Passive House Towards City Scale

Chris Higgins
Green Building Planner
Planning, Urban Design & Sustainability
City of Vancouver, BC
If you only remember this:

- Make Passive House easy
- Improve the building code with PH
- Engage the public on what they care about
A little about Vancouver
Mostly low and mid rise buildings
METROPOLITAN REGION:
Population 2,500,000
Area 2,877 km²

CITY OF VANCOUVER:
Population 603,500
Area 115 km²
Residential Development

New Home Total Square Footage

- Single Family: 1,260,000
- Laneway: 900,000
- Duplex: 475,000
- Rowhouse: 270,000
- Low Rise (mixed use): 245,000
- High Rise (mixed use): 270,000
- High Rise Apartment: 134,000

Total: 2,652,000
Why is Climate Important to Council

What are the overarching policy directions?
A FRIENDLY COMPETITION LAUNCHED IN 2010 FOR GREENEST CITY IN THE WORLD BY 2020
# Greenest City Framework

## 3 High-Level Objectives

<table>
<thead>
<tr>
<th>Zero Carbon</th>
<th>Green Buildings</th>
<th>Green Transportation</th>
<th>Climate &amp; Renewables</th>
<th>Lighter Footprint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Waste</td>
<td>Zero Waste</td>
<td></td>
<td>Green Economy</td>
<td></td>
</tr>
<tr>
<td>Access to Nature</td>
<td>Clean Water</td>
<td>Local Food</td>
<td>Clean Air</td>
<td></td>
</tr>
</tbody>
</table>
In November 2015, City Council renewed its commitment beyond 2020 to a renewable future.
1. REDUCE ENERGY USE
2. INCREASE USE OF RENEWABLE ENERGY
3. INCREASE SUPPLY OF RENEWABLE ENERGY

Vancouver’s approach to 100% renewable
Why does Vancouver encourage Passive House
1. REDUCE ENERGY USE

2. INCREASE USE OF RENEWABLE ENERGY

3. INCREASE SUPPLY OF RENEWABLE ENERGY

Passive House Approach
Why Passive House works for Vancouver

- One standard
- Local certifiers
- Local economic development
Why Passive House works for Vancouver

- Third party certification
- Fairly simple standard
- Aligns with our approach to 100% renewable and carbon
Passive House

Where were we, where are we, and how did we get here?
2010: In the beginning

- Rezoning Policy allows Passive House
- Page 12, paragraph 4
- Allow PH as an Alternative, a small but important step
- Passive Design Guide
2014: Modest progress

- One Passive House dwelling under construction
- One Passive House Duplex in permitting
- I joined the City
February 2017

- 3 Passive House dwellings Certified
- 151 dwellings under construction (9 projects)
- 230 dwellings in the approval process (11 projects)
- Non Residential: Fire Hall, Office, & Arts Space
How did we get here?

- Informal Staff to Staff Presentations
- Formal Staff Training
- Support for each application
- Single point of problem solving for PH projects. AKA, email Chris
How did we get here?

- Council Approved Policy
- Advising industry on direction
- Costing and barrier research
Formal Education

- 100+ staff attended 1 day PH course
- 3 Planning staff have taken 10 day PH
- 2 Inspections staff taken 5 day trades course
- Tour of PH projects for staff
- Gives confidence to applicants
Supporting Each Application

- One staff is a problem solver for staff for each Passive House application / project

- Allow PHPP as an alternative to software producing energy models for PH projects
Informal Presentations

- Providing information to work groups
  - Rezoning Planners
  - Development Planners
  - Plan Checking Team
  - Social Housing Team
  - Building Inspectors
- Hour presentations with offer of education
Planners encourage projects to consider Passive House and connect them with peers.
Encouraging Each Application

- One staff is a problem solver
- Encouraging projects, answering early questions
- Removing barriers in building code, and zoning and development bylaw
- Acting as a person on the inside
Policy and Regulations

- Remove barriers for RS-1, covering 70% of residential single family

- Rezoning Policy for projects with PH as the first option, second option has 17 requirements

- Chief Building Official signs letter for building code relaxations for PH
RS-1 (Single Family) Barrier Removal

- Floor Area Exclusion - a little bigger
- Height Relaxation - a little taller
- Rear yard setback - a little deeper in the lot
- Side yard relaxation for fixed external shading devices
Code Development

Support for stronger building codes and “Performance Anchoring”
Building By-law /code

- Vancouver Building By-law used as leadership tool

- 2018 Vancouver Building By-law embed PHPP as a modeling option

- Passive House Canada reviewed draft changes and providing feedback
Building By-law /code

- 2018 Vancouver Building By-law for residential 6 and under, a 54% reduction in GHG’s

- Using PH as one performance point in modeling and costing

- Reference Pricing / Price anchoring
Sample Projects

Some projects targeting Passive House underway
Single Family Home - 1 Dwelling
Eight Storey Office and Art Space
Post Disaster Fire Hall #17 (West)
Post Disaster Fire Hall #17 (East)
Next Steps

How we enable the majority of new projects to use Passive House
For Vancouver

- Hoping to extend RS-1 relaxations across more zones
- A report going to council this May
- Working with other municipalities (N. Van)
Ice House
For your City?

- Allow Passive House as an alternative
- Train staff, broadly and deeply
- Have a City staff help projects informally
How Vancouver can help?

- Share our costing research
- Share our policy work
- Share our residential enclosure guide
- [http://vancouver.ca/home-property-development/build-a-passive-house.aspx](http://vancouver.ca/home-property-development/build-a-passive-house.aspx)
Vancouver Desires:
Encouraging Passive Buildings
Lead to a better Building Code
Delivering a City prepared for the future
Thank You

- Questions about Planning, Zoning, and Staff Training: Andrea.Wickham@Vancouver.ca

- Join our Passive House mailing list to stay up to date jaclyn.jimenez@vancouver.ca

- If all else fails: Chris.Higgins@Vancouver.ca