been designed with optimal ventilation that includes a 100% fresh air ventilation system to provide excellent indoor air quality for staff, students and visitors. All carpet, adhesives, sealants, paints and coatings used in the building were specifically cosen to have a low level of Volatile Organic Compounds (VOC). VOCs can cause irritating effects or health issues for the installers as well as the building occupants. All composite wood used, including plywood, MDF and particleboard, contains no added urea-formaldehyde.

An Indoor Air Quality Management Plan was in effect during construction and included measures such as covering openings in ductwork, keeping a clean worksite and scheduling to protect the indoor air quality of the building. Indoor Air Quality testing was done prior to occupancy to ensure VOC levels were

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Sustainable Features Summary

minimal to non-existant in regularly occupant spaces.

With occupant comfort of the utmost importance, outdoor air and humidity monitoring is integrated into the mechanical system controls. Classrooms and offices are designed with a high degree of controllability for users (accessible lighting and thermal comfort controls).

The school was designed so that 94% of regularly occupied spaces have views to the outdoors and that all regularly occupied spaces are receiving natural light, including the gymnasium.

Innovation in Design

A new standard by the Public Schools Finance Board (PSFB) is incorporating sustainable education into the curriculum through building design. Features of the École Rivière Rouge include a clear manifold panel showing radiant piping, wall assembly display, window view into the mechanical room, window view into the rainwater pipe, labelled pipes/beams, an outdoor learning environment, and insertion of sustainable design features into curriculum learning.

▲ *Main Entrance and Entry Commons with second storey catwalk. Structural systems and hollowcore slabs are left exposed as a teaching opportunity.*

Masonry work on the end of the classroom wing reveals different historic flood levels of the Red River.

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