

Gabrielle Roy K-12 School

Surrey, BC

January 2005
GREEN BUILDINGS BC - PILOT SUMMARY



BUILDING PROGRAM:

A two-storey K-12 school including a community 150-seats theatre, multipurpose room and space for preschool program

PARTICIPANTS:

Owner/tenant:	Conseil Scolaire Francophone
Architects:	Marceau Evans Architects with Acton Johnson Ostry Architects Inc.
Structural:	Fast + Epp Partners
Mechanical:	VEL Engineering Inc.
Electrical:	Pacific Rim Consultants Ltd.
Energy:	BC Hydro Design Assistance Program
Landscape:	Phillips, Farevaag, Smallemberg
QS / Cost:	Helyar & Associates
Project Manager:	Surrey School District (SD No. 36)
Contractor:	DGS Construction

BUILDING STATISTICS

Address:	6887 132nd Street, Surrey, BC
Occupancy:	600 students K-12, plus 50 preschool
Floor Space:	K-12: 5,773m ² :
Community space:	1,076 m ²
Budget:	\$8,391,000 (building and site) \$7,091,000 (±\$1,035/m ²) (building only)
Completion date:	December 2003 (except landscaping)
Start of Occupancy:	January 2004

ENERGY STRATEGIES:

1. Energy simulations project an energy performance of 30.3% less than the Model National Energy Code for Buildings and the project received \$53,592 from the Federal Commercial Building Incentive Program.
2. Energy-related features include:
 - demand ventilation
 - heat pipe heat reclaim (a standard, simple, and low-maintenance system)
 - high efficiency windows
 - lighting density at 1.1 w/sq ft.
3. The single-story façade on the south side allows for daylight penetration to the 2nd story of the two-storey block on the north side.

WATER AND LANDSCAPE STRATEGIES

1. An underground water detention system was installed to control flow of stormwater into the municipal system.
2. Water meters were installed.

TRANSPORTATION STRATEGIES

1. Since it is a regional school, children are bussed in from all over the region.
2. No additional parking was provided for the buses which use available car parking stalls.



MATERIALS STRATEGIES

1. Concrete Masonry Unit (CMU) construction was used as an internal surface, making functional and aesthetic surfaces integral to the structure.
2. The use of German Construction System Super Panels for external cladding allowed for efficient use of material.

CONSTRUCTION MANAGEMENT STRATEGIES

1. Construction waste was minimized by judicious choices and uses of materials. For example, minimizing gypsum wall board by leaving the surfaces of concrete blocks, CMU, and the super panel system exposed.

INDOOR ENVIRONMENTAL STRATEGIES

1. Over 75% of interior surface finishes were low emitting (i.e., low VOC). Solutions included Marmoleum flooring, exposed concrete, and ceramic tile.
2. Classrooms were designed to maximize daylighting and minimize glare through the integration of sunshades on southern elevation and blinds in some critical rooms (i.e., computer room).

COMMENTS ON DESIGN AND CONSTRUCTION PROCESS

1. Green Building BC's approach to the Integrated Design Process (IDP) worked well but needs to be streamlined. The project was challenged by an extremely low budget and a stringent Value Analysis Process. A number of strategies were dropped due to budget challenges and the inability of the Value Analysis Process to support life-cycle costing. The energy analysis was new to the team but turned out to be very useful in evaluating options.

POST OCCUPANCY ISSUES

1. Through the Value Analysis Process, some sacrifices were made in relation to sound proofing. However, the level of noise became an issue very soon after occupancy. To correct this problem, sound absorptive panels were installed in the music room and caulking was added between the concrete partitions separating the rooms.

LESSONS LEARNED

1. There is a need on the part of all process participants to think "outside the box" when dealing with green design.
2. Life-cycle costing must be included in the process to weigh up-front capital costs against downstream operations and maintenance costs and to provide for flexibility for any potential changes to space needs.
3. In order to keep lifecycle costs down, design teams should avoid reviewing line-by-line items in isolation of each other.
4. The contractor should ideally be briefed on and understand the goals of the project.

"Although the project was challenging, as at the time the unit rates for schools in BC were at their lowest, it was also very exciting to be able to pursue a green approach. It is an approach that responds both to the need of the owner to reduce long-term operational costs and the needs of the parents and school staff for a healthy and supportive environment, one that contributes to learning. We believe that it will become easier and cheaper to implement green strategies as all building industry actors become more familiar with them and better understand the benefits they bring with them."

Greg Johnson
MARCEAU EVANS JOHNSON ARCHITECTS