



## Project Overview:

# The Moncton VISION Home—Moncton, New Brunswick

This Project Overview highlights The Moncton VISION Home, one of the winning entries in the Canada Mortgage and Housing Corporation (CMHC) Equilibrium™ Sustainable Housing Demonstration Initiative – a national initiative to design, build and demonstrate sustainable homes throughout Canada.<sup>1</sup>



### Key Features

- Home design maximizes passive solar heating benefits and ensures an energy-efficient building envelope
- Home includes grid-connected photovoltaic panels, a high efficiency ground-source heat pump, a solar hot water system, a durable, energy-efficient building envelope, and on-site electrical energy storage with DC current services for lighting and electronics
- Centerpiece project of the “VISION Lands” development in the downtown core of the City of Moncton
- The community development plan preserves natural features such as forested areas and creates clustered villages with amenities and community activities within walking and cycling distance

Figure 1—South elevation of the Moncton VISION Home

## Project Description

The Moncton VISION Home will be a new, two-storey detached home located in a new community development in the downtown core of Moncton, New Brunswick. The master plan for this new community features ‘earth-friendly’ best practices

including preservation of natural features (e.g. environmental corridors, urban forests), on-site storm water management, and a series of villages based around a high density centre offering amenities, traffic calming strategies, and walking and bicycling trails.

Set within this community, the Moncton VISION Home will be a 217 m<sup>2</sup> (2,366 sq. ft.) residence with an attached garage, built by AlternaHome Solutions Inc.

<sup>1</sup> For more information on this initiative and the various Equilibrium™ projects, visit the CMHC website ([www.cmhc.ca](http://www.cmhc.ca)) and type the search keyword “Equilibrium”.

in partnership with the developer, Synergy Urban Villages Inc. The home will be constructed on a concrete slab at grade with a shallow foundation wall. The main floor will feature an open concept living room-dining room-kitchen area, two-piece powder room, an office / bedroom, laundry, mechanical room, and a large screened entryway. The second floor will contain a master bedroom with walk-in closet and three-piece ensuite, two other bedrooms, and a three piece bathroom. Both floors also feature large storage spaces. On both levels, the living areas are oriented toward the south, with bathrooms, storage, and mechanical areas toward the north.

In keeping with the requirements of the CMHC EQUilibrium™ Sustainable Housing Demonstration Initiative, the key intent of the Moncton VISION Home developer and builder is to design and build a home that features a healthy indoor environment, energy efficiency, low environmental impact, significant resource conservation, and affordability considerations, while targeting net-zero annual energy consumption.

The design focuses on the entire home as an integrated system. It takes into account a variety of factors such as: the home's influence on, and interaction with, the surrounding environment; the environmental impacts related

to the production, distribution, and utilization of various building materials; the energy-efficiency of the building envelope, mechanical systems, appliances, and lighting; the manner in which space and water heat will be provided; and building life-cycle analysis.

The design and positioning of the home ensures optimal solar orientation with extensive southern exposure and windows. The northern façade of the house will have only one exposed storey and no windows in an effort to minimise heat losses. All entrances are placed such that they are protected from the impact of the prevailing northwest winds.

The total annual energy requirement for the home is predicted to be nearly equal to the on-site annual production from renewable energy sources, which include maximized passive solar heating, a grid-connected photovoltaic system, a high efficiency ground-source heat pump with desuperheater, and a solar hot water system. A drain water heat recovery device will capture and deliver heat to the hot water tank that would otherwise escape down the drain. All of the combined energy efficiency features of the home will reduce the household energy requirements to a predicted 24 % of the energy requirements for a typical Canadian home, and down to 4% when the

renewable energy contribution is included. A small energy storage system (battery bank) will provide power for low-voltage DC lighting, as well as back-up power in the case of power interruptions. The initial purpose of this system is to facilitate the testing of new technologies in a real-world application. In addition, this will be one of several components of the project's partnership with both the Université de Moncton and the Moncton Campus of the New Brunswick Community College.

Additional VISION Home features include design considerations to ensure a quiet home, extensive natural lighting (daylighting), a proprietary energy management system, a high efficiency heat recovery ventilator (HRV) as well as operable windows to ensure good ventilation, and the use of natural materials and substances with low levels of volatile organic compounds (VOCs). Rainwater from roof runoff will be stored in a cistern and used for watering lawns and plants.

With sustainable building features such as its integrated renewable energy systems and many "healthy" design elements, the Moncton VISION Home is sure to become a centerpiece of the development in the downtown core of the City of Moncton.

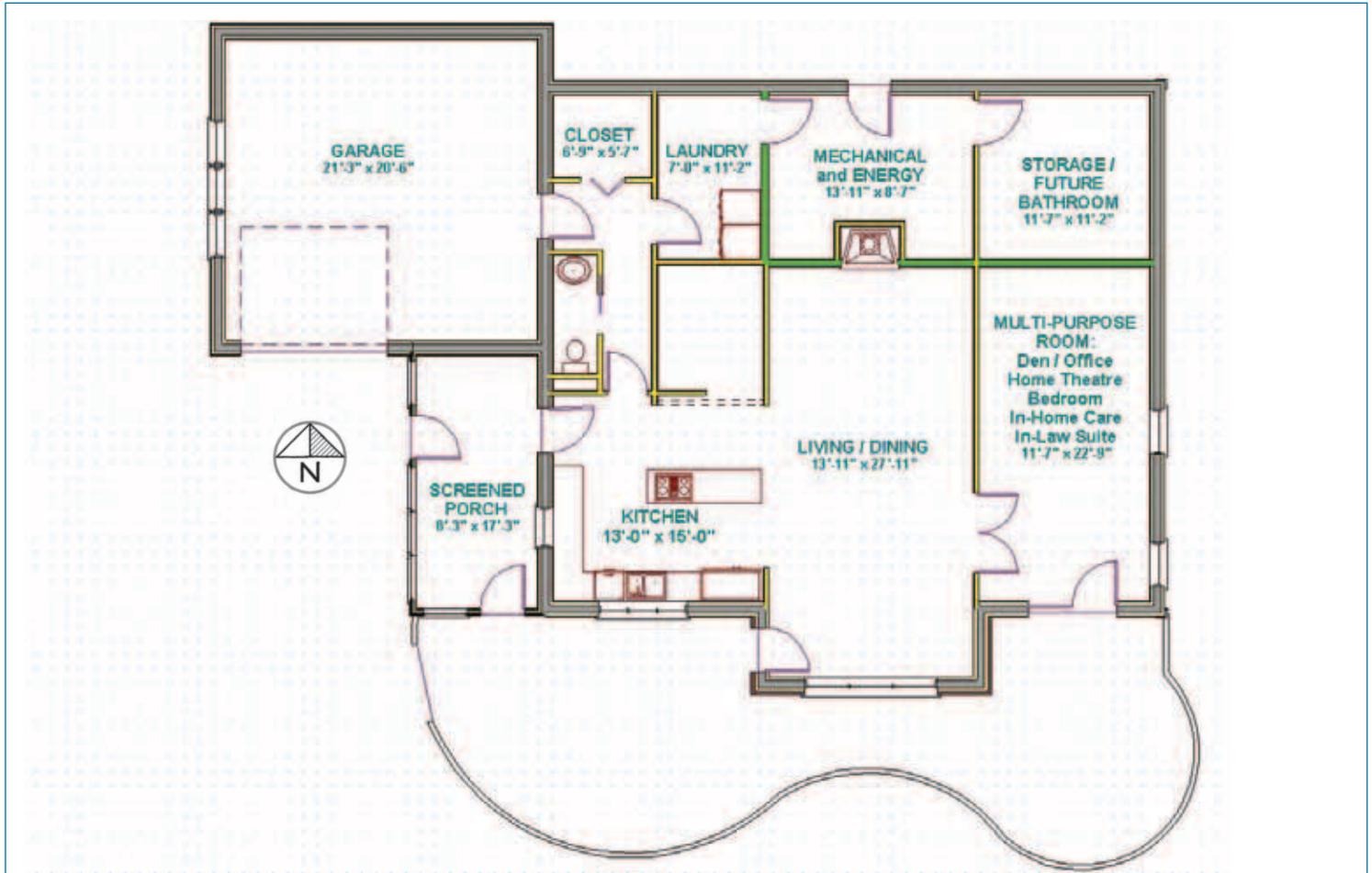


Figure 2—Main floor plan of the Moncton VISION Home

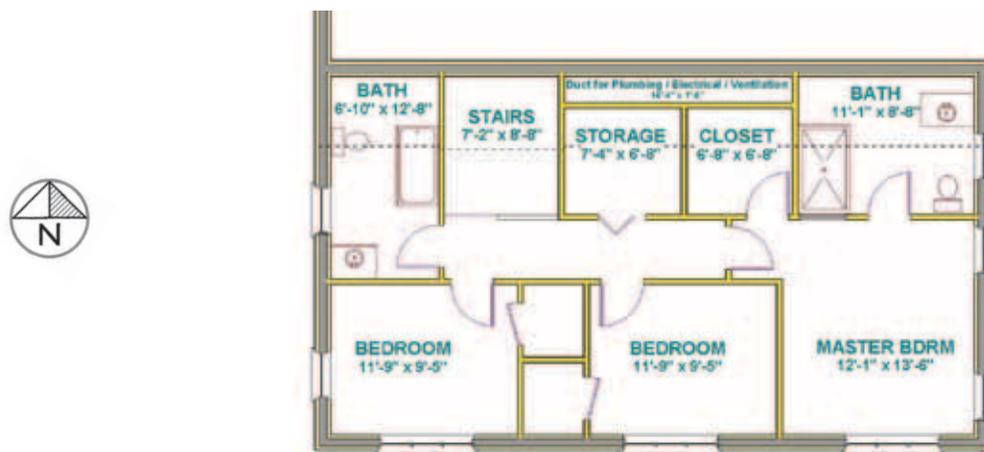


Figure 3—Second floor plan of the Moncton VISION Home

## Project Team

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**For more information about this project and other EQUilibrium™ housing projects, visit the CMHC website at [www.cmhc.ca](http://www.cmhc.ca)**

## EQUilibrium™ Sustainable Housing Demonstration Initiative

### What is EQUilibrium™ Housing?

EQUilibrium™ is a national sustainable housing demonstration initiative, created and led by Canada Mortgage and Housing Corporation (CMHC) that brings the private and public sectors together to develop homes, and eventually communities that address occupant health and comfort, energy efficiency, renewable energy production, resource conservation, reduced environmental impact and affordability.

CMHC's EQUilibrium™ housing initiative offers builders and developers across the country a powerful new approach to establish a reputation for building premium quality sustainable homes that will meet the needs of Canadians now and well into the future.

EQUilibrium™ housing combines a wide range of technologies, strategies, products and techniques designed to reduce a home's environmental impact to an absolute minimum. At the same time, EQUilibrium™ housing also features commercially available, on-site renewable energy systems to provide clean energy to help reduce annual consumption and costs.

The ultimate goal is a highly energy-efficient, low-environmental-impact house that provides healthy indoor living for its occupants and produces as much energy as it consumes on a yearly basis. As part of the initiative, all EQUilibrium™ projects will be open to the public for a minimum time period of six months and then monitored for performance with occupants for at least one year.

For more information on this project and on the CMHC EQUilibrium™ Sustainable Housing Demonstration Initiative, visit [www.cmhc.ca](http://www.cmhc.ca)

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