



**ZERO EMISSIONS BUILDING PLAN:
Recommended Changes to the Green
Building Policy for Rezonings**

City Finance & Services Committee Meeting

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Sean Pander, Green Building Manager
Patrick Enright, Green Buildings Engineer
Planning, Urban Design and Sustainability



ZERO EMISSIONS BUILDING (ZEB) PLAN

- Time-stepped GHG, heat loss & energy use Limits in Rezoning Policy and Building By-law
- City Leadership
- Catalysts for Private Leaders building to zero emissions
- Capacity Building including and Centre of Excellence and barrier removal

ZERO EMISSIONS BUILDING PLAN

Two Pathways to Real and Reliable GHG Reductions

Focus on Efficiency

- High performance envelopes with heat recovery ventilation
- Aggressive heat loss limits

Balance Efficiency with Low-Carbon Energy Systems

- Low-carbon energy supply guaranteed
- Improved heat loss limits
- Mandatory NEU zones will be updated Q1 2017

REZONING POLICY for MULTI-FAMILY BUILDINGS

ZERO EMISSIONS BUILDINGS	<ol style="list-style-type: none">1) GHG, heat loss & energy use limits by building type2) Whole-Building Airtightness Testing3) Enhanced Commissioning4) Energy System Sub-Metering5) Report Embodied & Refrigerant Emissions
HEALTHY BUILDINGS	<ol style="list-style-type: none">6) Direct Ventilation7) Low-Emitting Materials8) Indoor Air Quality Testing
RESILIENT BUILDINGS	<ol style="list-style-type: none">9) Green Stormwater Infrastructure10) Resilient Water Access

OR
Passive House Certified

REZONING POLICY: MULTI-FAMILY BUILDINGS

ZERO
EMISSIONS
BUILDINGS

2016 Limits

Building Type	Typical Outcome of Current Rezoning Requirements			2016 Rezoning Limits		
	EUI	GHG	TEDI	EUI	GHG	TEDI
Low-Rise MURB	110	10.5	35	100	5	15
High-Rise MURB	170	16.5	46	120	6	32
High-Rise MURB with low-carbon energy system	170	6.5	46	130	6	40

- Over 50% reduction in Multi-family GHG emissions
- Achievable. For example:
 - ✓ Modest reduction in glazing ratio
 - ✓ Wall-assemblies to move insulation to outside slab edge
 - ✓ Improved HRV and heating equipment efficiency

RESIDENTIAL REZONING POLICY:

No incremental construction or operating costs

COST - SUMMARY for High-Rise Multi-Family Buildings

<u>Construction and Administration Costs</u>	\$/ft ² * vs. 2014 Rezoning
GHG, heat loss & energy use limits	(1.2) to 3.2
All other requirements combined	<u>0.9 to 1.7</u>
Total Construction Cost Difference	(0.3) to 4.9
Streamline Current Policy	<u>(6+)</u>
TOTAL SAVINGS	(1.1 to 6+)
<i>*Assuming 100,000ft² high-rise</i>	

<u>Operating Costs - Difference in 850/ft² Suite</u>	\$ vs. 2014 Rezoning
Monthly Incremental Energy Cost	\$6
Monthly Maintenance and Replacement Cost Savings	<u>(\$8)</u>
Total Operating Cost Difference	(\$2)

Green Building Policy for Rezoning



Skeena Passive House
under construction

- Initiates implementation of Zero Emissions Building Plan
- Over 50% reduction in GHG emissions
- No incremental construction or operating costs
- Simplifies building operations and maintenance
- Greatly improved indoor air quality