

Office Cost Comparison - Outside NEU Areas: Current Rezoning vs Proposed Rezoning Policy

Based on a 260,000ft² commercial office archetype

This document is intended to be reviewed by stakeholders interested in greater detail on costs after attending consultations on the proposed update to the Green Building Policy for Rezoning. If you have questions about this document please follow up with Green.Buildings@vancouver.ca. The data compiled below represents one example of a building that meets the proposed performance limits (GHGI, TEDI, EUI), and the performance approach allows for many other solutions. The construction cost data compiled by the city was provided by BTY Group, based on archetypes prepared by Integral Group, Morrison Hershfield, and Enersys Analytics. The operating costs were compiled by the city using published utility rates, while maintenance costs are not expected to change from current practices.



Construction Costs

| Envelope | | | | | |
|--|---------------|--|-------------------------|--|------------------|
| Case | Type | Description | Area (ft ²) | Cost (\$/ft ²) | Cost (\$) |
| Current Rezoning | Glazing Wall | Glazing 70% U-0.23 triple glazing - Curtain wall | 72,600 | 95.00 | 6,897,000 |
| | | Wall with R9.3 (Precast Panel) | 31,110 | 65.90 | 2,050,149 |
| | Total: | | | | 8,947,149 |
| Proposed Rezoning | Glazing Wall | Glazing 60% U-0.23 triple glazing - Curtain wall | 62,220 | 95.00 | 5,910,900 |
| | | Wall with R12.3 (precast panel) | 41,480 | 66.20 | 2,745,976 |
| | Total: | | | | 8,656,876 |
| | | | | Envelope Cost Difference (\$): | (290,273) |
| | | | | Envelope Cost Difference (\$/ft²): | (1.12) |
| Lighting - No change in costs anticipated | | | | | |
| | | | | Lighting Cost Difference (\$/ft²): | - |
| HVAC | | | | | |
| Case | Type | Description | Area (ft ²) | Cost (\$/ft ²) | Cost (\$) |
| Current Rezoning | Htg/Clg MUA | Fan coil unit | 260,000 | 16.67 | 4,333,333 |
| | | 85% efficient MUA + distribution | 260,000 | 2.08 | 540,000 |
| | HRV | Heat recovery ventilator 65% efficiency | 260,000 | 5.00 | 1,300,000 |
| | Heating | Boiler (4 unit 300 MBH each) 92% efficiency | 260,000 | 1.30 | 338,000 |
| | Cooling | Chiller Plant (2 centrifugal chiller units, 250 tons each) | 260,000 | 2.80 | 728,000 |
| Total: | | | | | 7,239,333 |
| Proposed Rezoning | Htg/Clg MUA | Fan coil unit | 260,000 | 16.67 | 4,333,333 |
| | | 85% efficient MUA + distribution | 260,000 | 2.08 | 540,000 |
| | HRV | Heat recovery ventilator 65% efficiency | 260,000 | 5.00 | 1,300,000 |
| | Htg/Clg | ASHP/Boiler (2 unit 300 MBH each) 94% efficiency | 260,000 | 6.85 | 1,781,000 |
| | Total: | | | | |
| | | | | HVAC Cost Difference (\$): | 715,000 |
| | | | | HVAC Cost Difference (\$/ft²): | 2.75 |
| TOTAL | | | | | |
| | | | | Envelope Cost Difference (\$/ft²): | (1.12) |
| | | | | Lighting Cost Difference (\$/ft²): | - |
| | | | | HVAC Cost Difference (\$/ft²): | 2.75 |
| | | | | TOTAL Construction Cost Difference (\$/ft²): | 1.63 |

Operating Costs

| Energy | | | | | |
|---|--------------------|---------------------------|-----------|---|-----------------|
| Case | kWh/m ² | Description | kWh | \$/kWh | Cost (\$) |
| Current Rezoning | 35 | Annual Natural Gas (2016) | 840,900 | 0.031 | 26,068 |
| | 77 | Annual Electricity (2016) | 1,854,699 | 0.063 | 116,846 |
| | - | Annual NEU Heat (2016) | - | 0.103 | - |
| Total: | | | | | 142,914 |
| Proposed Rezoning | 4 | Annual Natural Gas (2016) | 92,704 | 0.031 | 2,874 |
| | 84 | Annual Electricity (2016) | 2,025,077 | 0.063 | 127,580 |
| | - | Annual NEU Heat (2016) | - | 0.103 | - |
| Total: | | | | | 130,454 |
| | | | | Annual Energy Cost Difference (\$): | (12,460) |
| | | | | Annual Energy Cost Difference (\$/ft²): | (0.05) |
| | | | | Annual Emissions Reduction in (kgCO_{2e}): | 103,478 |
| Maintenance and Replacement - No change in costs anticipated | | | | | |