



# Parkway House

**One Planet Living® leadership review**  
October 2024



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# Report overview

# Report overview

## Project name:

Parkway House, Ottawa, Canada

## Project type:

Real estate

## Developer:

Windmill Developments

## Description:

Parkway House is a 2.5-acre site in the Lincoln Heights neighbourhood of Ottawa. Its location is on the southern bank of the Ottawa River, some 10km west of downtown. Currently occupied by Parkway House Ottawa and District, a non-profit care facility providing long term housing to adults with severe physical disabilities.

Windmill will redevelop and densify the site, providing 3 new residential towers, 7, 16 and 28 storeys, one of which will include a new home for Parkway House care facility. In total, the project will deliver 555 homes, a mixture of studios, one, two and three-bedroom apartments.

Parkway House is part of the One Planet Living Real Estate Fund portfolio.

## Reviewer:

Nicole Lazarus

## Sign-off and quality review:

Sue Riddlestone

## Date of review:

October 2024



## Leadership status:



One Planet  
Living®

Global  
Leader 2024

# Bioregional and One Planet Living



# Bioregional and One Planet Living

## About Bioregional

Bioregional is a registered charity, and purpose-led sustainability consultancy. It has worked in over 20 countries on sustainable development, working with local communities, cities, and companies.

Bioregional devised the One Planet Living framework in 2003 supported by WWF, based on our experiences creating the multi-award-winning BedZED in South London (pictured below), the UK's first large-scale sustainable community. One Planet Living has guided the development of real estate across the world, shaping exemplar communities that enable sustainable living.



## About One Planet Living

One Planet Living is a vision of a world where everyone can live happily and healthily within the limits of our planet's resources while leaving sufficient space for nature to thrive.

We need to achieve this vision because if everyone lived like the average north American, we would need nearly five planets to support us. The measure of this is called 'ecological footprinting'. Meanwhile, many lack what they need for a good life, and wildlife is being pushed out to make room for our demands. Ecologists have calculated that we need to leave half the Earth for the rest of nature.

The One Planet Living framework consists of 10 principles which cover the activities that drive resource consumption, and the elements that form the basis of a good life for everyone. The principles are used to identify the needs in a local area, to relate these to the planetary bottom-line, and then to structure responses to those needs. One Planet Living is freely available through an open licence, and has been used on over \$30billion of real estate development globally.

	Health and happiness
	Equity and local economy
	Culture and community
	Land and nature
	Sustainable water
	Local and sustainable food
	Travel and transport
	Materials and products
	Zero waste
	Zero carbon energy



# What is a One Planet Living leadership review?

# What is a One Planet Living leadership review?

A review is when you open your One Planet Living action plan to scrutiny from a suitable qualified expert from Bioregional (or one appointed by Bioregional).

**It will include:**

- Reviewing the action plan as a whole and providing advice and suggestions on how it might be improved
- Evaluating it against several criteria including impact, systems change, ambition and delivery
- Assessing the action plan against the One Planet Living goals and guidance and local industry best practice.
- You can then discuss whether your action plan could be a candidate for leadership recognition.





# About this leadership review

# About this leadership review

**This document reviews the Parkway House One Planet Living Action Plan (OPAP) along with supplementary documents including:**

- Drawings and landscape plans
- Energy Modelling Report
- Windmill Impact Standard - Project Tracker
- A presentation by the Windmill team on the emerging strategy for Community Benefits, One Planet Lifestyles and post-occupancy monitoring
- Windmill's Design and Contractor Guidelines
- Windmill's One Planet Living Carbon Specification
- Parkway House Landscape Design Brief
- Preliminary Community Benefits Plan

Windmill has established a One Planet Living (OPL) Lifestyles Working Group to identify a strategy to provide post-occupancy support for all developments in the OPL Fund portfolio, including Parkway House. The work of this group is underway with a strategy already presented in February 2024. The strategy includes:

- the use of a website or resident portal to provide information for all incoming residents, including resources to facilitate sustainable behaviour
- plans for incorporating OPL approaches into the governance arrangements of each scheme where possible, i.e., through the future Condo Board
- incentives such as introductory subscriptions to sustainable food providers, mobility providers, and / or public transport passes
- plans for post-occupancy monitoring and resident surveys
- an eco-concierge service to support active engagement with residents.

For the purposes of this review, details of the OPL Lifestyle package are listed as opportunities for future editions of the OPAP.



# Review summary and highlights

# Review summary

Parkway House provides high quality urban densification in the right place with excellent transit links as well as superb outdoor natural amenity. The ambitions in the action plan are comprehensive, with robust KPIs across all 10 principles.

As part of the One Planet Living Fund portfolio, Parkway House is part of a process to make aspirational One Planet Living a standard and consistent way of delivering communities.

Design stage and construction stage measures are well addressed in the documents provided. The upcoming OPL Lifestyles and Community Benefit support packages will be important next steps in the coming year.

**The outcome of this review is to recognise Parkway House as a One Planet Living Global Leader 2024.**



One Planet  
Living®

Global  
Leader 2024





# Project highlights

1. Parkway House is in an excellent location, contributing to high density urban renewal, with superb transit and active travel provision.
2. Parkway House is designed to achieve LEED Platinum and is aligned with the Ottawa High Performance Design Standard Tier 2. It will be net-zero carbon with no combustion on site, excellent building fabric, geothermal energy supply and excellent water efficiency measures.
3. This redevelopment project helps to secure the long-term financial viability of the Parkway House non-profit care facility. It will provide new, modern accommodation and facilities for its residents.
4. Parkway House will offer residents great quality of life features including thermal comfort, exposed wood surfaces and use of high-quality outdoor roof and balcony spaces.
5. Despite the high density, Parkway House will provide 25% nature friendly landscaping space, with best practice in native planting, bird-safe design, and non-toxic pest control.
6. A Parkway House Community Benefits Plan is currently being developed. It includes a flexible hiring system to benefit equity seeking groups and social purpose enterprises. It will also include apprenticeship opportunities for equity-seeking groups. The project is targeting 20% of construction jobs being filled from equity-seeking groups.
7. Windmill will have no ongoing presence at Parkway House, so post-occupancy engagement and performance tracking present challenges. Despite this, and recognising the importance of these whole life considerations, Windmill is addressing them at a group-wide level, with an intention to develop:
  - a. One Planet Lifestyles package,
  - b. A post-occupancy monitoring plan and resident survey monitoring for energy and water, travel habits and possibly greenhouse gas (GHG) savings due to more plant-based diets. The length of this engagement is under consideration, and may differ between rental and condo, where the opportunities for monitoring may be limited to one year.

When these measures are in place, and if post-occupancy monitoring can be extended beyond one year, this will demonstrate exemplary post-occupancy commitment for schemes of this scale.

# Suggestions

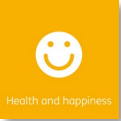




1. It is important for any One Planet Living Community to be able to demonstrate an increase in biodiversity value. So as discussed, a full ecological baseline survey will be carried out in spring 2025 and a detailed biodiversity strategy will follow. Ideally, the detailed biodiversity strategy will identify specific species and habitats that are important in that location, with measures to create those specific habitats and with planting to support specific species.
2. Due to climate change, all locations are expected to face an increase in extreme weather events, from thermal extremes to storms and flooding events. It is not clear from the information provided that Parkway House has been designed and modelled using weather data from these extreme but increasingly likely forecasts. There is an opportunity for this during detailed design.
1. Details of how the small quantity of residual carbon emissions will be offset to fully achieve the net-zero carbon ambition. This could be through a local photovoltaic (PV) or retrofit project, perhaps enhancing the Community Benefits package e.g., PV panels on a local school or social housing scheme.
2. Resident surveys should include questions on travel modes to understand how effective the measures have been and ideally to assess modal share.
3. There is an opportunity for Windmill and its appointed contractor to identify health and wellbeing measures for construction staff beyond good indoor air quality.

# Action plan summary

# Action plan summary

Bioregional uses a simple red/amber/green traffic-light approach to indicate how well the action plan addresses the One Planet Living principle and their goals. More detailed comments and recommendations are in the ‘detailed review’ section.

- 5 Well addressed
- 4 Well addressed but additional suggestions provided
- 3 Partly addressed but additional content needed
- 2 Not adequately addressed
- 1 Not addressed






	Comment	RAG rating
	Well-structured resident surveys for at least one year comparing health and wellbeing indicators with local baselines. Active travel provision is excellent. Thermal comfort, healthy materials, and exposed timber surfaces. Use of private and shared outdoor spaces.	5
	This project helps to secure the long-term financial viability of the Parkway House non-profit care facility. It will provide new, modern accommodation and facilities for its residents. The project targets 20% of construction jobs being filled by members of equity-seeking groups. The full Parkway House Community Benefits Plan is currently under development.	3
	The outcomes in the action plan express ambitions to embody indigenous wisdom and oral history into the project. Community Benefits and OPL Lifestyles packages are currently under development to deliver those ambitions but will include indigenous awareness training.	3
	Parkway House results in a loss of greenspace adjacent to a valuable nature reserve. Preliminary ecological data has already informed the landscape design brief but an ecological survey and detailed biodiversity strategy will be carried out in 2025 to ensure no net loss of biodiversity. The design uses built environment best practice details such as bird-safe design, native species, dark sky compliance, heat island reductions and non-toxic pest control. 25% of the site area will be nature-friendly landscaped outdoor space and every dwelling will have quality views outdoors.	2
	Excellent water efficient specification with zero mains water for irrigation. Stormwater runoff to be reduced by half. There is an intention to monitor site-wide water use, but residents do not have the benefit of individual water meters.	4



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	Comment	RAG rating
	A shipping container for indoor vertical farming is being considered for this project. This major innovation would provide fresh food for sale to the residents of the project. Space may be designed in for box scheme deliveries and segregated organic waste collection. The action plan also aims to track reductions in meat and dairy consumption using post-occupancy surveys.	3
	Excellent location for minimising car dependency, with convenient access to bus, train, active travel routes, and many service needs. Car parking <0.5 spaces per dwelling with ample EV charging. Walkscore.com gives ratings of 60 for walkability, a cycling score of 85 and transit score of 76. There is a bike maintenance area with communal tools, a bike wash facility and electric bike charging.	5
	The Parkway House blocks will be of concrete construction, targeting upfront embodied carbon of <420kgCO <sub>2</sub> /m <sup>2</sup> and exploring prefabrication options Specifications include local sourcing, responsible extraction, and environmental product declarations. The specification requires no added urea formaldehyde. The OPL Lifestyle package will encourage low impact resident consumption habits.	5
	Targeting >90% construction and demolition waste diversion. Design includes space for communal recycling and bulky waste item collection areas, special collection areas e.g., batteries, and waste segregation in each dwelling. Windmill is currently developing a methodology for monitoring resident waste., targeting a 25% reduction against local baseline.	5
	Parkway House has good building fabric specification with Thermal Energy Demand Intensity (TEDI) target <33kWh/m <sup>2</sup> . Space heating and cooling are met using ground source heat pumps. Energy use intensity is modelled at <90kWh/m <sup>2</sup> . Windmill envisages post-occupancy energy monitoring for at least one year. Clean grid electricity results in a small residual GHG intensity of 3.1kgCO <sub>2</sub> /m <sup>2</sup> , to be offset in line with Canada Green Building Council (CaGBC) standards.	5

# Overall leadership qualities

# Overall leadership qualities

	Highlights	Opportunities
<b>Scope</b>	<p>The action plan addresses, or has work in progress to address, all 10 principles. It considers all the direct impacts and opportunities associated with delivering the development and most indirect impacts.</p> <p>The plan targets design, construction, operation and, where possible, future resident behaviour, and even marketing/sales processes.</p> <p>The action plan contains an excellent context analysis which sets the scene for all of the proposed strategies.</p>	<p>Given the green space and vegetation on the site, and given the proximity to protected natural areas, the project team have committed to deepening the scope of the Land and Nature principle and creating a detailed biodiversity strategy.</p> <p>The scope of the OPL Lifestyle package is yet to be reviewed. Bioregional encourages the team to creatively find ways to maintain a relationship with each condo board and to track the success of the scheme beyond one year of occupation, for a minimum of five years. This will provide precious learning to inform future One Planet Living Fund schemes as well as the wider industry.</p> <p>Windmill will be addressing this through its OPL Lifestyle strategy and, more specifically, a metering strategy that will endeavour to work with the condo board to collect data, pending the legalities in doing so.</p> <p>It is not clear if the team have used future weather data to model for the impacts of future climate scenarios.</p>
<b>Transformation</b>	<p>As part of the OPL Fund portfolio, Parkway House continues to deliver industry leadership in many ways. It has an impressive approach to standardising high performance One Planet Living solutions, delivering some of the first zero-carbon, LEED Platinum-certified multi-family developments in Eastern Canada.</p>	<p>The upcoming OPL Lifestyle package has the exciting potential to show innovative leadership in post-occupancy follow up for schemes with no onsite developer presence after one year.</p>

# Overall leadership qualities

	Highlights	Opportunities
Ambition	The outcomes are comprehensive, and their level of ambition aligns with the goals in the OPL framework. The outcomes are particularly well crafted for the context, with topic areas to illuminate the intentions of the outcomes. Each outcome is accompanied by at least one indicator with ambitious targets set. Parkway House is designed to meet LEED Platinum and is aligned with the Ottawa High Performance Design Standard Tier 2.	
Implementation	Windmill and their team have a proven track record of delivering exemplary projects. The ambitious targets are matched with realistic design specifications and strategies for delivery.	



# Detailed review



Outcomes:

- Residents are among the most physically active in Canada
- Residents are among the happiest in Canada
- Indoor and outdoor spaces are healthy, welcoming and comfortable

Topic	Highlights	Opportunities
Physical health  Happiness and wellbeing	<p>Post-occupancy resident surveys will ask standardised questions on self-reported health and happiness. The project aspires to score much better than the Ottawa baseline.</p> <p>The project provides excellent active travel provisions (See Travel and transport below).</p> <p>The resident survey will ask about residents’ physical activity and aspires to a 20% improvement on the Ottawa baseline of 150 minutes-per-week.</p> <p>The project will make use of biophilic design principles as a requirement in the design guidelines.</p> <p>The project specifies 95% low volatile organic compound (VOC) building products.</p> <p>To maintain thermal comfort, the buildings are designed to remain below 26°C in summer conditions. Passive features that will help achieve this include excellent building fabric standards, a window to wall ratio of &lt;30%, and thermally efficient glazing. Active cooling will then be provided from the ground source heat pump system.</p>	<p>Identify more health and well-being measures for construction staff when contractors are appointed.</p>

Continued overleaf

Topic	Highlights	Opportunities
Physical health	For resiliency, a refuge area is provided. Daylight modelling ensures good lighting levels and anti glare measures are used.	
Happiness and wellbeing (continued)	All dwellings will have good views and many will have private outdoor balconies or terraces. And all residents will have access to a shared rooftop terrace. In order to protect the health and wellbeing of construction workers, dust management, good ventilation and low emitting materials will ensure good construction stage indoor air quality.	



Equity and  
local economy

## Outcomes:

- Affordable and accessible options are available to all
- Economic development opportunities are available to equity-seeking groups
- Residents and contractors engage in environmentally and socially responsible procurement practices

Topic	Highlights	Opportunities
Diversity and equality of opportunity	<p>This redevelopment project helps to secure the long-term financial viability of the Parkway House non-profit care facility. It will provide new, modern accommodation and facilities for its residents.</p> <p>Parkway House will include at least 15% accessible homes to meet the Ontario Building Code.</p> <p>A Parkway House Community Benefits Plan is currently being developed. It includes a flexible hiring system to benefit equity seeking groups and social purpose enterprises. It will also include apprenticeship opportunities for equity-seeking groups. The project is targeting 20% of construction jobs being filled from equity-seeking groups.</p>	<p>The team is currently exploring opportunities to deliver some or all of the homes through Canada Mortgage and Housing Corporation (CMHC) affordable housing fund. If this programme is deemed viable, then the project will be able to have at least 15% affordable homes in each building.</p> <p>The Community Benefits Plan currently being developed will identify what equity-seeking groups will be targeted for social hiring.</p>
Vibrant local economy	<p>Post-occupancy resident surveys will ask questions on how many residents regularly shop locally, targeting &gt;75%, a better score than the Ottawa baseline of 66%.</p>	<p>The OPL lifestyle package can promote local sustainable businesses and service providers to residents.</p>
Fair international trade		<p>The OPL lifestyle package can potentially address this.</p>





Culture and  
community

## Outcomes:

- There is a culture of sustainability that is rooted in indigenous traditional knowledge and wisdom
- The design embodies indigenous oral history to reveal its local narratives
- All residents feel a sense of belonging, regardless of physical ability, ethnic identity, age or economic means

Topic	Highlights	Opportunities
<b>Sense of place and belonging</b>	Parkway House will use human scale design and public art. It will include thoughtfully designed shared amenity spaces for a range of activities, including a lobby lounge, a party room with catering facilities, co-working spaces, a quiet working area/library, a gym, and shared roof terraces.	
<b>Local culture and heritage</b>	<p>A Parkway House Community Benefits Plan is currently being developed. It includes:</p> <ul style="list-style-type: none"><li>• Pre-design community engagement,</li><li>• the rebuilding of Parkway House Centre and</li><li>• Indigenous awareness training</li></ul>	Outcome 2 'The design embodies indigenous oral history to reveal its local narratives' is currently being considered.
<b>Active citizenship and sustainability culture</b>		The OPL lifestyles package will embed a holistic culture of sustainability in this new community, rooted in indigenous traditional knowledge and wisdom.



Land and nature

## Outcomes:

- The natural cycles and resource flows of the local ecosystems are respected and regenerated
- Connections to the surrounding natural beauty and landscape create a love of nature

Topic	Highlights	Opportunities
<b>Positive contribution to local biodiversity</b>  <b>Enhance ecosystem services</b>	<p>The project team have used municipal ecological data (Natureserve Explorer Pro and Geohub) to identify significant species. The preliminary landscape plan has responded to this but a full ecological baseline survey will be carried out in spring 2025 and a detailed biodiversity strategy will follow.</p> <p>Parkway House will incorporate lots of best practice details such as green roofs, bird-safe design, dark sky compliance, heat island reductions and non-toxic pest control.</p> <p>The site will feature 25% nature-friendly outdoor landscaping.</p> <p>All outdoor spaces will be planted with native or adapted species and are designed for use all year round.</p> <p>Every dwelling will have unobstructed, quality views outdoors.</p>	<p>The site is currently mostly greenspace, with trees, scrub and grassed areas. It adjoins other wild areas leading towards the Ottawa River, including Mud Lake which is described as one of the most ecologically important natural habitats in the urban part of the National Capital Region. Mud Lake is identified as a provincially significant wetland and an Area of Natural and Scientific Interest by the Government of Ontario.</p> <p>For this reason, Bioregional would expect an ecological baseline survey at an early stage in the design process.</p> <p>Ideally, the detailed biodiversity strategy will identify specific species and habitats that are important in that location, with measures to create those specific habitats and with planting to support specific species.</p> <p>It is important for any One Planet Community to be able to demonstrate an increase in biodiversity value.</p>
<b>Engage people in the value of nature</b>	<p>Parkway House benefits from excellent access to greenspace, water and large parks including the Ottawa River and Mud Lake which is a 60 hectare wetland site popular for birdwatching.</p>	<p>Elements of biophilic design are specified in the design brief but will not be finalised until detailed design is complete.</p>



**Outcomes:**

- The residents use less potable water
- Groundwater and surface water are protected

Topic	Highlights	Opportunities
Water efficiency	<p>Water efficiency measures are excellent, with low flow/flush fixtures and fittings. The project is targeting 98 litres per person per day mains water consumption, less than half the local baseline.</p> <p>Outdoor water needs will be minimised through native and adapted planting and minimal turf grass. No potable water will be used for irrigation.</p>	<p>The upcoming OPL Lifestyle pack could provide information on water saving behaviours and steps residents can take to prevent water pollution.</p> <p>Residents are not individually metered for water so unfortunately, this cannot be used to inform water efficient behaviour.</p>
Surface water management	<p>Rainwater will be retained and stored in an underground cistern, for use in irrigation. This reduces stormwater runoff by half and reduces the flood risks for the site and the surrounding neighbourhood.</p> <p>The project follows Ottawa’s Wet Weather Flow Management Guidelines to reduce the quantity and improve the quality of stormwater runoff.</p>	<p>It is not clear if weather data from future climate scenarios has been used in designing for flood risk and extreme rainfall events.</p>
Runoff during construction	<p>An Erosion and Sedimentation Control plan is specified.</p>	



Local and  
sustainable food

## Outcomes:

- Residents and visitors have access to affordable, healthy, local food
- The carbon footprint associated with food is minimised
- Community spirit is fostered through food

Topic	Highlights	Opportunities
<b>Fresh, local, seasonal, healthy produce</b> <b>Diets high in vegetable protein</b> <b>Promote sustainable, humane farming</b> <b>Eliminate food waste</b>	<p>There is an intention to track any reduction in meat and dairy consumption using post-occupancy surveys.</p> <p>A municipal segregated organic waste collection service will be provided.</p>	<p>There is a major innovation opportunity under discussion with the City of Ottawa, to potentially install indoor vertical farming in a shipping container on land adjacent to the site. The food grown in this space would be sold back to the residents of the project.</p> <p>Parkway House will potentially be designed to facilitate Community Supported Agriculture (CSA) pickups. Windmill is considering gifting each home with a one-year subscription to a local organic box scheme.</p> <p>The upcoming OPL Lifestyle package could address sustainable food choices, reducing food waste and provide ideas for food-based community activities.</p>



Travel and transport

## Outcomes:

- Low-carbon transportation options are the primary means of transport for residents
- Parking infrastructure is adaptable and flexible for future re-use and growth

Topic	Highlights	Opportunities
<b>Reduce car dependence and the need to travel</b> <b>Promote walking and cycling</b> <b>Promote car-sharing and public transport</b>	<p>Parkway House is just a 6-minute walk from the soon to be redeveloped Lincoln Fields light rail transit (LRT) station.</p> <p>Multi-use pathways that skirt two sides of the site connect cyclists and walkers eastwards to downtown Ottawa, west along the Ottawa River and south to Barrhaven and Bells Corner.</p> <p>On some summer Sundays, the major highway that passes close to the site is closed to traffic, making the cycle ride downtown even more free and spacious.</p> <p>Parkway House has a walkscore rating of 60 (somewhat walkable) but a cycling score of 85 (very bikeable). It also has a transit score of 76 (excellent transit).</p> <p>Nearby amenities include rafting, yachting and tennis clubs as well as a new cross-country ski trail. Grocery stores, restaurants, schools and other everyday amenities are within walking distance.</p> <p>The buildings will have ample well-designed secure cycle parking, both short and long term, with e-bike chargers. There will be a bike maintenance area with communal tools and a bike wash facility.</p> <p>Space will be provided for other micro-mobility devices such as scooters.</p>	<p>Resident surveys should include questions on travel modes to understand how effective the measures have been and ideally to assess modal share.</p> <p>The upcoming OPL Lifestyle pack can provide information and incentivise residents on active and low carbon travel choices.</p>

Continued overleaf



Topic	Highlights	Opportunities
Promote low/zero carbon vehicles	<p>Parking provision &lt;0.5 spaces per dwelling. 100% of parking spaces will be EV ready, with 25% fitted with level 2 chargers.</p> <p>Contractors will have a voluntary requirement to reduce and track transport-related emissions.</p>	
Raise awareness of the impacts of, and promote alternatives to, air travel		<p>The upcoming OPL Lifestyle package can share information on the impacts of flying and provide resources so residents can consider alternatives.</p>







Outcomes:

- Embodied carbon is reduced
- Building materials are culturally appropriate and provide healthy indoor environment for all occupants
- Materials for building construction and operations are selected to minimise their lifecycle impact

Topic	Highlights	Opportunities
Reduce consumption of materials and products	Durability of building components is maximised through good practice moisture control.	The upcoming OPL lifestyles package can highlight the impacts of material consumption habits and promote alternatives.
Choose materials and products with minimum impact	The LEED-based design specification targets include: <ul style="list-style-type: none"><li>• embodied carbon of &lt;420kgCO<sub>2</sub>/m<sup>2</sup>,</li><li>• local material where possible,</li><li>• 25% responsible extraction criteria,</li><li>• 25 products with environmental product declarations</li><li>• 100% of timber products to be non-tropical, reused, reclaimed, FSC certified or USGBC-approved equivalent</li></ul>	The project team intend to include a survey question on whether residents purchase sustainable products, targeting 75%. This will raise awareness.
Nontoxic materials and products	The design specifies zero added urea formaldehyde.	

Continued overleaf



Outcomes:

- Residents generate less waste
- The construction process generates less waste
- A sharing culture is developed and supported by residents

Topic	Highlights	Opportunities
<div>Reduce wasteful consumption</div> <div>Upcycling, reuse and recycling</div> <div>Zero waste to landfill</div>	<p>The outcomes are good, covering both construction and occupation phase. They include the sharing culture and a topic area for circular economy.</p> <p>Targeting &gt;90% construction and demolition waste diversion, with a construction and demolition waste management plan.</p> <p>Targeting a 25% reduction in residential waste against the local baseline, aiming for &lt;255kg/person/year. Actions to achieve this target include:</p> <ul style="list-style-type: none"><li>• good waste segregation facilities in each dwelling,</li><li>• designing communal recycling facilities, bulky waste collection areas and space for a compactor unit,</li><li>• additional storage and collection arrangements for batteries, mercury-containing lamps or electronic waste.</li></ul>	<p>The action plan doesn't currently mention encouraging a culture of upcycling and reuse, avoiding wasteful consumption. This is an opportunity for the upcoming OPL Lifestyles package.</p> <p>Windmill could establish a partnership with a local organisation to collect items for donation, as on other projects.</p>



Outcomes:

- There are zero operational greenhouse gas emissions
- Renewable energy is generated on-site
- Building occupants enjoy superior indoor thermal comfort year-round

Topic	Highlights	Opportunities
Energy efficient buildings  100% renewable energy	<p>The project is targeting zero carbon and will be combustion free in operation.</p> <p>The project targets LEED Platinum and aligns with the Ottawa High Performance Design Standard Tier 2. As such, measures include air tightness testing, tracking of energy and water consumption, a commissioning plan, smart metering and future climate resiliency planning.</p> <p>The project is targeting a 45% energy demand reduction compared with the baseline.</p> <p>Limits have been set on Global Warming Potential (GWP) and Ozone Depletion Potential (ODP).</p> <p>The project will use geothermal energy via ground source heat pumps for space heating, for cooling and potentially for some hot water loads.</p> <p>The design includes electric backup for domestic hot water and 95% efficiency backup boiler.</p>	<p>Passive measures to minimise cooling needs, such as external shading have not been used.</p> <p>It is not clear if weather data from future climate scenarios has been used in the modelling for thermal comfort. Future heat waves or cold spells could result in higher energy demands than predicted and opportunities for more passive measures to prevent this may have been missed.</p> <p>The specific method for offsetting the residual carbon emissions is yet to be specified.</p>

Continued overleaf

Topic	Highlights	Opportunities
<b>Energy efficient buildings</b>  <b>100% renewable energy</b> <i>(continued)</i>	<p>Specifications include:</p> <ul style="list-style-type: none"> <li>• Thermal Energy Demand Intensity target &lt;33kWh/m<sup>2</sup>/yr</li> <li>• Total Energy Use Intensity target &lt;108kWh/m<sup>2</sup>/yr</li> <li>• Greenhouse Gas Intensity target &lt;13kgCO<sub>2</sub>/m<sup>2</sup>/yr</li> <li>• Heat pump coefficients of performance 3.2 (heat) and 4.1 (cooling).</li> </ul> <p>Design stage energy modelling forecasts a Total Energy Use Intensity of 90 kWh/m<sup>2</sup>/yr</p> <p>This electrical demand will be supplied by Ottawa Hydro, generated almost entirely from hydro, nuclear and renewables with gas used for peak loads. Its carbon intensity is very low at ~35gCO<sub>2</sub>/kWh and will result in a GHG intensity of just 3.1kgCO<sub>2</sub>/m<sup>2</sup>.</p> <p>These residual carbon emissions will be offset in compliance with the CaGBC and OPL Zero Carbon Standards.</p>	

Images courtesy of Windmill Developments

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