GREEN GABLES VISITORS' CENTRE

Cavendish, PE

The project

Mark Twain called Anne of Green Gables, " The sweetest creation of child life yet written." He sent the author Lucy Maud Montgomery a letter of praise, congratulating her on her writing. This was over 100 years ago and, ever since, the story of Anne has captured the imaginations of people from all over the world.

Green Gables, the name of a 19th-century farm in Cavendish, Prince Edward Island, is the setting for the popular Anne of Green Gables novels by L.M. Montgomery.

The property has become one of the most visited Federal Parks in Canada, and an iconic tourist destination. Visitors travel here to reconnect with their own childhood memories of Anne, or to create new ones. Part of Parks Canada since the 1930s, the property includes the main Green Gables house, the Haunted Wood trail and Lovers Lane.

A 2015 study revealed a need for more exhibit space and enhanced amenities on site to not only tell the story of Anne, but also that of her creator, Lucy Maud Montgomery. Parks Canada acted on the study by creating an extensive program which would be constructed in three distinct phases.

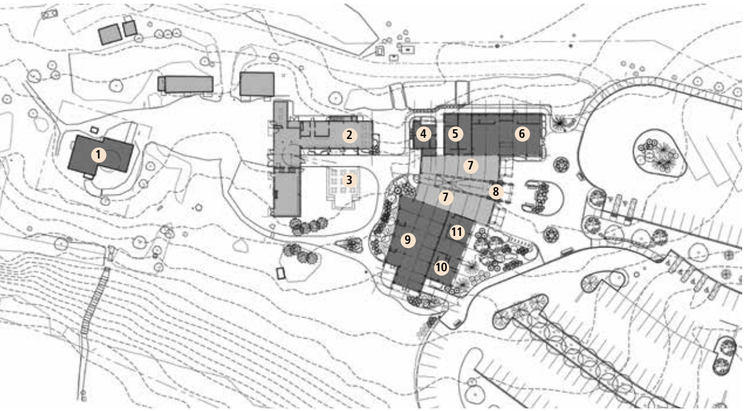
Phase I was completed in the spring of 2017. The Green Gables Visitors' Centre, Phase II, consisting of an exhibit hall, gift shop, ticket/information areas, offices and new washrooms and lobby, was completed in the spring of 2019. Phase III was to decommission the temporary gift shop in Phase I and transform it into a new café and commercial kitchen.

Smaller groups of people arriving by car or bicycle have more time to spend on site and stroll leisurely through the building and property. However, visitors who arrive by bus have only 40 to 90 minutes to spend before departing on their bus tour or back to the cruise ship. Therefore, Phase II had to be capable of handling large volumes of people over short time spans.

A wonderful view to the Green Gables House can be experienced directly through the large doors of the barn, and the client wanted a similar view to be created as one exits the Exhibit Hall. The Exhibit Hall is broken down into three zones which allow for an 'express' viewing or a 'meandering' one. They all converge in one area providing dramatic views to the Green Gables House.

Cover: The Exhibit Hall and multi-purpose and utility room (far left) of Phase II.

Left: The approach from the parking lot to Phase II, consisting of an Exhibit Hall, Gift Shop, ticket/information area, offices, new washrooms and lobby.



Site plan

1 Green Gables
2 Cafe
3 Open space
4 Electrical/Mechanical
5 Bathroom
6 Gift shop
7 Lobby
8 Tickets
9 Exhibit hall
10 Staff kitchen
11 Admin

Architecture

Parks Canada envisioned a building respectful of the scale and vernacular on site but also wanted a facility that was modern in its style and function. The site is broken down into three zones. The courtyard surrounding the Anne of Green Gables house is the most restrictive and has protocols in place limiting what can be changed. As one moves away from this courtyard to the north, the restrictions become less and less to where the location of the visitor centre had little to no restrictions on the eventual design. This inspired the idea of moving Phase II away from traditional timber framing to utilizing mass timber and nail laminated timber (NLT) elements.

Root Architecture Inc. researched the on-site and local farm buildings and similar visitor centres to develop a building form that would fit into the context of rural PEI but give it a modern international flair. The footprint of Phase II is six times the size of any other building on site, thus special care was given to keep the building shape and height at the same level as the surrounding barns.

Phase II was conceived as a collection of farm buildings with the lobby becoming the main element that ties it all together. The lobby has been designed as an 'outdoor space' providing shelter from the sun and rain and features the 'tree' structure. L.M. Montgomery loved climbing trees as a child and so the tree structure adds some focus to the lobby and whimsy which fits with the character of Anne.

Phase I uses traditional timber framing while Phase II uses Mass Timber framing combined with nail laminated timber (NLT) – one of the first projects in Atlantic Canada to do so.

The building is pursuing LEED Gold with special attention to the use of local materials. The building will be 100% powered by renewable energy. Overall heating/cooling is being reduced by 41%.

Floor plan

1 Tickets
2 Lobby
3 Exhibit hall
4 Staff kitchen
5 Staff meeting room
6 Multi purpose room
7 Mechanical
8 Washroom
9 Gift shop

The lobby, the central hub of Phase II, has been designed as an 'outdoor space' with natural light admitted through clearstorey windows. The central 'tree' structure adds some focus to the lobby, and and makes reference to L.M. Montgomery's love of climbing trees as a child, which also fits with the character of Anne.

Structural use of wood

The use of mass timber was a natural progression from the traditional timber framing used within the barn and Phase I addition. Root Architecture Inc. wanted to continue using exposed wood to fit with the aesthetic goals of the project, and to provide a more sustainable approach to the structural frame.

Glue-laminated timber (glulam) makes up 85% of the columns, beams and trusses, and are left exposed within the facility. All of the glulam is slotted to receive hidden steel connection plates where possible to further reinforce the modern look and feel. Connections use a combination of wood screws, dowels and through bolts. In the other areas, conventional flat chord and gable trusses are used supported by wood-frame load-bearing walls built of staggered 2x4 and 2x6 studs with 2x10 top and bottom plates to reduce thermal bridging.

In Phase II the nail laminated timber (NLT) roof panels were used to eliminate the traditional use of purlins to create an uncluttered appearance within the main spaces. NLT is composed of dimensional lumber set on edge and nailed together to make a single structural element.

With plywood sheathing added to the top faces of the NLT panels, the engineers, CBCL Limited, designed the panels to provide in-plane shear capacity, allowing for their use as a structural roof diaphragm. CBCL also designed the NLT panels to support the gravity loads for spans of 3.8m between supporting elements. The NLT panels are 2m wide.

Apart from their aesthetic qualities, the NLT panels were made within the local community using local 2x4 materials which offers fast, repetitive fabrication and ease of erection on site.

1. Glulam trusses form the gable roofs of the gift shop and exhibit areas.
2. The glulam trusses, beams and columns typically use concealed steel plates fastened with bolts, which also makes them convenient to deconstruct and repurpose if ever required.
3. The walls are built of staggered 2x4 and 2x6 studs with 2x10 top and bottom plates to reduce thermal bridging.
4. Nail laminated timber (NLT), which consists of individual pieces of dimension lumber stacked on edge and fastened with nails, is used as the roof diaphragm to provide an uncluttered appearance without the need of purlins.

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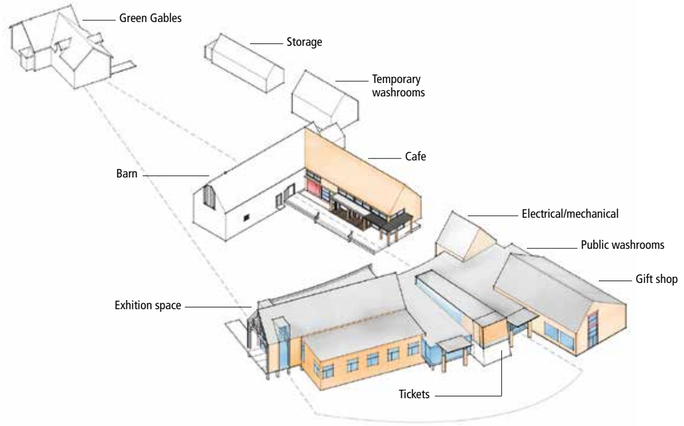

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Other uses of wood

The exterior uses staggered 2x4 and 2x6 studs with 2x10 top and bottom plates to reduce thermal bridging and maximize R values. The effective R-value for the walls is R33.

Eastern white cedar shingles specified as the exterior cladding takes advantage of 'local' materials and ties the building to the local vernacular. 'Thermal wood' from Bathurst, New Brunswick used for vanities and the ticket counter gives the appearance of weathered barn boards.

Local maple wood slats were used as a ceiling element to introduce some intimacy as visitors progress through spaces, and to hide building systems from view.

1. Eastern white cedar shingles used as the exterior cladding are locally produced and reflect the regional building vernacular.
2. The 'Thermal wood' product from New Brunswick gives the ticket counter the appearance of weathered barn boards. Ceiling slats of local maple above the counter hide building systems from view and introduce a level of intimacy as visitors progress through spaces, as seen in photo 5.
3. One of the entries to the lobby past the Gift Shop.
4. The Gift Shop. The gable and shed roof forms, and scales of the buildings, fit the context of rural PEI but are presented with a modern international perspective.
5. The lobby at the Exhibit Hall.

Building Code Analysis

The project is primarily a Group A, Division 2: Assembly Occupancy (A2) up to two storeys, with an office space (D Occupancy) and gift shop (E Occupancy), and a total building area of 1,090 square metres (12,804 sq.ft.). Because the A2 Occupancy is the most stringent, it was used to determine Code compliance.

Early Code investigations determined that the building could be designed as a combustible building without sprinklers. However, after some review Parks Canada determined that the exhibits would be irreplaceable and hence requested that a sprinkler system be added. Adding sprinklers also allowed fire-resistance ratings to be waived.

PROJECT CREDITS

Client Parks Canada with PSPC providing Design Reviews and Project Management
Architectural Design, interiors and Prime Consultant root architecture inc
Construction Administration Sablearc Studios
Engineering – Traffic, Civil, Structural, Mechanical and Electrical CBCL Limited
Landscape Architecture Vollick McKee Petersmann & Associates Ltd.
Contractor Phase One and Three FitzGerald & Snow (2010) Ltd
Phase Two Williams Murphy & MacLeod (1993) Ltd.
Photos Julian Parkinson
Drawings root architecture inc

1. The door opening through an earlier built barn frames a view of the Green Gables House as seen from Phase II.
2. The projecting gable end of the Exhibit Hall.
3. Partial view of the Exhibit Hall where modern glulam framing and NLT recall traditional barn framing.

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Supported in partnership with Forest Nova Scotia, Forest NB / Forêt NB, NLLPA, FPInnovations, UNB, Atlantic Wood Truss Fabricators Association