

# Eden Mills

## The Village of Eden Mills, Ontario

The Village of Eden Mills Community Hall Retrofit project is one of the most ambitious deep energy retrofits of a community-owned heritage building in Canada, conceived and implemented entirely by the local community. The retrofit of the over 100 year old building reduced energy costs by 80%, energy use by 90% and carbon emissions by 94%, even while the Hall use increased.



### Achievements & Accreditations

- ✓ 94% reduction in carbon emissions
- ✓ Canada Clean50 Top Project Award
- ✓ 17 kW solar photovoltaic rooftop array
- ✓ Air infiltration reduced from 5.6 ACH50 to <1.5
- ✓ Net electricity use reduced by 80% (from ~15,000 kWh - 3,000kWh/year)

### Innovative Approaches

- ✓ Rooftop Photovoltaic Array
- ✓ Air Source Heat Pump VRF
- ✓ Total exterior insulation retrofit of stone foundation and brick walls



# Eden Mills

Going Carbon Neutral Community Hall Retrofit Project  
The Village of Eden Mills  
Richard Lay, M.A.Sc., P.Eng.



## Water Management

Replaced all existing toilets with **low-flush models**.



## Landscaping & Sustainable Construction

Eden Mills Hall is an **historic site** located on the Eramosa, a Canadian Heritage River. Part of the parking lot re-purposed with landscaping, plants, shade, and seating to create a more welcoming and comfortable Village gathering setting.

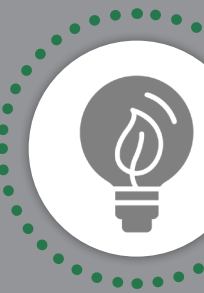
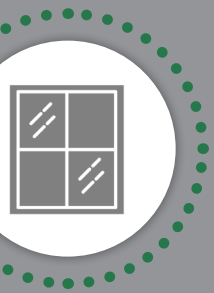


## Envelope, Lighting, HVAC

**ENVELOPE:** Upgrades included below grade insulation of west, east, and north facades; 4" expanded polystyrene EIFS exterior insulation for above-grade walls; enhanced roof insulation to R-20; high performance triple-glazed, low-e coated windows with warm-edge spacers in fibreglass frames; and, insulated exterior doors with double low-e glazing with enhanced weather seals. The envelope upgrades included extensive air-sealing, and reduced infiltration rates from 2.6 ACH50 to <1.5.

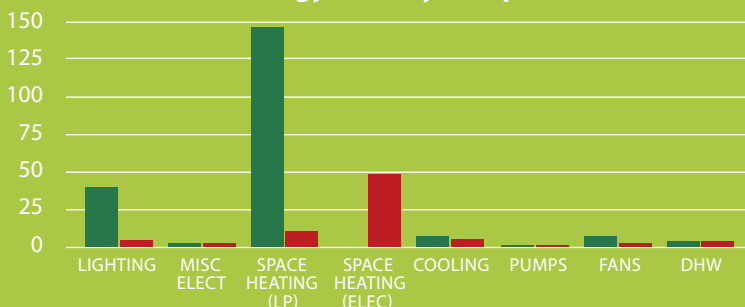
**LIGHTING / PLUG LOAD:** Existing incandescent lighting replaced with LED fixtures and lights. All appliances are EnergyStar.

**HVAC:** The upgraded HVAC system replaced two existing propane furnaces with 2 VRF Air Source Heat-Pumps and introduced 2 70% efficient ERVs with ECM motors. A 95% auxiliary propane furnace was also installed for pickup only.



Reference (Existing)  
Eden Mills (Upgrade)

## Performance Data Energy Used By Component GJ



## Occupant Health & Engagement

**Community Hall members** planned and managed the entire design and construction.

Installed an elevator and increased the size of the exterior door to **improve accessibility**.

Extended the stage and added professional theatre lighting and sound.

**Wirelessly enabled** heating and cooling

