

ARTSCAPE

Wychwood Barns

76 Wychwood Ave. Artscape Wychwood Barns is a mixed-use centre for artists and environmental organizations, realized through the conversion of an early 20th century streetcar repair and maintenance facility in a dense residential neighbourhood in downtown Toronto.



Site plan

Project details

Public Building/Facility

Non-profit

Adaptive Re-use

Designed to LEED Gold

A Green Build tour site

City funded support provided by Live Green Capital Fund, Toronto Green Energy Fund

Map #
38

ALONG THE NORTH ELEVATION WINDOWS WERE REMOVED, LARGER OPENINGS WERE CUT, AND A NEW EXTERIOR WALL WAS CONSTRUCTED AND INSET FROM THE ORIGINAL WALL TO CREATE A RECESSED LOGGIA. THE NEW WALL IS CLAD WITH PANELS OF RECYCLED PLASTIC MORE TYPICALLY USED TO LINE THE TRAILERS OF TRUCK TRANSPORTS, AND FOR OTHER INDUSTRIAL APPLICATIONS. [1] THE GEOTHERMAL HEAT PUMP WAS INSTALLED IN THE PARK ADJACENT TO THE BARNs. [2]

The 5600 m² program consists of 26 live/work housing units, 15 work studios for local artists, a series of community spaces for arts and environmental groups, and a greenhouse and sheltered garden, all adjacent to a newly developed City park.

Included in the design is a ground source heat pump HVAC system supporting high-efficiency mechanical equipment, and a 90 m³ cistern to collect roof water for irrigation and use in all washrooms in the facility. All the lighting in the building is high efficiency, and extensive day lighting is provided throughout the building through perimeter glazing and skylights. This glazing also provides a passive ventilation circuit in all of the residential units.

Thermal insulation was added to the interior face of all of the existing perimeter masonry walls, improving the performance of the enclosure while protecting the brick from the adverse effects of freeze-thaw cycles.

Site remediation focused on the removal of contaminated soil, the introduction of planted areas on the previously paved site, and the establishment of a community greenhouse and demonstration composting facility within the shell of Barn 4. The rainwater captured from the roof and stored within the building's cistern is used for irrigation throughout the project.

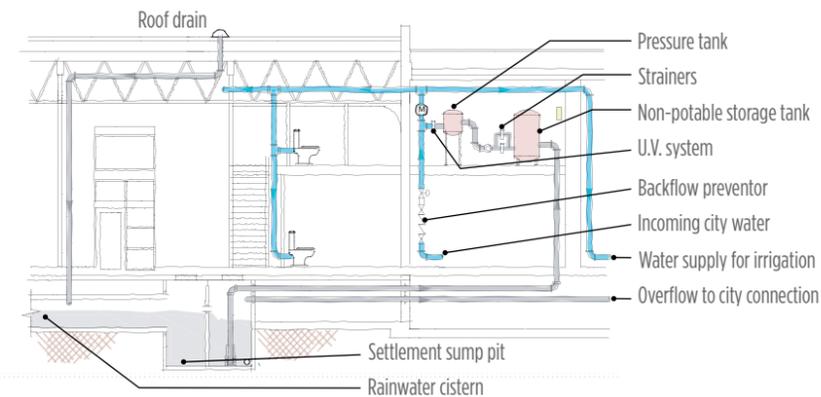


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THE OLDEST BARN, BUILT IN 1913, IS CONVERTED INTO A COVERED STREET USED FOR MARKETS, EXHIBITIONS AND LARGE PUBLIC GATHERINGS. [3,4]



Rainwater Capture System

The ground source heat pump reduces dependence on fossil fuels by meeting the heating and cooling needs of the building using the earth's thermal mass. Individual check meters were installed within the residential and office units, allowing the building owners to monitor electricity consumption and to optimize building performance.

Materials are chosen for durability - including recycled plastic. The plastic siding panels, manufactured from industrial scrap, are waterproof, UV resistant, contain no asbestos, fiberglass or toxic resins, and in this installation alone, diverted more than 4000 kg of plastic from landfill.

Project performance

Energy Intensity 627MJ/m/year
[Including both base building and process energy]

Water Consumption from municipal sources 283l/m³/year
[Including both base building and process consumption]

Local materials [800 km radius] by value 54%

Recycled material content 18.8%



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WYCHWOOD BARNs CIRCA 1915.

OWNER/CLIENT City of Toronto/Artscape/Stop Community Food Network ARCHITECTS du Toit Architects Ltd. HERITAGE ARCHITECT ERA Architects LANDSCAPE ARCHITECT The Planning Partnership STRUCTURAL ENGINEER Blackwell Bowick Partnership GREENHOUSE CONSULTANT Michael Dixon, University of Guelph MECHANICAL & ELECTRICAL ENGINEERS Stantec Consulting LEED CONSULTANT Stantec Consulting GENERAL CONTRACTOR Dalton