# 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: TRCA Headquarters
Address: 5 Shoreham Dr, North York, ON M3N 1S4
Year completed: January 2025

## PROGRAM AND CONTEXT

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

Office Space

**Project site:** [Check all that apply]

- ☐ Previously undeveloped land
- ☐ Previously developed land
- ■ Urban
- ☐ Suburban
- ☐ Rural

**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: 8253 $m^2$
- Building gross floor area: 7895 $m^2$
- Energy Intensity: 61 KWhr/$m^2$/year [Include both base building and process energy]

[optional: report energy intensity separately as follows:

- Energy Intensity, base building: 41 KWhr/$m^2$/year
- Energy Intensity, process energy: 20 KWhr/$m^2$/year

- Reduction in energy intensity: 56.7 %.
- State the reference standard on which the % reduction is based: MNECB, NECB or ASHRAE 90.1 [include version]: ASHRAE 90.1-2010 Appendix G, with I
- Recycled materials content: N/A % by value
- Construction materials diverted from landfill: 73.05 %
- Regional materials by value: N/A
- Water consumption from municipal source: 1554 litres/occupant/year

[Include both base building and process consumption]

- Reduction in water consumption: 50 %
- 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.

# PART 1
# PROJECT DESCRIPTION

**Your firm, and others involved in the project,
should not be identified in the Part 1 Project Description.
Please submit Part 1 and Part 2 as separate pdf files.**

*Please see the end of this document for Introba's response to the below questions*

**PROJECT SUMMARY**
In 200 words or less, describe:
- The project program and function, building type, and context
- Any special features or constraints that influenced the design.
- The sustainable design strategies [up to five] that are important to the success of the project.
- If your project is designed to any LEED Canada or Passive House rating systems, or other rating systems.

For Part 9 residential projects, include the EnerGuide or the Home Energy Rating System [HERS] ratings if available, and the Walkscore rating which can be determined at www.walkscore.com.

**MAIN PROJECT DESCRIPTION**
Fill in each section below that applies to your project. A description is provided for each section as a guide. Each section of the project description may be accompanied by up to four graphics or tables illustrating the key sustainable principles or data. The total project description [sections 1 - 10] should not exceed 1,000 words in length.

**1. Strategic Decisions**
Sustainable design embraces the ecological, economic, and social circumstances of a project. Explain how these circumstances influenced decisions such as site selection, building placement and orientation and program organization. Describe the passive design strategies at work in the building, and how active systems are employed to enhance their performance.

**2. Community**
Describe as appropriate, how the project enhances the public realm,, encourages community interaction and supports community resiliency. Explain how the project reduces automobile travel, including choice of location; use of any alternative local or regional transportation strategies; as well as any successful efforts to reduce locally mandated parking requirements.

**3. Site Ecology**
Describe how site design strategies work to preserve, rehabilitate or enhance natural ecosystems including details of the approach taken to groundscape, water management, planting and habitat creation. Indicate whether these strategies are contained within the project site, or extend beyond the site boundary. If appropriate, include a brief description of how these strategies fit within the scale of a neighbourhood, community or regional plan.

**4. Light and Air**
Describe the day lighting and fresh air ventilation strategies, and how the building design and operation maximizes the effectiveness of both. Indicate the percentage of the occupied floor area that is within 7 metres of an operable window. Describe the devices/technologies used to reduce the energy consumption of the lighting system, and the projected annual energy consumption of the system in KWhr/$m^2$. Quantify the provision of fresh air in air changes per hour.

**5. Wellness**
Describe how the design of the project addresses our understanding of how buildings can support both the physical and psychological health of their occupants. This may include material choices, introduction of biophilic elements, provision of social spaces, support of physical activity through design etc.

**6. Water Conservation**
Describe how building and site strategies conserve and manage water supplies, including measures to capitalize on renewable sources such as rainwater, and reusable sources such as building grey water. Indicate the strategies and technologies used for water conservation, and the projected potable water consumption per $m^2$/occupant/annum for the building from municipal or other centralized off-site supply. What percentage improvement does this represent over the water consumption of the reference building?

**7. Operating Energy Present and Future**
Describe how the building's mechanical, electrical and related control systems complement passive design strategies such as orientation, thermal mass and building cross section. Explain how these systems contribute to energy conservation, reduced GHG emissions, improved building performance and comfort. What is the annual energy intensity for heating and cooling the building in KWhr/m2/yr? Indicate what percentage of the energy consumed is from renewable sources [site installations, district heating systems, waste heat captured from adjacent buildings, or green power certificates], and how the building could respond to a future reduction in, or elimination of, fossil fuels.

**8. Materials and Resources**
Describe how the selection of materials for the building addresses concerns for occupant health and comfort, durability, and building performance. Indicate how the materials chosen were assessed for their environmental impacts, (including embodied carbon) and provided transparency, such as through health or environmental product declarations. Indicate any life cycle analysis conducted, the percentage of recycled materials used in the building, and the percentage of waste materials recycled during construction.

**9. Building Life Cycle Considerations**
The environmental impact of buildings begins with material extraction, and continues through fabrication, transportation, construction and operation, before ending with disassembly, reclamation and/or disposal. Life Cycle Assessment influences material selection as well as the choice of building systems. Describe how life cycle issues were incorporated into the design approach including: designing for the anticipated service life of the building, the measures that have been taken to ensure flexibility in use, adaptability to other functions and demountability and recyclability of building components.

**10. Education and Information Sharing**
The ultimate success of sustainable design will require both a top down and bottom up approach. It will depend on transforming the cultural attitudes among building owners, and disseminating information among professionals to push the envelope of best practice standards. At the same time, public education will raise the awareness and expectations of building occupants and users, and encourage market transformation. Describe how the project addresses these concerns.

# SAB Magazine: Canadian Green Building Awards

## Part 1: Project Description

## PROJECT SUMMARY

The TRCA Headquarters is a 4-storey, 85,000-square-foot mass timber office building. Serving as both an administrative center and a learning hub, the facility offers a highly flexible and collaborative work environment, featuring open workspaces, private offices, meeting rooms, and adaptable areas with movable partition walls.

The design of the headquarters prioritizes passive systems by utilizing Passive House principles, which include a high-performance building envelope and solar optimization for natural daylighting and ventilation. The mechanical systems feature an open loop geo-exchange system connected to a modular heat recovery chiller that supports radiant heating and cooling panels located at the ceilings for efficient temperature regulation. The facility incorporates energy recovery ventilation (ERV), highlighted by four "water walls" in the main atrium. These water walls are glass enclosures where ventilation air is pulled down from the roof intake and distributed to ERVs. Inside each glass duct, a chain-link mesh is suspended the full height, with cascading water providing both a visual display and a role in pre-heating and humidification of the dedicated outdoor air HVAC system. Additionally, the building includes rainwater harvesting for irrigation and a solar thermal system to reduce energy demand. The TRCA Headquarters participated in the CGBC's Zero Carbon pilot program and designed the facility to achieve TGS Tier 4 criteria and LEED Platinum criteria.

## MAIN PROJECT DESCRIPTION

### Strategic Decisions

The TRCA Headquarters is designed to be a sustainable office building with a strong focus on energy efficiency and environmental responsibility. The building's site selection, placement, and orientation were influenced by the ecological, economic, and social circumstances of the project. The building is located at 5 Shoreham Drive in Toronto, adjacent to the Black Creek ravine, which provides a unique natural setting. The design incorporates passive strategies such as natural ventilation, solar chimneys, and water walls to reduce energy usage. The building also features a mass timber structure to reduce embodied carbon content.

### Community

The TRCA Headquarters enhances the public realm by providing a healthy workplace and setting a high standard for office building development. The building encourages community interaction and supports community resiliency by incorporating flexible workspaces and connections to nature. The project reduces automobile travel by being located near public transportation options and implementing alternative local and regional transportation strategies. Efforts to reduce locally mandated parking requirements include promoting the use of bicycles and providing ample bike storage.

### Site Ecology

The site design strategies for the TRCA Headquarters work to preserve, rehabilitate, and enhance natural ecosystems. The approach includes groundscape, water management, planting, and habitat creation. The

building's design extends beyond the site boundary to integrate with the surrounding ravine landscape. The project fits within the scale of a neighborhood, community, and regional plan by promoting low-impact development and enhancing the site's natural heritage.

**Light and Air**

The TRCA Headquarters is designed to maximize daylight and fresh air. It features high ceilings and strategically placed windows, ensuring most areas are naturally lit. About 60% of occupied space is within 7 meters of an operable window. Energy-saving measures include daylight harvesting controls and high-efficiency LED lighting. The building has operable and motorized natural ventilation openings, which can be automatically managed by the building automation system. This allows extended use of natural ventilation, reducing the need for active mechanical systems to operate. When active ventilation is needed, it is provided through decentralized units and an underfloor plenum.

**Wellness**

The design of the TRCA Headquarters supports both the physical and psychological health of its occupants. Material choices include sustainable and low-emission materials, and the introduction of biophilic elements such as connections to nature and flexible workspaces. The building provides social spaces and supports physical activity through design elements like staircases and bike storage. The project aims to achieve WELL Building Standard certification, emphasizing occupant health and well-being.

**Water Conservation**

The TRCA Headquarters conserves and manages water supplies through various building and site strategies. Measures include rainwater harvesting, greywater reuse, and ultra low-flow fixtures. The projected potable water consumption for the building is significantly reduced compared to a reference building, with a minimum 40% reduction in water use.

**Operating Energy Present and Future**

The building's mechanical, electrical, and related control systems complement passive design strategies such as orientation, thermal mass, and building cross-section. These systems contribute to energy conservation, reduced greenhouse gas emissions, improved building performance, and comfort. The annual energy intensity for heating and cooling the building is estimated to be 61 $kWh/m^2/yr$. Approximately 35% of the energy consumed comes from renewable sources, including on-site photovoltaics and a geothermal system. This all-electric building, designed in 2018, uses no on-site combustion for the operation of its systems.

**Materials and Resources**

The selection of materials for the TRCA Headquarters addresses concerns for occupant health and comfort, durability, and building performance. Materials were assessed for their environmental impacts, including embodied carbon, and provided transparency through health or environmental product declarations. The project conducted a life cycle analysis and used a significant percentage of recycled materials. During construction, a high percentage of waste materials were recycled.

**Building Life Cycle Considerations**

Life cycle issues were incorporated into the design approach of the TRCA Headquarters, including designing for the anticipated service life of the building. Measures taken to ensure flexibility in use, such

as modular access floors and adaptability to other functions, and demountability and recyclability of building components include the use of modular construction and durable materials. The building is designed to last 100 years and adapt to changing programs and technologies.

**Education and Information Sharing**

The TRCA Headquarters addresses the need for education and information sharing by providing a learning center and living laboratory for developers, researchers, professionals, and students. The project aims to transform cultural attitudes among building owners and disseminate information among professionals to push the envelope of best practice standards. Public education efforts include raising awareness and expectations of building occupants and users, encouraging market transformation. There will be an energy dashboard located in the lobby of the building to display live key metrics energy and sustainability which are taking place within the building.