

✓ CHMC MLI Select - Level 3		Multi-Unit Residential Building (8 Units) - Main Building							
Created on: 2026-01-11		Reference NBC 2020 Tier 1 NBC Climate Zone 5 / OBC Climate Zone 1		Proposed Building Design: Current, 40% Target - Baseline		Proposed Building Design: New, 70% Target - Option 1		Proposed Building Design: New, 70% Target - Option 2	
<div style="display: flex; gap: 5px;"> <div style="width: 15px; height: 15px; background-color: #90EE90; border: 1px solid black;"></div> Upgrade against NBC           <div style="width: 15px; height: 15px; background-color: #FFB6C1; border: 1px solid black;"></div> Downgrade against NBC         </div>									
<b>BUILDING ENVELOPES</b>									
Ceiling with Attic Space		Effective RSI 6.91 / R39.2		N/A		N/A		N/A	
Ceiling without Attic Space		Effective RSI 4.67 / R26.5		R31		R75 (2lb Closed Cell SPF)		R31 (2lb Closed Cell SPF) + R20 Batt	
Exposed Floor		Effective RSI 4.67 / R26.5		R31		R31		R31	
Above Grade Walls	Front & Back, 31.3%	Effective RSI 2.97 / R16.9		2x6 Wood Stud @ 16" O.C. R24 + R8 C.I.		2x6 Wood Stud @ 16" O.C. R24 + R15 C.I.		2x6 Wood Stud @ 16" O.C. R24 + R8 C.I.	
	Left & Right, 68.7%			2x6 Steel Stud @ 16" O.C. R24 + R8 C.I.		2x6 Steel Stud @ 16" O.C. R24 + R15 C.I.		2x6 Steel Stud @ 16" O.C. R24 + R8 C.I.	
Rim Joist		Same as Above Grade Walls		Same as Above Grade Walls		Same as Above Grade Walls		Same as Above Grade Walls	
Tall Walls (2x2x6 @ 12" O.C.)									
Basement Walls Below Grade (B.G.)		Effective RSI 2.98 / R16.9		2x4 @ 24" O.C., 2" offset from wall, R10 + R15 C.I.		2x4 @ 24" O.C., 2" offset from wall, R10 + R15 C.I.		2x4 @ 24" O.C., 2" offset from wall, R10 + R15 C.I.	
Below Grade Slab Entire Surface > 600 mm		-		R10 C.I.		R20 C.I.		R10 C.I.	
Heated Slab or Below Grade Slab ≤ 600 mm		Effective RSI 1.96 / R11.1		N/A		N/A		N/A	
Edge of Below Grade Slab ≤ 600 mm B.G.									
<b>WINDOWS &amp; DOORS</b>									
Windows/Sliding Glass Doors		U <sub>g</sub> 0.32 (U <sub>g</sub> 1.8) / ER 21 (SHGC-0.26)		U <sub>g</sub> 0.25 (U <sub>g</sub> 1.6) / ER 25 (SHGC-0.4)		U <sub>g</sub> 0.25 (U <sub>g</sub> 1.4) / ER 29 (SHGC-0.4)		U <sub>g</sub> 0.25 (U <sub>g</sub> 1.4) / ER 29 (SHGC-0.4)	
Skylights		U <sub>g</sub> 0.51 (U <sub>g</sub> 2.9)		N/A		N/A		N/A	
Doors (1 Door can be non-ENERGY STAR Certified)		As Per NBC (RSI 1.1 / R6.25)		Steel Polystyrene Core (RSI 0.98 / R5.57)		Steel Polystyrene Core (RSI 0.98 / R5.57)		Steel Polystyrene Core (RSI 0.98 / R5.57)	
<b>MECHANICALS<sup>1</sup></b>									
Space Heating Equipment		92% AFUE		ccASHP (9.5 HSPF <sub>iv</sub> , 17.3 SEER) - 18,000 Btu/h x 4 units		ccASHP (10.6 HSPF <sub>iv</sub> , 20.9 SEER2) - 18,000 Btu/h x 4 units		ccASHP (10.6 HSPF <sub>iv</sub> , 20.9 SEER2) - 18,000 Btu/h x 4 units	
Space Cooling Equipment		14.5 SEER		ccASHP (7.9 HSPF <sub>iv</sub> , 14.3 SEER2) - 22,000 Btu/h x 4 units		ccASHP (10 HSPF <sub>iv</sub> , 21.2 SEER2) - 25,000 Btu/h x 4 units		ccASHP (10 HSPF <sub>iv</sub> , 21.2 SEER2) - 25,000 Btu/h x 4 units	
ERV Efficiency		60% SRE		70% SRE @ 0°C x 4 units 81% SRE @ 0°C x 4 units		70% SRE @ 0°C x 4 units 81% SRE @ 0°C x 4 units		70% SRE @ 0°C x 4 units 81% SRE @ 0°C x 4 units	
Domestic HWH (Thermal Eff. Or EF)		0.67 EF		Electric Heat Pump HWT, 50 US Gal, 3.75 UEF		Electric Heat Pump HWT, 80 US Gal, 4.0 UEF		Electric Heat Pump HWT, 50 US Gal, 3.75 UEF	
Combined Space and Water		N/A		N/A		N/A		N/A	
Duct Work		As Per NBC		As Per NBC		As Per NBC		As Per NBC	
Thermostat		Programmable		Programmable		Programmable		Programmable	
<b>ELECTRICALS</b>									
Lighting (1 Bulb can be non-ENERGY STAR Certified) <sup>3</sup>		As Per NBC		100% Energy Efficient Lighting		100% Energy Efficient Lighting		100% Energy Efficient Lighting	
Exhaust Fans		As Per NBC		As Per NBC		As Per NBC		As Per NBC	
Electrical Savings		As Per NBC		As Per NBC		As Per NBC		As Per NBC	
<b>BASELOADS<sup>2</sup></b>									
Shower Flow Rate (L/min)		9.5		Ultra Low flow: 5.7		Ultra Low flow: 5.7		Ultra Low flow: 5.7	
Bathroom Faucet Flow Rate (L/min)		8.3		Ultra Low flow: 3.8		Ultra Low flow: 3.8		Ultra Low flow: 3.8	
Clothes Dryer (kWh/year)		916		531		133		133	
Clothes Washer (kWh/year)		197		123		100		123 (Cold Water Only)	
Dish Washer (kWh/year)		260		260		210		210	
Range (kWh/year)		565		565		195		195	
Refrigerator (kWh/year)		639		639		310		310	
<b>OTHERS</b>									
Drain Water Heat Recovery		N/A		N/A		N/A		N/A	
Solar PV System		N/A		N/A		Solar Capped at 15% of the Total Energy Reduction (27.44 GJ / 7,621.85 kWh)		Solar Capped at 15% of the Total Energy Reduction (27.45 GJ / 7,615.89 kWh)	
Air Tightness Target (ACH@50Pa)		2.5 ACH		3.2 ACH @ 50 Pa - Default, Blower Door Test Not Required		2.5 ACH - As Per NBC Section 9.36.5.10.(9)(b)		3.2 ACH @ 50 Pa - Default, Blower Door Test Not Required	
<b>RESULTS</b>		<b>Reference NBC 2020 Tier 1</b>		<b>Proposed Building Design: Current, 40% Target - Baseline</b>		<b>Proposed Building Design: New, 70% Target - Option 1</b>		<b>Proposed Building Design: New, 70% Target - Option 2</b>	
Annual Energy Consumption (GJ)		300.3		179.8		89.9		89.8	
GHG Emissions (tonnes/year)		9.9		2.5		1.2		1.2	
				<b>40.1% lower</b>		<b>70.1% lower</b>		<b>70.1% lower</b>	
				<b>74.7% lower</b>		<b>87.7% lower</b>		<b>87.7% lower</b>	

<b>NOTES</b>									
1. The following mechanical systems for the baseline have been modelled based on the information provided in the mechanical drawings. Results may change once the final equipments specifications are confirmed and provided. <u>Space Heating/Cooling System:</u> ccASHP (9.5 HSPF <sub>iv</sub> , 17.3 SEER) - 18,000 Btu/h x 4 units (MITSUBISHI ELECTRIC SUZ-KA15NAHZ); ccASHP (7.9 HSPF <sub>iv</sub> , 14.3 SEER2) - 22,000 Btu/h x 4 units (MITSUBISHI ELECTRIC MX2-2C20NAHZ4-**) <u>Ventilation:</u> 70% SRE @ 0°C x 4 units (vanEE ERV-70E ECM); 81% SRE @ 0°C x 4 units (vanEE V160E75RT) <u>Domestic Hot Water:</u> Electric Heat Pump HWT - 50 US Gal, 3.75 UEF (Mits Air US3-RS1-15/190RDVN3-L3) or 80 US Gal, 4.0 UEF (Mits Air US3-RS1-15/300RDVN3-L3)									
2. Baseloads upgrades include Ultra-low flow water fixtures and ENERGY STAR certified appliances.									
* <b>Bolded items</b> are additional upgrades required to meet the new CMHC MLI Select, 70% target									

Components	Baseline - Current, 40% Target	Energy Efficient Measures	Energy Consumption (GJ)	Energy Saving (GJ)	Energy Saving (%)
Ceiling without Attic Space	R31	R31	179.79	0.00	0.00%
		R40	179.14	0.65	0.36%
		R31 (2lb Closed Cell SPF) + R20 Batt	178.72	1.07	0.60%
		R75 (2lb Closed Cell SPF)	178.18	1.61	0.90%
Exposed Floor	R31	R31	179.79	0.00	0.00%
		R60 (2lb Closed Cell SPF) + R8 C.I. (2" Rigid Ins.)	179.75	0.04	0.02%
		R75 (2lb Closed Cell SPF) + R8 C.I. (2" Rigid Ins.)	179.71	0.08	0.04%
Above Grade Walls	Front & Back, 31.3%: 2x6 Wood Stud @ 16" O.C. R24 + R8 C.I. Left & Right, 68.7%: 2x6 Steel Stud @ 16" O.C. R24 + R8 C.I.	Front & Back, 31.3%: 2x6 Wood Stud @ 16" O.C. R24 + R8 C.I. Left & Right, 68.7%: 2x6 Steel Stud @ 16" O.C. R24 + R8 C.I.	179.79	0.00	0.00%
		Front & Back, 31.3%: 2x6 Wood Stud @ 16" O.C. R24 + R10 C.I. Left & Right, 68.7%: 2x6 Steel Stud @ 16" O.C. R24 + R10 C.I.	178.75	1.04	0.58%
		Front & Back, 31.3%: 2x6 Wood Stud @ 16" O.C. R24 + R12 C.I. Left & Right, 68.7%: 2x6 Steel Stud @ 16" O.C. R24 + R12 C.I.	177.85	1.94	1.08%
		Front & Back, 31.3%: 2x6 Wood Stud @ 16" O.C. R24 + R15 C.I. Left & Right, 68.7%: 2x6 Steel Stud @ 16" O.C. R24 + R15 C.I.	176.83	2.96	1.65%
Basement Walls Below Grade (B.G.)	2x4 @ 24" O.C., 2" offset from wall, R10 + R15 C.I.	2x4 @ 24" O.C., 2" offset from wall, R10 + R15 C.I.	179.79	0.00	0.00%
Under Slab Insulation	R10 C.I.	R10 C.I.	179.79	0.00	0.00%
		R12 C.I.	179.67	0.12	0.07%
		R15 C.I.	179.49	0.30	0.17%
		R20 C.I.	179.21	0.58	0.32%
Windows/Sliding Glass Doors	U <sub>w</sub> 0.28 (U <sub>w</sub> 1.6) / ER 25 (SHGC-0.4)	U <sub>w</sub> 0.28 (U <sub>w</sub> 1.6) / ER 25 (SHGC-0.4)	179.79	0.00	0.00%
		U <sub>w</sub> 0.25 (U <sub>w</sub> 1.4) / ER 29 (SHGC-0.4)	177.86	1.93	1.08%
		U <sub>w</sub> 0.21 (U <sub>w</sub> 1.2) / ER 34 (SHGC-0.4)	175.99	3.80	2.12%
		U <sub>w</sub> 0.18 (U <sub>w</sub> 1.0) / ER 38 (SHGC-0.4)	174.16	5.63	3.13%
Doors (1 Door can be non-ENERGY STAR Certified)	Steel Polystyrene Core (RSI 0.98 / R5.57)	Steel Polystyrene Core (RSI 0.98 / R5.57)	179.79	0.00	0.00%
		Steel Medium Density Spray Foam Core (RSI 1.14 / R6.47)	179.53	0.26	0.14%
Space Heating / Cooling Equipment	ccASHP (9.5 HSPF <sub>FW</sub> , 17.3 SEER) - 18,000 Btu/h x 4 units ccASHP (7.9 HSPF <sub>FW</sub> , 14.3 SEER2) - 22,000 Btu/h x 4 units	ccASHP (9.5 HSPF <sub>FW</sub> , 17.3 SEER) - 18,000 Btu/h x 4 units ccASHP (7.9 HSPF <sub>FW</sub> , 14.3 SEER2) - 22,000 Btu/h x 4 units	179.79	0.00	0.00%
		ccASHP (10.6 HSPF <sub>FW</sub> , 20.9 SEER2) - 18,000 Btu/h x 4 units ccASHP (10 HSPF <sub>FW</sub> , 21.2 SEER2) - 25,000 Btu/h x 4 units	151.09	28.70	15.96%
ERV Efficiency	70% SRE @ 0°C x 4 units 81% SRE @ 0°C x 4 units	70% SRE @ 0°C x 4 units 81% SRE @ 0°C x 4 units	179.79	0.00	0.00%
Domestic HWT (Thermal Eff. Or EF)	Electric Heat Pump HWT, 50 US Gal, 3.75 UEF	Electric Heat Pump HWT, 50 US Gal, 3.75 UEF	179.79	0.00	0.00%
		Electric Heat Pump HWT, 80 US Gal, 4.0 UEF	179.41	0.38	0.21%
Lighting (1 Bulb can be non-ENERGY STAR Certified) <sup>3</sup>	100% Energy Efficient Lighting	100% Energy Efficient Lighting	179.79	0.00	0.00%
Shower Flow Rate (L/min)	Ultra Low flow: 5.7	Ultra Low flow: 5.7	179.79	0.00	0.00%
Bathroom Faucet Flow Rate (L/min)	Ultra Low flow: 3.8	Ultra Low flow: 3.8	179.79	0.00	0.00%
Clothes Dryer (kWh/year) - ENERGY STAR Certified	531	531	179.79	0.00	0.00%
		460	178.90	0.89	0.50%
		380	177.89	1.90	1.06%
		317	177.10	2.69	1.50%
		266	176.45	3.34	1.86%
		217	175.82	3.97	2.21%
		133	174.76	5.03	2.80%
Clothes Washer (kWh/year) - ENERGY STAR Certified	123	123	179.79	0.00	0.00%
		110	179.63	0.16	0.09%
		100	179.50	0.29	0.16%
		90	179.37	0.42	0.23%
		123 (Cold Water Only)	173.03	6.76	3.76%
Dish Washer (kWh/year) - ENERGY STAR Certified	260	260	179.79	0.00	0.00%
		240	179.03	0.76	0.42%
		210	178.69	1.10	0.61%
Range (kWh/year) - ENERGY STAR Certified	565	565	179.79	0.00	0.00%
		195	170.49	9.30	5.17%
		185	170.25	9.54	5.31%
Refrigerator (kWh/year) - ENERGY STAR Certified	639	639	179.79	0.00	0.00%
		574	178.15	1.64	0.91%
		510	176.53	3.26	1.81%
		446	174.91	4.88	2.71%
		380	173.27	6.52	3.63%
		310	171.52	8.27	4.60%
Drain Water Heat Recovery	-	-	179.79	0.00	0.00%
		42% Efficiency	178.41	1.38	0.77%
		46% Efficiency	178.20	1.59	0.88%
		58% Efficiency	177.86	1.93	1.08%
Air Tightness Target (ACH@50Pa)	3.2 ACH @ 50 Pa - Default, Blower Door Test Not Required	3.2 ACH @ 50 Pa - Default, Blower Door Test Not Required	179.79	0.00	0.00%
		2.5 ACH @ 50 Pa - As Per NBC Section 9.36.5.10 (9)(b)	176.26	3.53	1.97%
		2.0 ACH @ 50 Pa - Blower Door Test Required	173.97	5.82	3.24%