



# VILLA SAINT-JOSEPH

*du Lac*

**Long Term Care facility**  
Dayton, Nova Scotia

## B Background

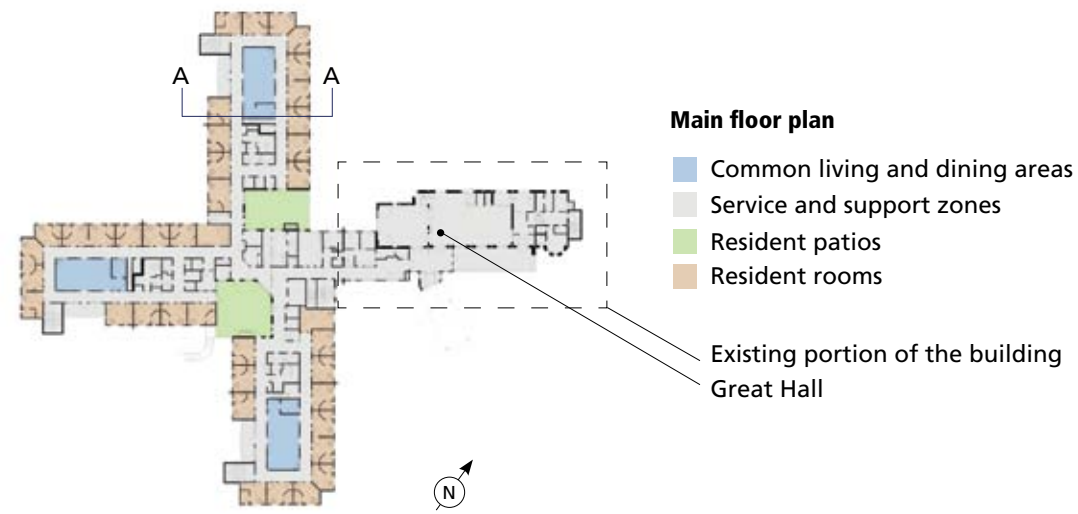
Originally built in the 1930s as the Lakeside Inn by the Canadian Pacific Railroad, the main building reflected the Atlantic version of the company's chateau style architecture with a steeply pitched central roof flanked by shallower shed roofs, and featuring a conical turret. This central building was constructed of poured-in-place concrete with a tile roof and stucco finish. The grand central reception area, now referred to as the Great Hall, featured concrete roof trusses that were field painted to resemble wood. The property also included five cottages, a water tower, boat ramp and tennis courts.

The hotel closed in 1960 and the structure was purchased by Les Religieuses Hospitalières de Saint Joseph for conversion into a care home for the elderly. As the population of the region grew, so did the demand for space. From 1964 to 1990, the facility underwent numerous renovations and expansions ultimately accommodating a total of 79 residents (mostly in double rooms), and 105 full and part-time staff.

By 2010, with the facility at or beyond capacity and the buildings in need of further upgrading to meet prevailing standards, the Nova Scotia Department of Health and Wellness set aside funds for a replacement facility.

**Cover:** Villa Saint-Joseph du Lac is part of a network of publicly funded and privately operated long term care facilities in Canada's Maritime provinces. Located on a spectacular 30-acre property near Yarmouth, Nova Scotia, Villa Saint-Joseph du Lac has long been an important community landmark.





## The Project

The executive of Villa Saint-Joseph du Lac appointed MHPM project managers to assemble a team to carry out the project on their behalf. As prime consultants, S.P. Dumaresq Architect Ltd. of Halifax first conducted a feasibility study to determine the most effective approach to the project: building new on another site; demolishing the existing facility and building new on the current site; or retaining a portion of the existing building and undertaking a phased replacement.

This last approach was the one ultimately deemed most appropriate, given the historical significance of the original Lakeside Inn structure and the incomparable quality of the site. Retaining the Great Hall and designing the new residential

wings in a sympathetic style would preserve a community landmark and provide a degree of continuity for residents, while at the same time creating a facility that met or exceeded contemporary standards for long term care.

When all phases of the project are complete, the new Villa Saint-Joseph du Lac will take the form of a cross in plan, three of its arms being new residential wings, and the fourth being the renovated Great hall. Where the four wings meet is a landscaped courtyard with steps leading down to the open quadrants between the north, west and south wings where the main resident gardens are located.



## Architecture

The portion of the existing building that has been retained is approximately 10,000 sq. ft. (930 m<sup>2</sup>) in area and contains the Great Hall. This double height space has long been used for both resident gatherings and community events. It is to become the social heart of the new complex, a place where all residents can come together on special occasions, or where individuals or small groups can meet away from their familiar daily surroundings. It will accommodate a beauty salon and a 'tuck shop' - a kind of mini general store. The existing mezzanine will be closed in and used for staff accommodation.

The new portion of the building is approximately 79,000 sq.ft. (7350m<sup>2</sup>). Each two storey wing contains two 'neighbourhoods', five with 13 resident rooms, the sixth containing 14 - for a total of 79 rooms. Each neighbourhood also includes a common dining room, living room and kitchen, a staff room and back of house facilities such as a laundry and linen storage room.

The common living, dining and kitchen areas are placed at the centre of each neighbourhood wing, and are partially enclosed by low walls.

Encircling these common areas is a wide corridor, on the other side of which are the resident rooms. The resident rooms do not completely surround the common areas however, being held back at one end to permit views from the corridor to the lake and gardens beyond. The staff and back of house areas are located at the other end of the wing where it joins the rest of the building. Above the two residential storeys, an attic storey accommodates mechanical rooms and other service areas.

In section, the profile of each wing resembles that of the Great hall, with a steep, double pitched central roof flanked by shallower shed roofs to either side. The double pitched roof corresponds to the common area in the centre of the plan, while the shed roof covers the resident rooms and corridor. The roofs are finished in red asphalt shingles and the walls clad in fibre cement siding - a contemporary interpretation of the finishes used on the original Lakeside Inn.

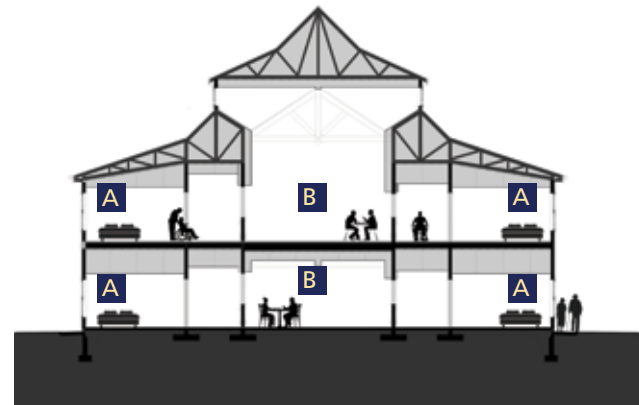
Given a remote site, a complex geometry and the need to integrate the old and new sections of the building, the architects chose wood frame construction as the most appropriate and economical for the project.



Elevation typical at end of wings



South elevation



Building section A-A

- A Resident rooms
- B Common areas



Site section showing how the building sits on the crown of the hill



## Structure

Although the scale is much larger, BMR Engineering designed the structure of the Villa Saint-Joseph du Lac using conventional residential light wood frame construction. The walls are framed with 2x6 solid sawn lumber at 16 in. (400 mm) centres, and the roofs with residential style gang nailed trusses at 16 in. and 24 in. (400 mm and 600 mm) centres. The centre double pitched trusses over the common areas have a 12 in 12 slope, while the perimeter, monopitch over the resident rooms and corridors have a 4 in 12 slope. The roof sheathing is 3/4 in (19 mm) plywood throughout.

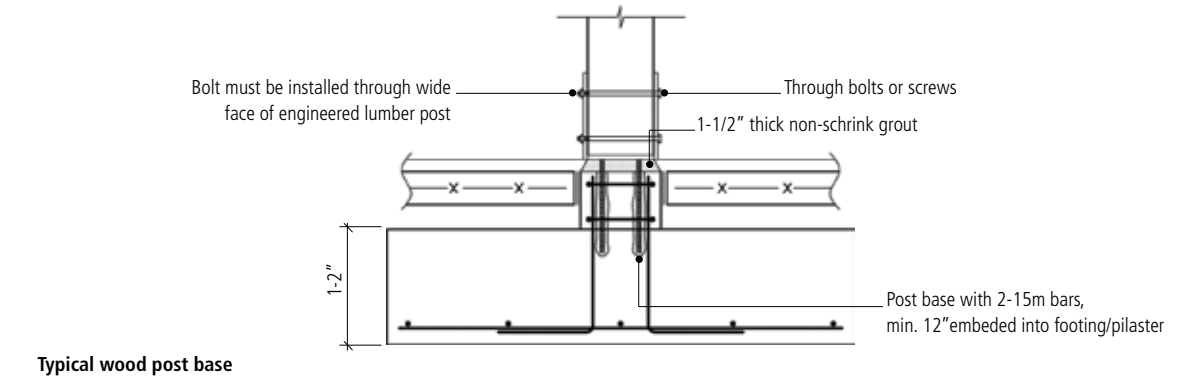
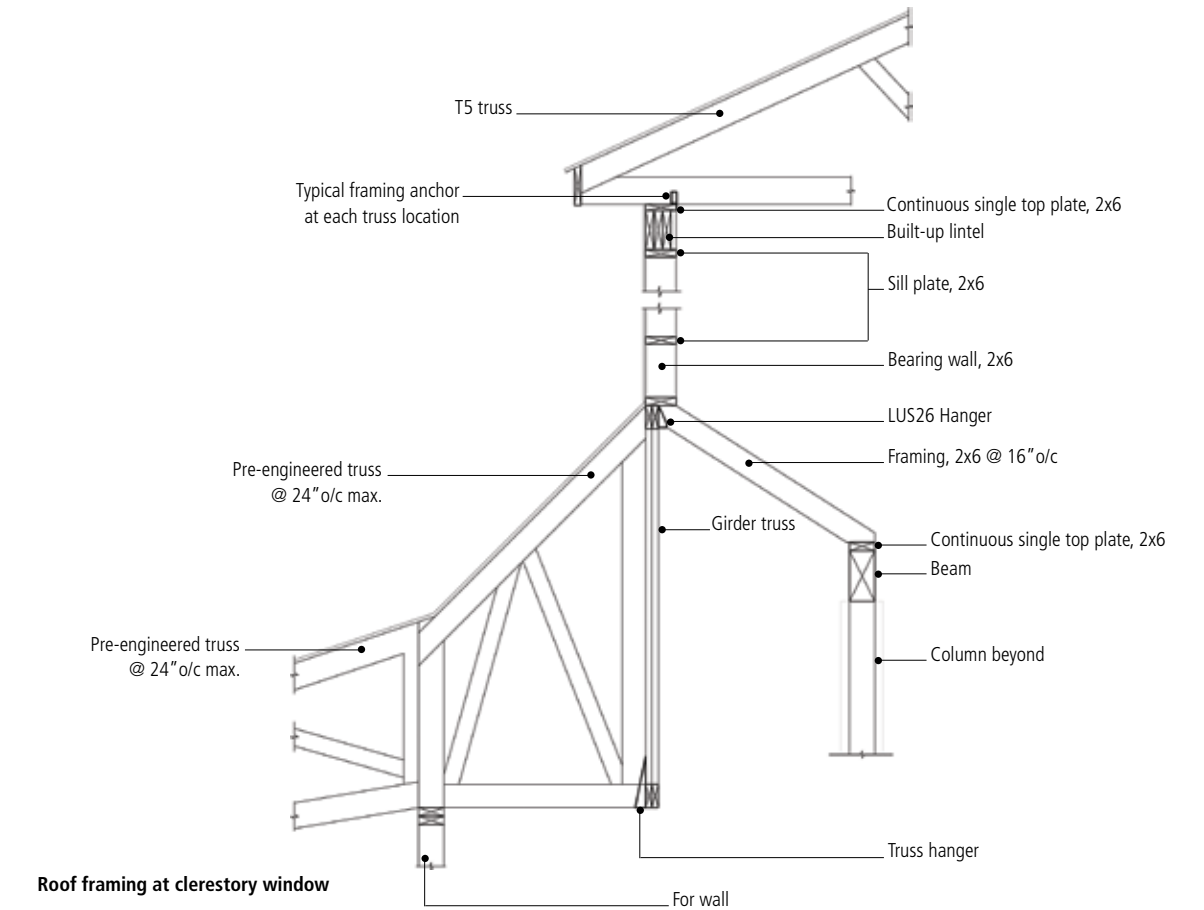
The trusses are made up of 2x4 material, except for the bottom chords of the perimeter trusses which are 2x6 as they are required to support the resident lifts that are installed in every resident room. This ability of wood framing to easily accommodate substantial point loads is also exploited in the resident bathrooms. The walls in these areas are designed as shear walls and as such have plywood sheathing. This makes the fixing of handrails and grab bars (which in particular are subjected to substantial point loads when leaned on heavily) much more straightforward than with other construction systems.

The centre trusses span 22 ft. (6.7 m) and bear on longitudinal beams that are carried on 8x8 (200 x 200 mm) solid sawn SPF posts at 8 ft. (2.4 m) centres. The roof loads that are being carried vary considerably - in some cases the loads are

light as there are dormer windows in the roof, in other places where there may be drifting snow, the design loads are much higher. As a result, the beams vary both in depth and material used. Lighter loads are carried by solid sawn beams, while heavier loads are carried by laminated veneer lumber beams. The outer ends of the perimeter trusses bear onto frame walls.

The suspended floors (including the mezzanine or 'attic' mechanical rooms are framed using wood I-joists at 16 in. (400 mm) centres. The exterior frame walls are prefabricated panels 10-12 ft. wide and storey height. General contractor PCL construction chose prefabrication for a number of reasons. Because of the remote site and the relatively large scale of the building, it would have been difficult to find enough qualified carpenters in the area to complete the building within a reasonable period of time. There was also a concern that with a construction schedule that ran through the winter, prefabrication would offer the best chance of minimizing the exposure of the wood components to wet weather. The panels were prefabricated in New Brunswick and wrapped for shipping to the site. The 8x8 SPF posts also came from New Brunswick.

Despite these precautions, it was necessary to seal the wood with an antibacterial coating to meet the provisions of CSA 317 ' which sets out standards for infection control in healthcare buildings.



## Millwork and Finishes

Research conducted at the University of British Columbia has demonstrated that when we encounter an interior environment in which a significant amount of wood is visible, our production of the stress hormone SNS is reduced. Wood can therefore be seen as making an important contribution in the design of healing environments.

All the structural wood is concealed by the interior finishes, so interior millwork and trims are used to enhance the feeling of warmth and tactility throughout the building. The wood finishes also serve to connect the interior space to the landscape beyond. Among the more unusual millwork elements in the building are the 'memory boxes' that are located outside each resident room. These boxes contain personal objects and memorabilia that provide visitors with an insight into the resident's life and interests, and act as an aide-mémoire for those residents who may be unable to remember their room number or door colour.

## A Final Note

*While light wood frame construction has not been the traditional choice for extended care facilities in Nova Scotia, the unique challenges of this project made wood the optimal choice. Its economy, flexibility and the opportunity it provided for off-site prefabrication all contributed to a successful outcome.*

— Syd Dumaresq, Principal,  
S.P. Dumaresq Architect Ltd.



## Building Code Analysis

Villa Saint-Joseph du Lac is classified as a B-2 Institutional Care Facility which permits it to be of combustible construction up to 2,400 m<sup>2</sup> for one story and 1,600 m<sup>2</sup> for two stories. To meet the two-storey area limitation, the building needed three fire walls.

In cross section the required floor to floor fire separation of 45 minutes was met with the application of one layer of 15 mm type x gypsum wall board fastened directly to the underside of the I-joint. The complete I-joint cavity was filled within non-combustible mineral wool insulation which reduced the sound transfer and negated the requirement to sprinker these cavities. Additional acoustic isolation was provided by a 38mm concrete floor topping which also accommodated in floor hydronic radiant heat.

The underside of the roof trusses were also clad with 15 mm type x gypsum wall board. Although not a code requirement, this provided additional fire protection and protected the polyethylene vapour barrier from mechanical damage during installation of services.



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**PROJECT CREDITS**

**CLIENT** Les Religieuses Hospitalières de Saint Joseph  
**PROJECT MANAGER** MHPM Project Managers Inc.  
**ARCHITECT** S.P. Dumaresq Architect Ltd.  
**STRUCTURAL ENGINEER** BMR Engineering  
**M & E CONSULTANT** Dumac Energy Ltd.  
**CIVIL ENGINEER** KVM Consulting  
**INTERIOR DESIGN / FF&E** Ann Acland of A Design Studio  
**GENERAL CONTRACTOR** PCL Construction  
**WOOD FABRICATOR** Atlas Structural Systems  
**PHOTOGRAPHER** Staff S.P. Dumaresq Architect Ltd.  
**MILL WORK** Custom Millwork Atlantic Inc.

**MATERIALS LIST**

**FLOORS** Wood I-joists with plywood decking  
**WALLS** Prefabricated 2x6 panels, engineered wood lintels  
**POST AND BEAM FRAMING** 8x8 solid sawn SPF posts, LVL and solid sawn lintels  
**ROOFS** Engineered trusses (12 in 12 double pitch spanning 22 ft. and 4 in 12 monopitch spanning 23 ft.)