Welcome to todays CHBA Net Zero Webinar!

Brett Cass
Coordinator
Net Zero Home Labelling Program
613.230.3060 x233
brett.cass@chba.ca

Marie Hanchet
Project Manager
Net Zero Energy Housing
613.230.3060 x263
marie.hanchet@chba.ca

Sonja Winkelmann
Director
Net Zero Energy Housing
613.230.3060 x235
sonja.winkelmann@chba.ca

The CHBA Net Zero Team

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The ultimate in comfort and efficiency

Housekeeping

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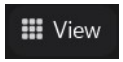
- You can **change your screen view** by clicking on the view icon in the top right corner 

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ONTARIO
Ernie Lee, P. Eng
Technical Sales Manager, Ontario
ernie.lee@owenscorning.com
1.833.670.0208

QUEBEC & ATLANTIC CANADA
Salvatore Ciarlo, P.Eng
Architectural Solutions &
Technical Services Manager, Canada
salvatore.ciarlo@owenscorning.com
1.800.504.8294

WESTERN CANADA
Luis Faria, B.Eng, PMP, CMgr MCMI
Technical Sales Manager,
Western Canada
luis.faria@owenscorning.com
1.833.258.5299

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ALL WEATHER WINDOWS

BASF We create chemistry

ENBRIDGE Life Takes Energy™

FORTIS BC™ Energy at work

Panasonic

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Our Next Webinar

August 26 from 10:30-11:30 PT / 1:30-2:30 ET

Using Diversified Pathways to Reach GHG Reduction Targets

Presented by: Benjamin Nishi, Regional Energy Solutions Manager, Fortis BC

In 2019, FortisBC commissioned Guidehouse, a well-regarded consultancy with expertise in both energy and environmental issues, to study how a diversified pathway that utilizes natural gas and electric systems could perform using many of the actions Fortis BC is taking today to pursue their 30BY30 target (to reduce their customers' emissions by 30% by 2030). These actions include:

- Investing in low carbon transportation
- Increasing the supply of Renewable Gas for Fortis BC customers
- Greater investment in energy efficiency programs and initiatives

Join CHBA Director of Net Zero Energy Housing Sonja Winkelmann and Ben Nishi, Regional Energy Solutions Manager at FortisBC, as they explore the Pathways to 2050 Report, and show how a pathway of diversified energy systems can achieve BC's 2050 GHG emissions target.

Register at chba.ca/NZwebinars

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Today's Webinar

July 22 from 10:30-11:30 PT / 1:30-2:30 ET

Ducted vs. Ductless? How We're Settling the HVAC Debate


Presented by:

- Sonny Pirrotta, National Sales Manager- HVAC Solutions, Life and Devices Solutions Division, Panasonic Canada Inc., and
- Greg Hussey, President & Owner, Karwood

Panasonic, in partnership with Karwood Ontario, is undertaking an exciting new project that examines the capital and operating costs of a traditional HVAC ducted system vs. a ductless air-source heat pump (ASHP) installation in a typical single storey home. Two identically designed and constructed houses will be built, the first with a traditional furnace and AC unit, and the other with a ductless ASHP. Capital costs of both installations will be examined, and an energy model will compare the operating costs of both houses over a 10-year period.

In this webinar, you will:

- Learn about this innovative project in more detail
- Understand the advantages of a ductless solution compared to a traditional HVAC system
- Learn more about the Panasonic products involved in the project

Recording & slide deck will be available at chba.ca/NZwebinars

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Panasonic
Ducted vs. Ductless?
How We're Settling the HVAC Debate

Project Background

- We have been building in NL for 20 years
- Typical HVAC system in NL is baseboard electric with no AC
- Lately we are seeing a move to heat pumps and mini splits
- Moved into the ON market 2 years ago

KARWOOD

Panasonic

Introducing the Renaissance Project

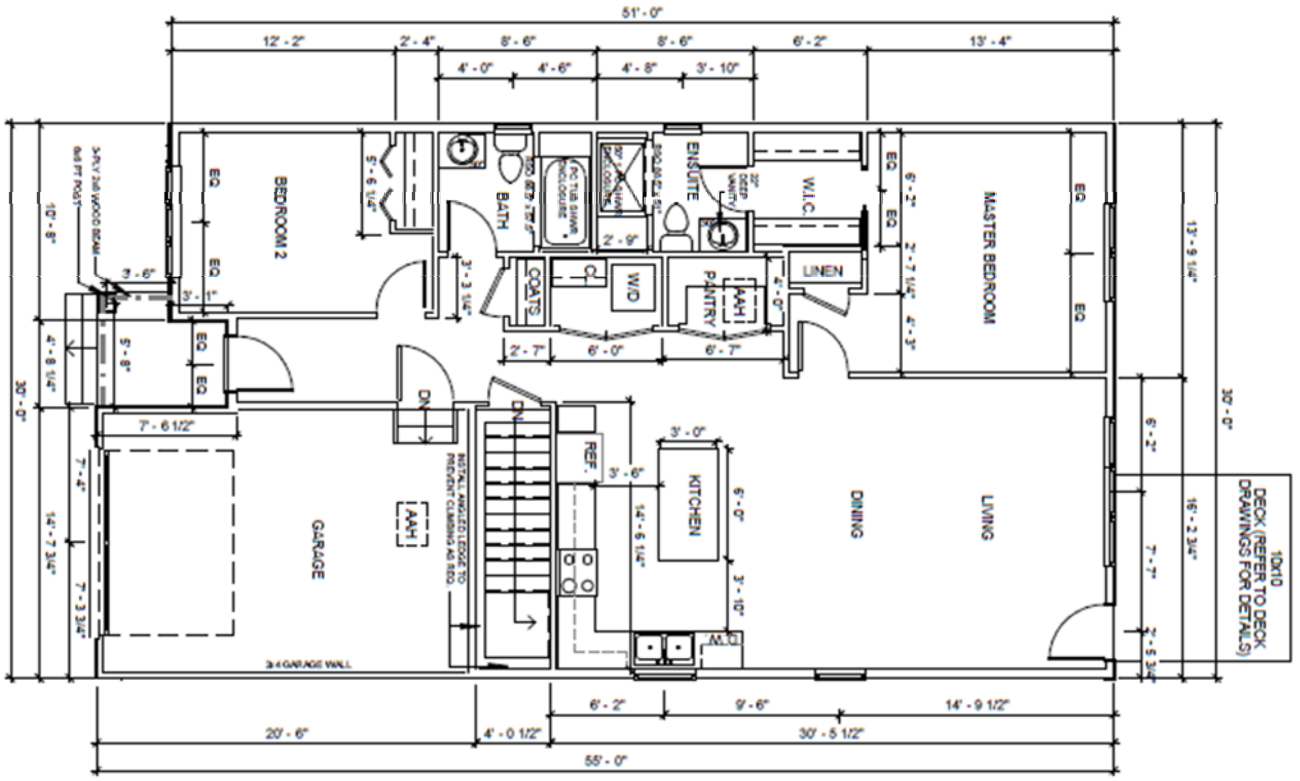
Renaissance Drive
St. Thomas, Ontario

Traditional Ducted Home

Panasonic Ductless Home

Panasonic

Planning & Design



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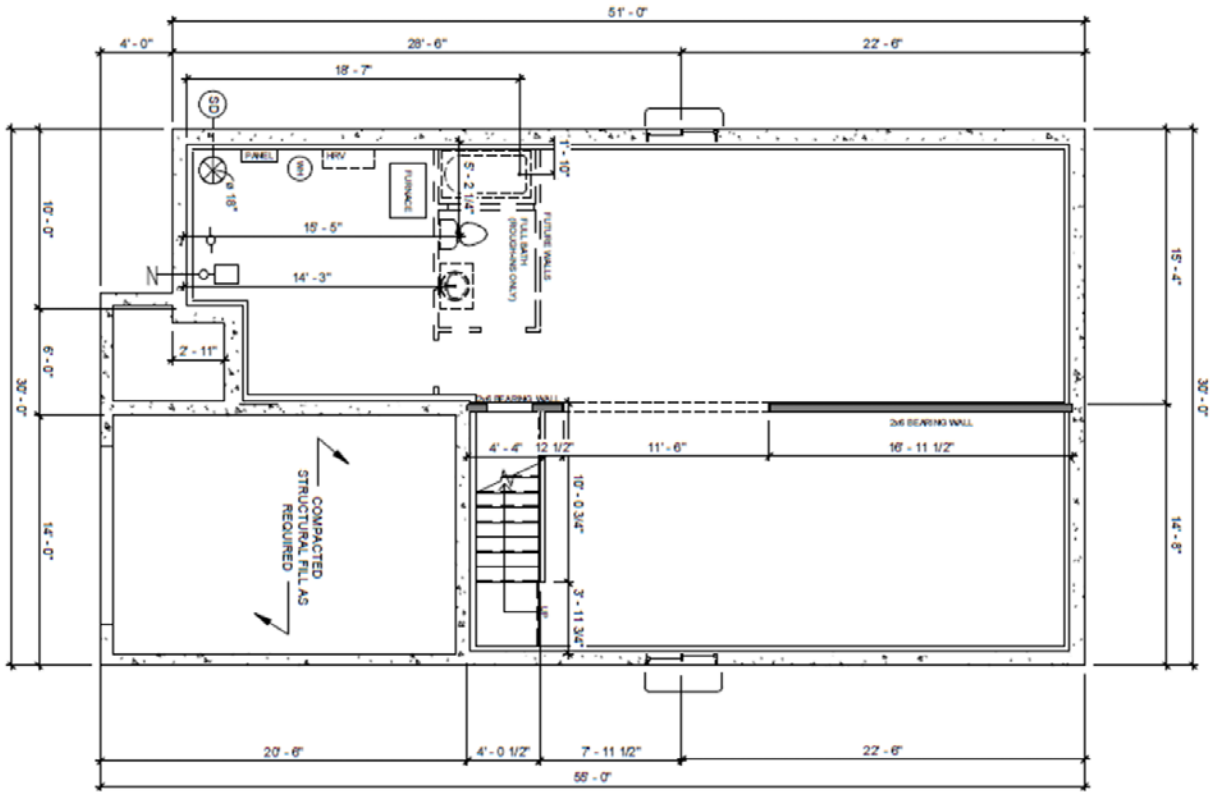
Planning & Design



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Equipment Designs

Traditional Ducted Home

- ML296UH045XV36B Lennox gas furnace
- 13ACX Lennox air conditioner
- Gas water heater
- HRV

Panasonic Ductless Home

- CS-E12RKUAW multi-zone heat pump indoor unit
- CS-ME5RKUA multi-zone heat pump indoor unit
- CU-4E24RBU-5 multi-zone heat pump outdoor unit
- FV-10VEC1 Intelli-Balance™ 100 ERV
- FV-11VH2 WhisperWarm™ ventilation fan
- Swidget control switches
- Heat pump hot water heater

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Increased Comfort at a Reduced Cost

- Control the temperature of each room using thermostat controls for each ductless unit for maximum comfort
- Enjoy 4 different temperature zones instead of 1 zone for the whole house
- Lower operating costs by reducing heating/cooling in rooms that are unoccupied

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Panasonic Solutions & Technology

- Panasonic's high-quality products with cutting-edge technology create complete IAQ solutions that are ahead of Canada's building code
- WhisperWarm™ ventilation fan acts as a code compliant back-up heat system
- Flexible solutions create added comfort and value for customers

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Energy Model

Better Science. Better Performance. Better Bottom Line.

Performance Optimization Exercise

Karwood / 77 Renaissance, St. Thomas - The Oxford

West Facing | Single Detached | One Storey | 12.8% Window / Wall Ratio

		OBC SB12 Code Package A1	Low Carbon (Heat Pump Heat and Hot Water)
	Design Heat Loss @ -20°C (Btu/h)	18,000	18,000
	Design Heat Gain @ 31°C (Btu/h)	13,000	12,000
A	Primary Space Heating	31%	20%
B	Secondary Space Heating	0%	1%
C	Primary DHW Heating	20%	9%
D	Secondary DHW Heating	0%	0%
E	Lights & Appliances	38%	58%
F	HRV and Fans	3%	3%
G	Air Conditioner	8%	10%
	Total Energy Consumption (GJ)	67	44
	Energy Consumption Reduction (vs. OBC SB12 Code Package A1 - 67 GJ)	N/A	23%
	Estimated operational GHG emissions (CO2e) (tonnes/year)	2.12	0.46
	Est. Natural Gas Consumpton in GJ	33.9	0.0
	Est. Electricity Consumption in GJ	33.5	43.8
	Est. Natural Gas Consumpton (m3)	909	0
	Est. Electricity Consumption (kWh)	9299	12177
	Est. Annual Operating Expenses - 2021 ($/yr)	$2,293	$2,166
	Est. Annual Operating Expenses - 2022 ($/yr)	$2,315	$2,171
	Est. Annual Operating Expenses - 2026 ($/yr)	$2,442	$2,199
	Est. Annual Operating Expenses - 2030 ($/yr)	$2,569	$2,227
	Est. Annual Natural Gas Cost	$487	$0
	Est. Annual Electricity Cost	$1,722	$2,148
	Carbon Cost 2021 - $40/tonne	$85	$19
	Carbon Cost 2022 - $50/tonne	$106	$23
	Carbon Cost 2026 - $110/tonne	$233	$51
	Carbon Cost 2030 - $170/tonne	$360	$79

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Operating Costs

			Current Building Code (Gas Heat & HW)		Low Carbon (Heat Pump Heating & HW)		Annual Savings
			Annual Cost	Annual	Annual Cost	Annual	
Annual Electricity			*$ 1,722*	-	*$ 2,148*	-	
Annual Natural Gas			*$ 487*	-	*$ -*	-	
2021	$ 40.00	per tonne	$ 84.66	$ 2,293	$ 18.60	$ 2,166	**$ 127**
2022	$ 50.00	per tonne	$ 105.83	$ 2,315	$ 23.25	$ 2,171	**$ 144**
2023	$ 65.00	per tonne	$ 137.58	$ 2,346	$ 30.22	$ 2,178	**$ 169**
2024	$ 80.00	per tonne	$ 169.33	$ 2,378	$ 37.20	$ 2,185	**$ 193**
2025	$ 95.00	per tonne	$ 201.08	$ 2,410	$ 44.17	$ 2,192	**$ 218**
2026	$ 110.00	per tonne	$ 232.83	$ 2,442	$ 51.15	$ 2,199	**$ 243**
2027	$ 125.00	per tonne	$ 264.58	$ 2,473	$ 58.12	$ 2,206	**$ 268**
2028	$ 140.00	per tonne	$ 296.33	$ 2,505	$ 65.09	$ 2,213	**$ 292**
2029	$ 155.00	per tonne	$ 328.08	$ 2,537	$ 72.07	$ 2,220	**$ 317**
2030	$ 170.00	per tonne	$ 359.83	$ 2,569	$ 79.04	$ 2,227	**$ 342**
2031	$ 185.00	per tonne	$ 391.58	$ 2,600	$ 86.02	$ 2,234	**$ 367**
2032	$ 200.00	per tonne	$ 423.32	$ 2,632	$ 92.99	$ 2,241	**$ 391**
2033	$ 215.00	per tonne	$ 455.07	$ 2,664	$ 99.97	$ 2,248	**$ 416**
2034	$ 230.00	per tonne	$ 486.82	$ 2,696	$ 106.94	$ 2,255	**$ 441**
2035	$ 245.00	per tonne	$ 518.57	$ 2,727	$ 113.91	$ 2,262	**$ 466**
2036	$ 260.00	per tonne	$ 550.32	$ 2,759	$ 120.89	$ 2,269	**$ 491**
2037	$ 275.00	per tonne	$ 582.07	$ 2,791	$ 127.86	$ 2,276	**$ 515**
2038	$ 290.00	per tonne	$ 613.82	$ 2,823	$ 134.84	$ 2,282	**$ 540**
2039	$ 305.00	per tonne	$ 645.57	$ 2,854	$ 141.81	$ 2,289	**$ 565**
2040	$ 320.00	per tonne	$ 677.32	$ 2,886	$ 148.79	$ 2,296	**$ 590**

Carbon

Cumulative Savings over 20 Years $ 7,095

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Capital Costs

Ductless Mini-Split vs. Traditional Furnace & Air Conditioner	
Item	
System install	
Install bulkheads - drywall and taped	
Paint bulkheads	
3-5 Days less on schedule	
No gas connection required	
Less exterior penetrations to seal	
No duct cleaning before closing	
No covering ducts during costs	
No backframing for cut studs etc.	
No duct layout meeting	
No design meeting to layout bulkheads	
Savings	
Finished Basement	$5,000 - $7,000
Unfinished Basement	$2,000 - $4,000

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Benefits of a Ductless System

- No more bulkheads
- No gas lines or connections to worry about and pay for
- 3-6 days savings in my build schedule
- Less penetrations in the exterior wall of the house
- Cheaper to install
- No back framing of hacked up walls and floors
- Room by room control
- Comfort in all rooms all year
- Quiet operation
- No over cooling costs to make the warmest room livable
- Helping to meet our 2050 Net Zero Emissions mandate
- Not installing equipment we know will be obsolete shortly
- AND the customer has lower operating costs

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Indoor Air Quality Campaign

breathe **well**

The Only Complete Air Quality Solution™

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Next Steps

Ductless solutions are energy-efficient, cost-effective and provide added comfort and value to homeowners.

- Continuously monitoring the project
- Communicating the results regularly
- Stay tuned for more!

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Stay in Touch!

Sonny Pirrotta
National Sales Manager - HVAC Solutions
Panasonic Canada Inc.
(416) 617-9504
Sonny.Pirrotta@ca.panasonic.com

Greg Hussey
President & Owner
Karwood
Greg@karwood.com

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