Digital Perspective Courtesy of Cicada Design Inc.

Allison Hall Fitness Center

LOCATION: Sackville, New Brunswick
FLOOR SPACE: 7,282 ft² (676 m²)
CONSTRUCTION DATES: 2004–2006
OWNER: Mount Allison University
ARCHITECT: Diamond and Schmitt Architects
STRUCTURAL ENGINEER: J.M. Giffin Engineering Inc.
MECHANICAL ENGINEER: Hoadley Engineering Inc.
ELECTRICAL ENGINEER: M.A. LeBlanc and Associates

Rated Four Globes
Out of Five

*Please note that Green Globes™ system uses a four globe scale in the U.S.
Four globes in Canada is the same as 3 in the U.S.

PROJECT NOTES

PROJECT MANAGEMENT

Integrated Design Process (IDP)

- Integrated Design Process used extensively throughout the project development
- Team approach used through the design process involving collaboration between architect, engineers, consultants, and occupants
- Green design facilitation that supported integration of energy and environmental considerations throughout the design stages

Environmental Purchasing

- Energy-saving, high-efficiency equipment including lighting control systems, heat exchangers, HVAC system, and variable speed drives
- Low-VOC adhesives, paints, sealants, flooring materials / recycled products including Teck line wood floor and Norma rubber resilient floor
- Reclaimed materials including existing walnut panels

SITE

Development Area

- Located on an existing serviced site
- Constructed on land that is neither a wetland nor a wildlife corridor
- Minimal disturbance to site topography, soils and vegetation

Minimization of Ecological Impact

- Erosion control measures in accordance with best management practices (BMPs)
- Outdoor lighting eliminated to minimize effects on the night sky and avoid sky glow

Enhancement of Site Ecology

- Use of drought-resistant native plantings in accordance with university policy

ENERGY

Energy Demand Minimization

- 15% more energy efficient than Model National Energy Code (MNECB) for Reference Building
- Space optimization to minimize the amount of space required for heating and cooling

Microclimate and topography

- South facing curtain wall that integrates a brise soleil to control light influx and optimize conditions for heating or cooling
- Exercise studios with operable windows and displacement ventilation at base of windows, and return ducts at higher levels to optimize natural ventilation

Integration of Daylighting

- Daylighting optimized through building orientation and window-to-wall size ratios (95% of windows are located with brise soleil, 5% wall)
- Visible transmittance (VT) of the window glazing of 0.8.
- Electrical lighting integrated with daylighting, taking into account daily and seasonal variations

Building Envelope

- Window glazing with low U value (2.52) and window treatments that enhance interior thermal comfort
- Air barrier materials that meet the requirements of Part 5 of the National Building Code
- Thermal resistance of the exterior enclosure that meets MNECB levels; the reported thermal resistance (RSI) of the exterior wall is 2.2 and of the roof is 2.9
- Building integrity optimized through use of best air/vapor barrier practices

Energy-Efficient Systems

- Energy-efficient equipment including light fixtures, lamps and ballast, HVAC equipment, hot water service systems, variable speed drives, and the implementation of a Building Automation System (BAS)

Energy-Efficient Transportation

- Designated preferred parking for car/van pooling, and shelter from weather for waiting persons
- Safe, covered bicycle storage areas

WATER

Water Conserving Features

- Water consumption target less than 35 gallons/ft^2/year
- Water-saving devices or proximity detectors included on urinals, toilets, showerheads, and faucets
- Low flush toilets using less than 1.6 gallons/flush (less than 6 L/flush), water saving features on faucets using less than 2.0 gallons/min (7.5 L/min), and showerheads using less than 2.4 gallons/min (9.0 L/min)
- Native vegetation that requires minimal irrigation

INTEGRATED DESIGN

Diamond and Schmitt Architects facilitated the discussion of sustainable principals early in the design stages. Introducing sustainable systems and products in the initial design phases allowed new ideas and construction methods to be explored that may not have otherwise been used.

RESOURCES

Systems and Materials with Low Environmental Impact

- Decision to replace or repair the foundation, floor assembly, columns, beams, and roof assemblies based on a life-cycle assessment of environmental burden and embodied energy
- 95% of the existing structure to be renovated with minimal structural modifications

Materials that Minimize Consumption of Resources

- Used building materials and components including existing walnut panels as desks and benches
- Wood floor, and rubber floor consisting of 100% post-consumer material

Reuse of Existing Building

- Over 50% of existing major structures (other than shell) to be reused

Building Adaptability and Disassembly

- Durable, low maintenance materials including slate, rubber, and wood flooring
- Large spaces that can be subdivided in future
- Selection of materials and fastenings to allow for easy disassembly

Reuse and Recycling of Construction/Demolition Waste

- A detailed waste management plan

Facilities for Recycling and Composting

- 32 ft^2 (3 m^2) of space designated for collection and storage of recyclable waste

EMISSIONS, EFFLUENTS

Pollution Minimization

- Safe removal and disposal of friable asbestos materials
- Pest infestation minimized by insuring protection of structural openings

INDOOR ENVIRONMENT

Effective Ventilation System

- Inlets upwind of outlets, and positioned at least 30 ft (10 m) apart from them, to avoid re-entrainment
- Main air intakes located more than 60 ft (20 m) from major sources of pollution and at least the minimum recommended distances from lesser sources of pollution
- Ventilation in accordance with ANSI/ASHRAE 62 – 1999
- Ventilation rate of 15 cfm/person
- Continuous CO_2 indoor air quality monitoring
- Filters with minimum efficiency of 65% arrestance, or 40% atmospheric dust-spot efficiency
- Personal controls over ventilation including manual operable awning windows and thermostats in each studio
- Ventilation system with the capacity to flush out the building with 100% outside air at ambient temperatures above 32°F (0°C)

Source Control of Indoor Pollutants

- Good ventilation and easy to maintain wall, floor and ceiling surfaces in wet areas, helping to minimize the accumulation of moisture within the building and prevent the growth of fungus, mold, and bacteria on surfaces
- Domestic hot water system designed to prevent the occurrence of Legionella
- Low-VOC emitting, non-toxic, and chemically inert interior finishes including Eco-Seal wood floor sealer, low-VOC paint

Lighting

- Direct ambient daylighting provided to 80% of the primary spaces
- Views to the building exterior from all primary interior spaces
- Solar shading devices enabling occupants to control brightness and glare from direct daylight
- Lighting levels that will meet those recommended in IESNA Lighting Handbook, 2000 for the types of tasks to be anticipated in the various building spaces
- Local lighting controls related to room occupancy, circulation space, and daylighting

Acoustic Comfort

- Acoustic controls to meet acoustic privacy requirements including change room and corridor dividing the two exercise studios, acoustic ceiling tiles, and absorptive rubber flooring
- Noise attenuation measures to mitigate acoustic problems associated with mechanical equipment noise, vibration, and plumbing systems

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