PART 1
PROJECT DESCRIPTION

Use for all categories. Projects are judged based on criteria of sustainable design, architectural merit and innovation. **Please submit Part 1 and Part 2 as separate pdf files.**

2025 CANADIAN GREEN BUILDING AWARDS

THE NATIONAL PROGRAM OF SUSTAINABLE ARCHITECTURE & BUILDING MAGAZINE SABMag

PROJECT CATEGORIES

Identify which Award category you are entering

☐ **1. Residential [small]**
Open to new or renovated buildings less than 600m² in area, of which a minimum of 75% is dedicated to single-family or multi-family residential uses.

☒ **2. Residential [large]**
Open to new or renovated buildings [typically multi-unit buildings or groups of related buildings] greater than 600m² in area, of which at least 75% is dedicated to residential uses.

☐ **3. Commercial/Industrial [small]**
Open to new or renovated buildings up to 2,000m² in area, of which more than 75% is dedicated to commercial or industrial uses.

☐ **4. Commercial/industrial [large]**
Open to new or renovated buildings [or groups of related buildings] greater than 2,000m² in area, of which at least 75% of the floor area is dedicated to commercial or industrial uses.

☐ **5. Institutional [small]**
Open to new or renovated buildings up to 2,000m² in area, of which more than 75% is dedicated to institutional uses.

☐ **6. Institutional [large]**
Open to new or renovated buildings [or groups of buildings] greater than 2,000m² in area, of which at least 75% of the floor area is dedicated to institutional uses.

☐ **7. Mixed Use**
Open to new or renovated buildings [or groups of related buildings] of any size, in which no individual use exceeds 75% of the overall floor area.

☐ **8. Existing Building Upgrade**
Open to buildings of any size or type in which the primary focus of the work has been to enhance the performance or extend the life of an existing structure. Entries in this category are required to respond only to the submission criteria appropriate to the project.

☐ **9. Interior Design**
Open to interior design projects of any size or type. Entries in this category are required to respond only to the submission criteria appropriate to the project.

An award will be given in each category at the discretion of the jury.

PROJECT DETAILS

Project name: Hamilton Passive House Modular Housing
Address: 253 King William Street, Hamilton Ontario
Year completed: 2024

PROGRAM AND CONTEXT

Project type: [Identify all uses occupying 10% or more of gross floor area]

Affordable Housing

Project site: [Check all that apply]

☐ Previously undeveloped land ☒ Urban ☐ Rural

☐ Previously developed land ☐ Suburban

Other Building description: [Check only one]

☒ New ☐ Renovation ☐ Both [If both, list __% new and __% renovation]

STATISTICS* Provide the following metrics as applicable to your project.

- Site Area: 1,177 m²
- Building gross floor area: 1,668 m²
- Energy Intensity: 62.7 KWhr/m²/year [Include both base building and process energy]

TEUI of 43.6 kWh/m2/yr, and a TEDI of 11kwh/m2/yr.

[optional: report energy intensity separately as follows:

  - Energy Intensity, base building: _____ KWhr/m²/year
  - Energy Intensity, process energy: _____ KWhr/m²/year

- Reduction in energy intensity: 81 %.
- State the reference standard on which the % reduction is based: MNECB, NECB or ASHRAE 90.1

[include version]: Energy Star - Canadian National Median Values

- Recycled materials content: _____ % by value
- Construction materials diverted from landfill: _____ %
- Regional materials by value: _____
- Water consumption from municipal source: _____ litres/occupant/year

[Include both base building and process consumption]

- Reduction in water consumption: _____ %
- State the reference on which the % reduction is based: ☐ LEED or other ☐

*NOTE FOR PART 9 RESIDENTIAL PROJECTS: PROVIDE THE STATISTICS ABOVE IF AVAILABLE. Include in the Executive Summary [see next page] the EnerGuide or the Home Energy Rating System [HERS] ratings if available, and the WalkScore rating [see www.walkscore.com]. Also, a qualitative assessment of project performance should be included in the appropriate sections of the narrative.

HAMILTON PASSIVE HOUSE MODULAR HOUSING

253 KING WILLIAM STREET, HAMILTON ON

253 King William Street provides much-needed housing for those who are experiencing or are at risk of experiencing homelessness. The project demonstrates equitable access to housing is possible by transforming a former surface parking lot on an urban site into a welcoming and dignified place to call home. The three-storey building accommodates 24 studio dwelling units along with shared amenities on the ground floor, which include a community room, meeting room, lounge, and laundry facility. An enclosed backyard is animated with barbecues, seating, and a community garden surrounded by lush, low-maintenance landscaping. The project utilized modular construction to meet tight budget, schedule, and operational constraints while supporting sustainable goals. Key sustainable strategies include an optimal window to wall ratio, superior thermal performance of the envelope and simplicity in massing and design. The building achieved Passive House Certification and has a **TEUI of 62.7 kWh/m2/yr**, and a **TEDI of 6.74kwh/m2/yr**.

STRATEGIC DECISIONS

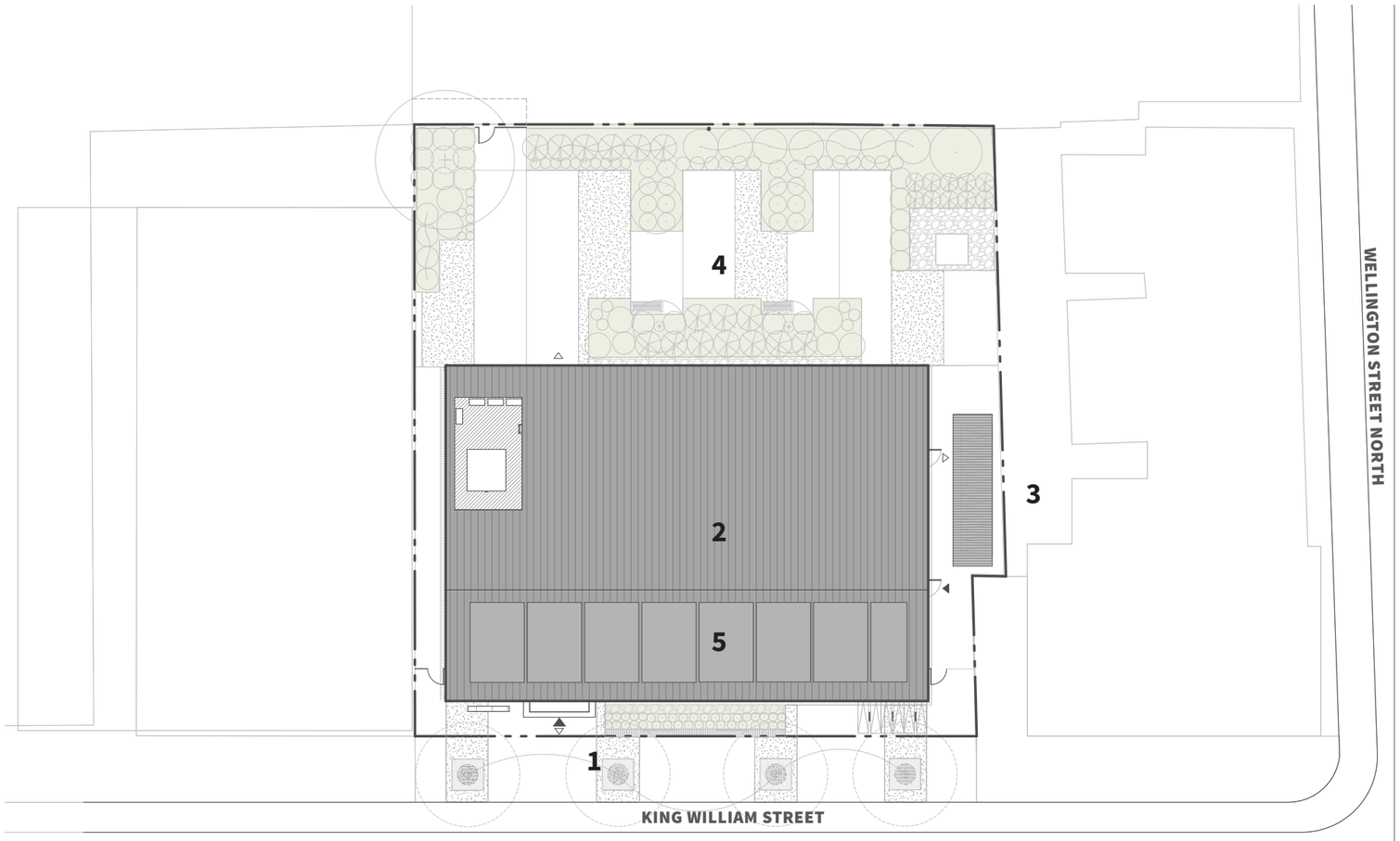
Creating a building that was **socially and economically sustainable** for our client was a key driver for this project, and served to underscore the importance of sustainable design initiatives. Social housing operators require high-quality buildings that are durable, low maintenance and have low operational costs. This, by extension, leads to environmentally sustainable design solutions.

Given the desperate need for housing, **modular construction** was used to accelerate the project timeline. This method also provided the benefit of reduced time and resources on site. Manufacturing and testing the modules within a controlled, indoor environment also supported greater quality control and high building performance.

An air-tight (0.3ACH at 50Pa), highly insulated envelope encloses the building and ensures that the risks of air infiltration, thermal bridging, and condensation are greatly reduced. This passive approach is supported by active systems such as all electric heating and cooling, which is partially offset by on-site renewable energy PV panels. These initiatives are **highly sustainable** but also work to **lower energy costs** as well as operational carbon.

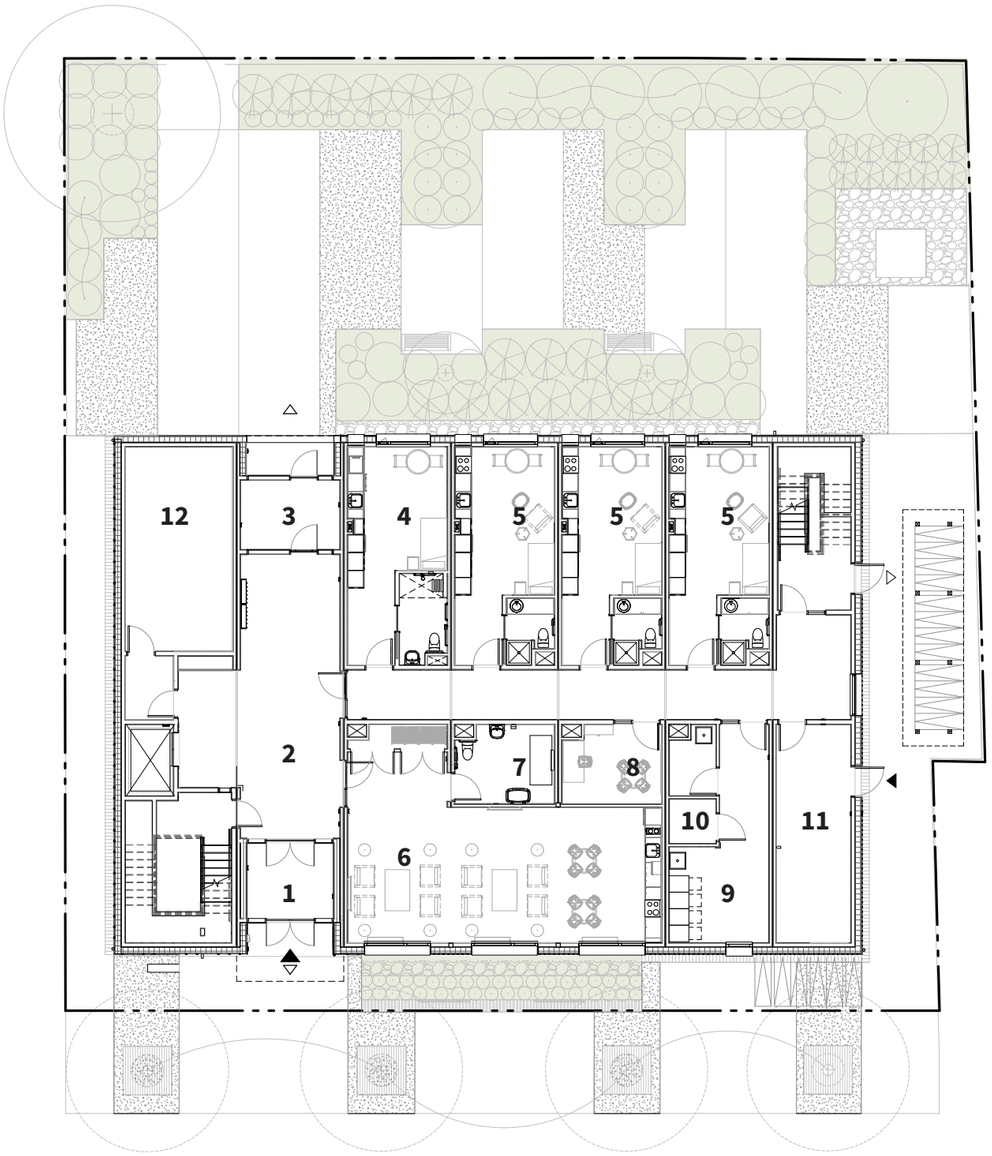
SITE PLAN

1 Main Entrance
2 Residence
3 Bike Shed
4 Rear Yard
5 Solar Panels



GROUND FLOOR PLAN

1 Vestibule
2 Lobby
3 Rear Vestibule
4 Barrier Free Studio
5 Studio
6 Multi-purpose Room
7 WC
8 Meeting / Office Room
9 Laundry
10 Storage
11 Waste
12 Mechanical



LEVEL 2 FLOOR PLAN

1 Barrier Free Studio
2 Studio
3 Electrical
4 Mechanical

COMMUNITY

This new building replaces an existing surface parking lot between a church and a multi-unit residential building in the heart of Hamilton's downtown core. The height of the building is consistent with the surrounding context, representing an excellent example of **appropriately scaled urban infill** that leverages an underutilized brownfield site to introduce gentle density in a mixed-use setting.

The massing of the building is a simple rectangular form with a gently sloped roof. From an urban design perspective, the simple massing was an appropriate solution to this infill site. From an energy efficiency perspective, the simple massing optimizes the ratio between envelope surface area and interior building volume. The simple building exterior is free from unnecessary jogs or projections, making it naturally easy to detail. The deep recesses of the windows are the natural result of the thick 15" exterior highly insulated assembly, resulting in deep shadows in every opening, giving depth and satisfying articulations in an otherwise very simple design. A subdued predominantly metal cladding encompasses the building, giving it an elegant, uniform aesthetic while ensuring it complements and enhances its urban context. The use of wood board and batten cladding provide a warm and friendly texture at ground level.

The project aspires to remove the stigma around homelessness and social housing by gently inserting the residences into an existing urban setting, demonstrating that coexistence is achievable and beneficial for the community. The architecture reflects this by taking on an attractive form that blends well with its surroundings and does not detract from the character of the established neighbourhood.

The building's central, urban location is ideal for its residents' connectivity to services and allows for a reliance on transit. The building does not offer parking.

LIGHT AND AIR

Our design provides an optimal window to wall ratio. In order provide ample daylight and views while maintaining effective thermal performance, the strategic placement of windows was a key strategy. A large 1.5m x 1.5m window was provided in the main living space, accompanied by a smaller 0.35 x 0.65m window adjacent to it. The result as a very effective 15.2 % window to wall ratio. 75% of occupied floor area is within 7 metres of an operable window. ERV provides fresh air along with operable windows in all occupied spaces. ERV provided on average 0.79 fresh air changes per hour Occupancy sensors are used inall spaces that are not regularly occupied.

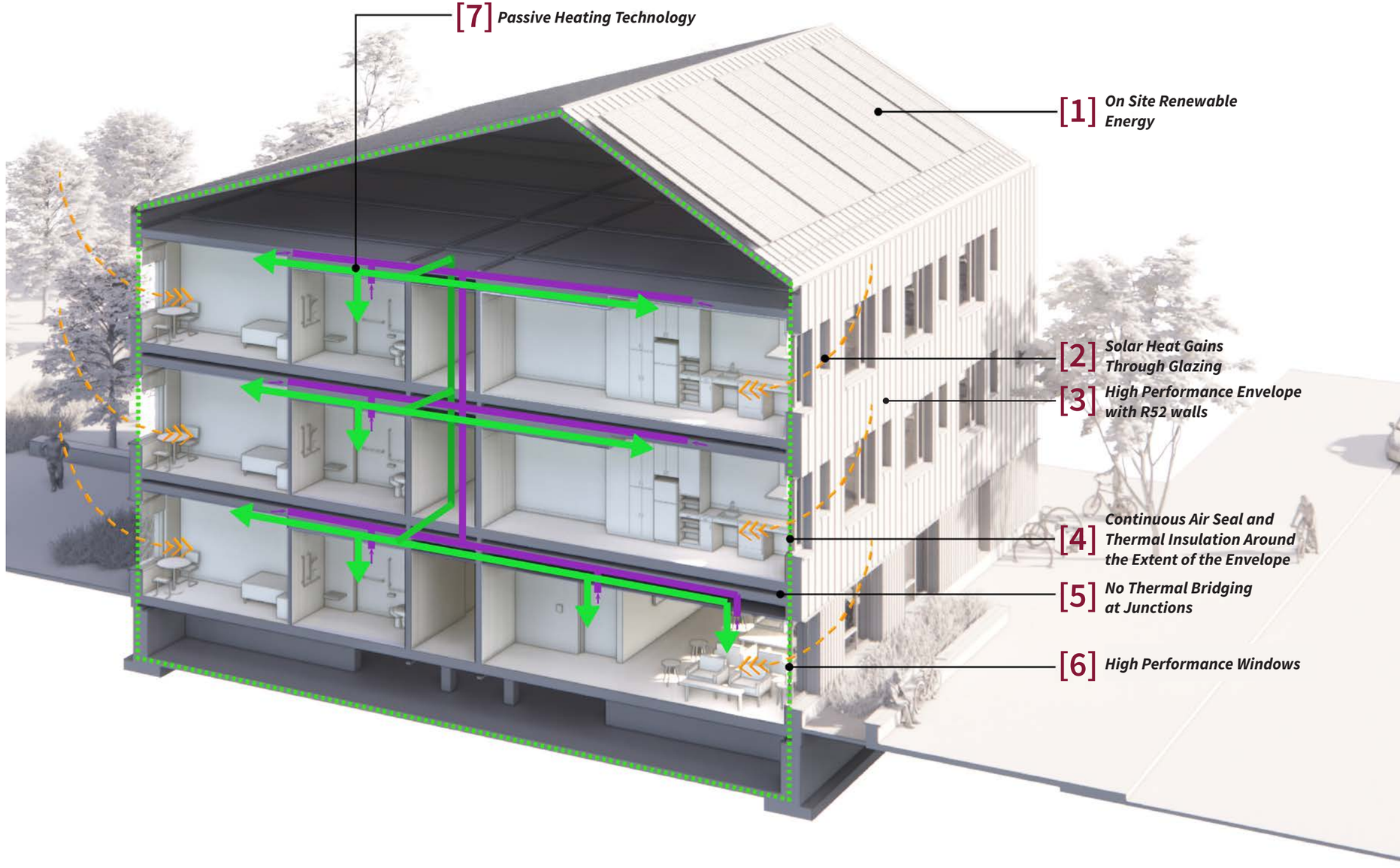
OPERATING ENERGY PRESENT AND FUTURE

The objective was for this building to be exceptionally energy effiicient reducing the need for active heating and cooling.

To maximize the thermal performance of the envelope, an R-52 wall was created through a 15” wall assembly consisting of rigid and batt insulation. The rigid insulation utilized the Thermal Wall system which allows the cladding strapping to be fitted onto the insulation without the use of mechanical fasteners, substantial reducing thermal bridging.

To offset current and future power demand, the building was designed with an offset or asymmetrical pitched roof that optimizes the angle for photovoltaics.

Solar PV output is 20,327 kwH / year.



EDUCATION AND INFORMATION SHARING

This project sits at the intersection of two critical crisis facing our society – housing and climate change. While all levels of government focus on delivering housing as fast as possible, there may be a tendency to lower the sustainability bar believing that it lowers the cost threshold of housing projects. 235 King William is testament to the ability to address both issues at once. It communicates that sustainable design isn't just a moral imperative but an economic imperative. It encourages future owners and operators to look past capital cost and examine the true life-cycle cost of their buildings. We can provide well designed housing for all, while reducing our reliance on fossil fuels and managing our impact on the planet.