

Canadian Green Building Awards SABMag 2022

Anne of Green Gables Visitors Centre
Cavendish, PEI



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PROJECT SUMMARY

The Green Gables Visitors Centre in Cavendish, PEI is located in the setting of the Anne of Green Gables novel by Lucy Maud Montgomery. It has become one of the most visited Federal Parks in Canada and an iconic tourist destination. The building needed to accommodate a growing number of visitors, while adding spaces for exhibits and gathering.

The Visitors Centre acts as the main arrival point, connecting the property through a circulation axis that also frames views to the original farmhouse. The main spaces that organize the building are the Lucy Maud Montgomery Exhibition space, a main lobby atrium, a gift shop, and public washrooms. The building takes cues from its rural context through vernacular barn forms, connected with the single storey lobby space.

This building was designed to achieve LEED Gold Certification. Local uses of wood were implemented including exposed mass timber, eastern white cedar shingles, local pine, thermal wood and maple for interior spaces. Staggered stud wall construction was used creating an effective R-value of 33. Roofs have an effective R-value of 50. Photo-voltaic panels and a dedicated outdoor-air-system accomplish 41% energy savings while powered by 18% on-site renewable energy. Water savings of 42.4% have also been achieved.



Image: Main Gable form at Exhibition Room

01_STRATEGIC DECISIONS

The project site location was set from the beginning. It is the arrival point for visitors coming by bus, car, bicycle or walking. As a seasonal tourist destination, summer weather became as much of an influence on the design as winter. Roofing materials have a low SRI. The lobby space is a shelter from the heat of the summer sun and frequent rain showers. Depending on outdoor air temperature, the lobby space can be opened to the exterior allowing the mechanical ventilation system to be shut down decreasing energy consumption.

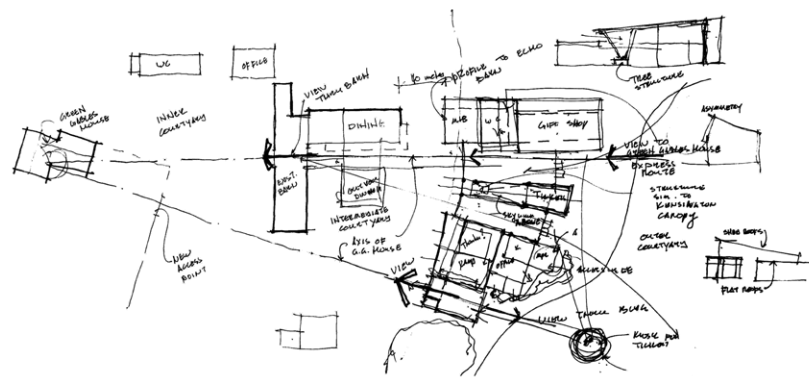


Image: Main Gable form at Exhibition Room

02_COMMUNITY

This property is an icon within the Cavendish tourist industry attracting visitors from all over the world. The Lobby has become a Central gathering space with a 'tree like' structure and beautiful natural light as its focal point. Visitors can learn about the facility and gather information from staff or other visitors.

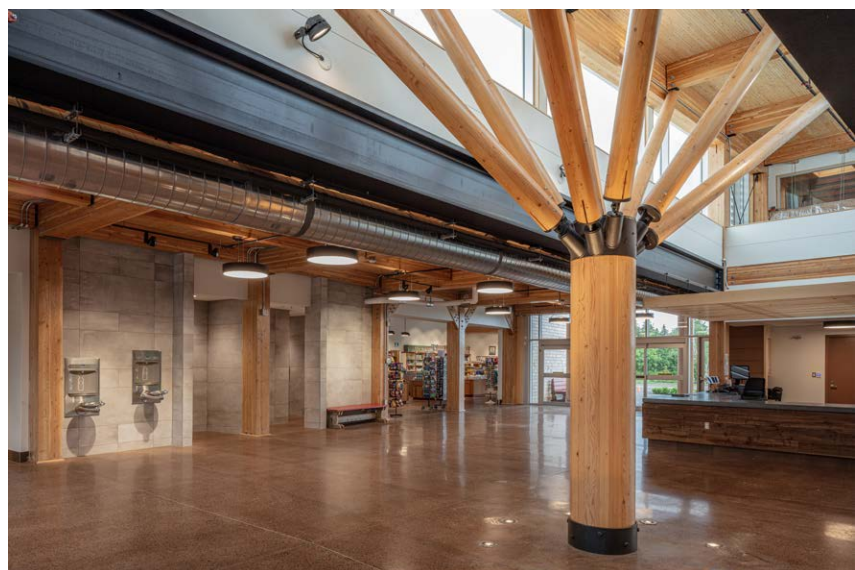
As a building located in central rural PEI, we needed to address all modes of transportation to and from the site by full time staff and transient visitors. There are only 18 full time employees, but the site can accommodate 1131 visitors. Many of the visitors arrive by tour bus which can make up to 50% of the visitors at any one time, the remainder arrive by car, RV, bicycle or walking. Extensive work went into separating bus/car traffic on site to make it more efficient



03_SITE ECOLOGY

Due to its need to be close to the arrival point of site parking, the building is placed in the same location of the existing visitors centre reducing the impacts on the surrounding habitat. The total property is in excess of 16 acres and the attractions include: the visitors centre, the barn, courtyards, Lovers Lane, the Haunted Woods and of course Anne of Green Gables house.

Our building houses 500 of the 1131 visitors so we are pursuing a Campus approach to the Sustainable Sites strategies. Except for a re-designed bus loop and parking area, much of the existing property has remained untouched.



Images, top to bottom: Front drop off area, site sketch, lobby 'tree' structure.



04_LIGHT AND AIR

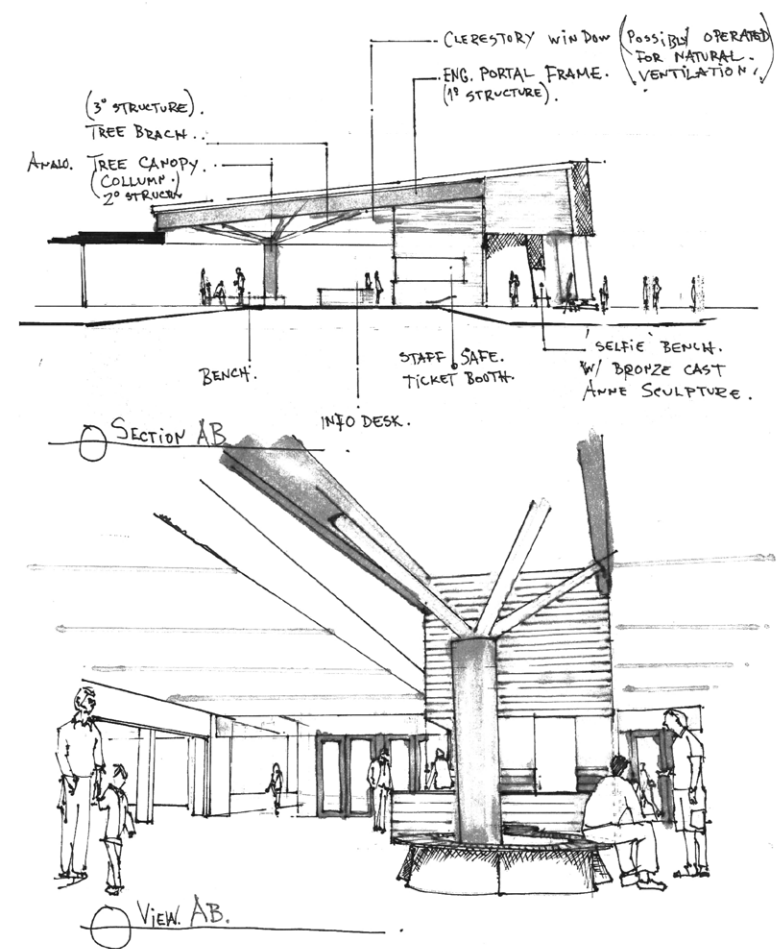
The facility is only used from 9-5 from May until October so nighttime use of lighting systems would be rare.

There are 18 full time occupants who occupy the office, gift shop and ticket area of the facility. Within the office area 100% of the occupants have operable windows and the spaces are flooded with natural light.

This building averages 1 air change per hour. Recovery ventilation units are designed at 30% more than required by ASHRAE 62.1.

Glazing is minimized on south face of exhibition hall. Glazing on the east side of the space provides daylight to minimize the need for artificial lighting which is controlled by photocells throughout the building.

The lobby space is designed to open several large doors and allow summer breezes to naturally cool the main lobby space and exhibit hall. De-stratification fans are also used to control temperatures within the high-volume spaces powered by the PV panels. The owner is also committed to purchasing green power to cover the remaining power needs.



Images, top to bottom: Open trusses, design sketches.

05_WELLNESS

The design showcases a visual and physical connection to the exterior through the use of locally sourced exposed wood products. The building takes programmatic spaces and injects the natural world into them through framed views, providing the interior spaces room to breathe and feel expansive. Pathways filter through the building offering points of refuge where socialization and learning can take place. The lobby space has become one of the focal points of the facility due to these characteristics. In the words of our client,

“It’s hard to believe how long ago it was that we first started this project, and how many steps we’ve had to travel to get to ribbon-cutting day, but I must share with you – standing in that lobby area today, with the many people mingling about, I was struck by how beautiful the building truly is and how it comes alive with our guests, visitors, and staff moving about within it.”

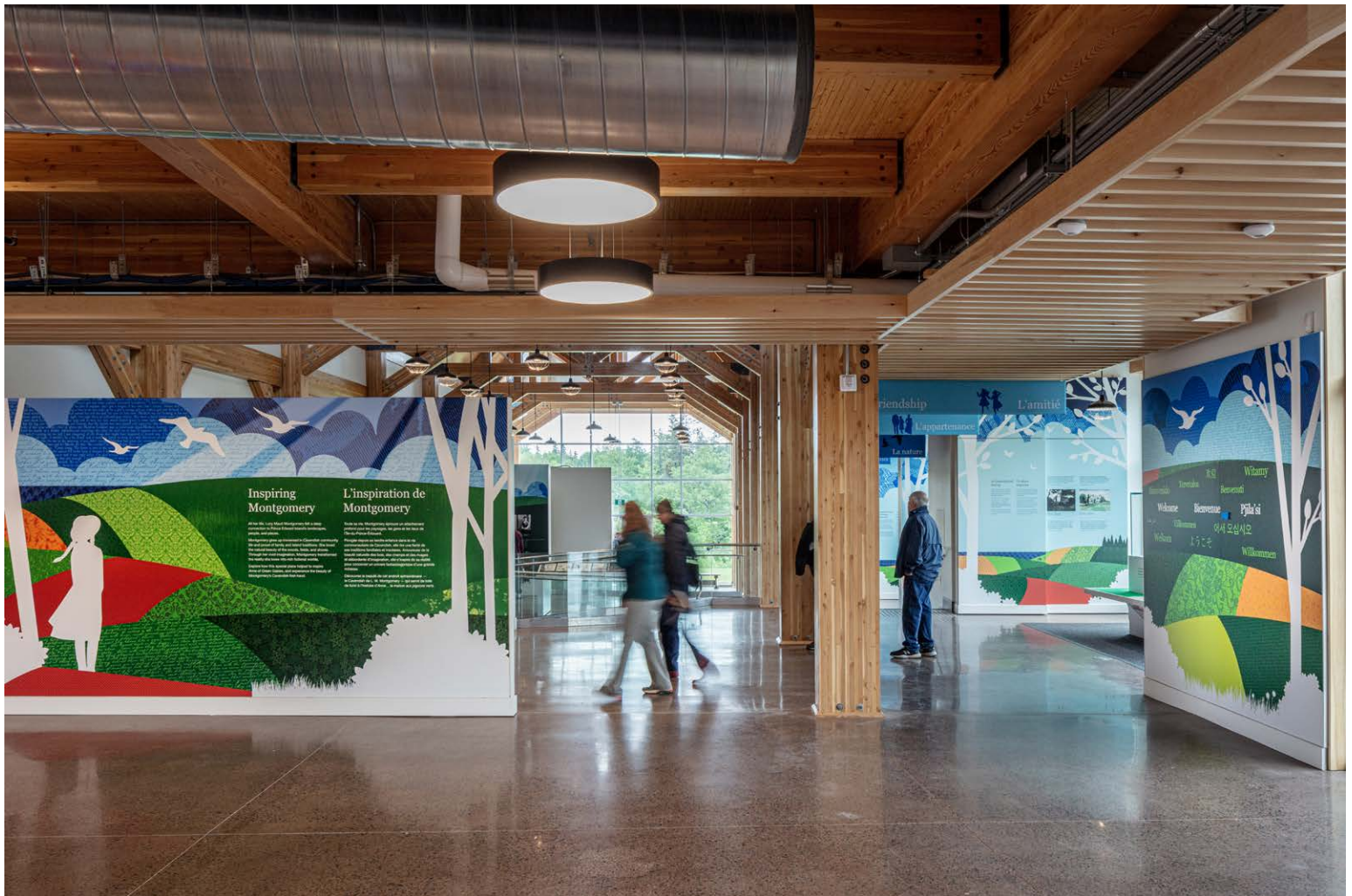


Image: Lobby looking through Exhibition room.

06_WATER

Water savings of approx. 42% are realized through ultra-low-flow fixtures. All plants used to landscape the project are indigenous to the area, effectively reducing the water consumption of the building.

07_OPERATING ENERGY

The energy consumption is projected to be 173.45 KWhr/m²/yr. The photo-voltaic panels contribute 18% of that electricity demand and the owner has committed to purchasing at least 35% off-site green power.

Solar orientation was carefully considered during design to reduce Southern facing glazing. The Visitors Centre is only in use during the warmer months of the year so this decision helps reduce overall cooling costs.

All doors of the facility can be opened with cooling systems shut down to allow the de-stratification fans



Images, top to bottom: Gallery space, exterior pass through, gift shop.

08_MATERIALS

Locally sourced wood products were used including Glulams, NLT, and cladding to minimize impact on transport emissions and to stimulate local economy as much as possible. Low VOC materials and polished concrete flooring was used throughout minimizing the need to import flooring materials from around the globe. The concrete floor is coloured to match the PEI red sand walkways and enhance the connection between indoors and outdoors.

09_LIFE CYCLE

The building has a very purpose driven program. Although disassembly was not a major influence on design decisions, the mass timber frame could be dismantled and re-used elsewhere. Most of the building structure is wood along with the siding and many millwork components. These materials can all be re-used or recycled when the building reaches its life expectancy.

10_EDUCATION

The building will not only enhance the story about Anne of Green Gables and Lucy Maud Montgomery, but has used some of the most innovative mass timber systems in the local marketplace. The exposed mass timber systems have been and will continue to inspire all visitors. Atlantic Canada has flourished in the forestry sector and this building will continue to offer a glimpse into what is possible with this region.



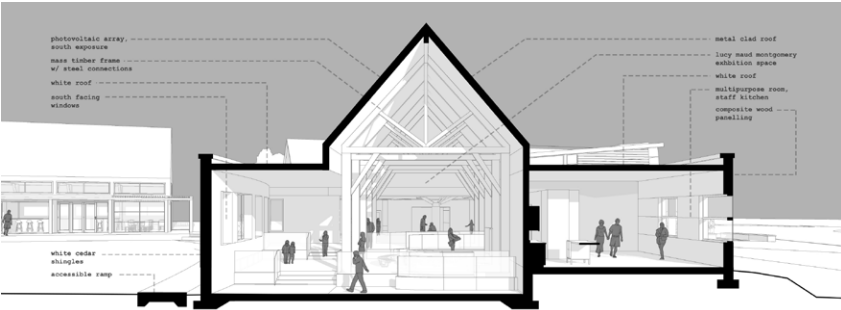
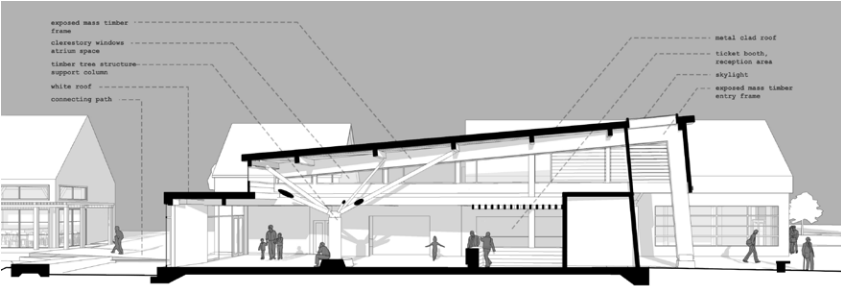
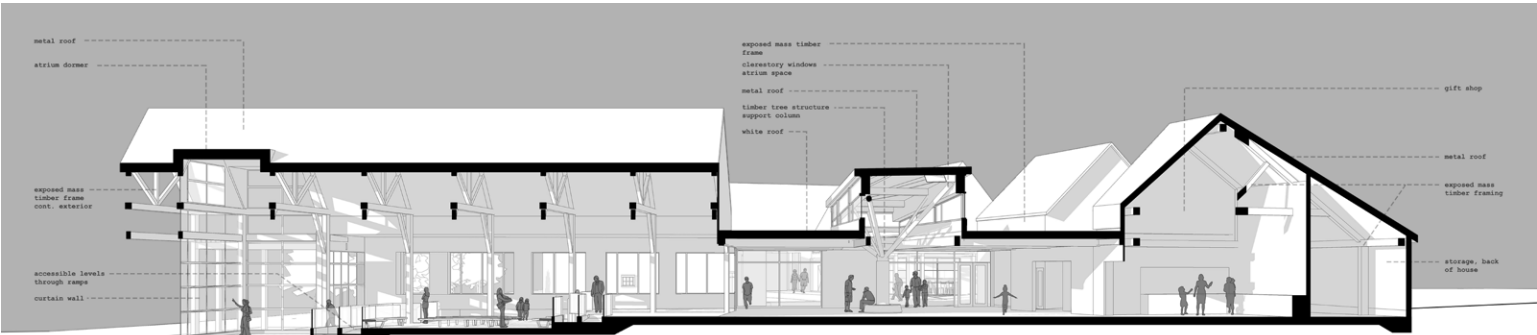
Images: Exterior cladding & PV panels.

CONSTRUCTION



Images, top to bottom: Mass timber trusses, thick wall framing, truss connection.

DESIGN



Images, top to bottom: Long building section, Lobby section, Exhibition room section.