Heat Pump
Rebate + Requirement Changes

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Agenda

- Rebate updates
- New requirements
- Contractor guidelines
- Q & A

Rebate updates & new requirements

- Only for electric to all-electric heat pumps that are eligible under the Home Renovation Rebate Program.
- Do not apply to the CleanBC Energy Savings Program
- Do not apply to FortisBC's Dual Fuel or Income Qualified offers
- Stacking is not allowed - customers **cannot apply** for both CleanBC Energy Savings Program and the Home Renovation Rebate Program.

Electric to all-electric heat pump

Current rebates

Based on the upgrade type and whether the account holder is a BC Hydro or FortisBC electric customer.

Ending April 30, 2025

Upgrade Type	Rebate
Ductless Mini-Split Heat Pump	$1,000 BCH $1,200 FBC
Ductless Multi-Spilt Heat Pump	$1,000 BCH $2,000 FBC
Central Ducted Heat Pump (Tier 1)	$1,200 FBC
Central Ducted Heat Pump (Tier 2)	$2,000 BCH + FBC

Electric to all-electric heat pump

NEW rebates

Based on % of conditioned space in the home that is served by the ducted or ductless heat pump, as well as additional requirements.

Beginning May 1, 2025

Upgrade Type	Rebate
Whole Home Heating Must provide primary heating to serve 80% or more of the home's conditioned space in a main living area.	**$4,000**
Partial Home Heating Must provide primary heating to serve 50% or more of the home's conditioned space in a main living area.	**$1,500**

General Eligibility Requirements

Whole Home & Partial Home

- BC Hydro or FortisBC electric residential customer and have electricity as primary heating
- Homes must be 12 months or older
- Live in an eligible home:
  - Single family detached dwelling
    - Including legal individually metered secondary suites
  - Mobile home on permanent foundation
  - Row / townhouse, duplex

General Eligibility Requirements

Whole Home & Partial Home

- Installed as per best practice guide by HPCN member in good standing
- Listed on the Qualified Product List
- HSPF ≥10.00; SEER ≥16.00 or HSPF2 ≥ 8.5, SEER2 ≥ 15.2
- Must have a minimum capacity of 12,000 BTU (1 Ton).
- Must have a variable speed compressor.
- Homes over 1,200 sq ft. must install a multi-split or central system.
- Heat pump must replace existing primary system
- Heat pump replacements do not qualify

Whole Home Heating Rebate
NEW Requirements

- **Must be cold climate rated**
  - As per Northeast Energy Efficiency Partnerships (NEEP)
  - Noted on the Qualified Product List
  - More than 90% of rebate applications have cold climate heat pumps installed

AHRI Ref Number	Heat Pump Type	Make	Outdoor Model Number	Indoor Model or Air Handler	Furnace Model	Rated Capacity @ -5°C (BTU)	SEER	SEER2	HSPF	HSPF2	COP	Capacity Maintenance%	Additional Rebate Eligibility Notes	Cold Climate Rated
201754543	Central ducted heat pump (Tier 2)	Mitsubishi Electric	PUZ-A12NKA7***	PVA-A12AA*		10700	21.40	22.00	10.30	8.90		63%	Available to electrically heated customers and/or customers converting from fossil fuel heating to a heat pump. Not eligible for dual fuel ducted heat pump rebate. Proof of removal required if converting from fossil fuel.	Yes

Whole Home Heating Rebate
NEW Requirements

- **Heat load calculation completed**
  - Room-by-room or block load heat load calculations as per CSA F280-12 methodology using verified software tools.
  - Provide primary heating to at least 80% of a home's conditioned space in a main living area.
  - Help ensure homeowners are installing the most energy efficient heat pumps and that the systems being installed are properly sized for their homes.
  - All HPCN members have taken courses from TECA or HRAI that cover how to complete heat load calculations.
  - CSA F280-12 is what is referenced in the BC Building Code Section 9.33.5

Whole Home Heating Rebate
NEW Requirements

- **Heat load calculation completed**
  - Grace period will be given until October 31, 2025
  - We will accept heat load calculations based on Air Conditioning Contractors of America (ACCA) Manual J, CSA F280-90, and CSA F280-12 methodologies.
  - Energy Advisor can complete the F280-12 heat load calculations, however it must be signed off by the contractor completing the heat pump installation and must be completed using the approved software tools.

Whole Home Heating Rebate
NEW Requirements

- **Heat load calculation completed**
  - Temporary incentive of $300 will be given to contractors who are completing heat load calculations using CSA F280-12 methodology.
  - Energy advisors will not be eligible for the temporary incentive
  - As of November 1, 2025, all heat load calculations submitted with rebate applications must be in accordance with CSA F280-12 and the incentive will come to an end.
  - More information will be shared out to HPCN members regarding the contractor incentive and what you need to do to receive it.

Whole Home Heating Rebate
NEW Requirements

- **Design Conditions for Heat Load Calculations**
  - The heating system must be sized with sufficient capacity to maintain a minimum indoor temperature of 22ºC during design heating conditions. Heating systems with both a heat pump and supplemental electric resistive heating must ensure the heat pump be sized for a minimum balance temperature of -5°C minimum.

Whole Home Heating Rebate

NEW Requirements

- **Must meet all** requirements to qualify for the rebate of $4,000
- If not all requirements are met, customers may only qualify for the partial home heating rebate of $1,500
- Cold climate rated heat pumps and CSA F280-12 heat load calculations are recommended for the partial home heating rebate, but not required.

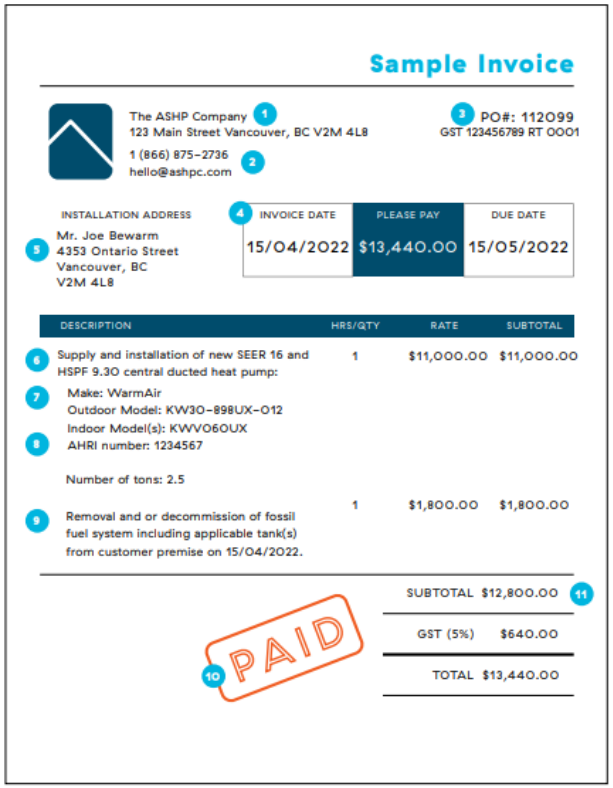
Application Cut Off Dates

For rebates ending April 30, 2025

- Customers who installed a qualifying heat pump and were invoiced on or before April 30, 2025 can apply for rebates that are discontinuing.
- Applications must be submitted by October 31, 2025.
- Customers who have a quote/estimate, but have not yet installed or been invoiced may still apply for rebates that are discontinuing as long as they meet the following conditions:
  - Proof of quote/estimate must be dated before April 30, 2025 and submitted with their application.
  - Installation of the heat pump must be completed by July 31, 2025.
  - Rebate applications must be submitted by October 31, 2025.

Documentation Requirements

- **Heat pump invoice**
  - Lead installer name
  - Make & model numbers for all components
  - AHRI number or copy of AHRI certificate
  - Capacity of the system (BTU)
  - Invoice date, customer & company information including GST number
- **Heat load calculation summary report**
- Providing the required details will ensure rebate applications are processed without delay
- Customers must apply within 6 months of invoice date.



Sample Invoice

The ASHP Company 1
123 Main Street Vancouver, BC V2M 4L8
1 (866) 875-2736 2
hello@ashpc.com

3 PO#: 112099
GST 123456789 RT 0001

INSTALLATION ADDRESS	4 INVOICE DATE	PLEASE PAY	DUE DATE
5 Mr. Joe Bewarm 4353 Ontario Street Vancouver, BC V2M 4L8	15/04/2022	$13,440.00	15/05/2022

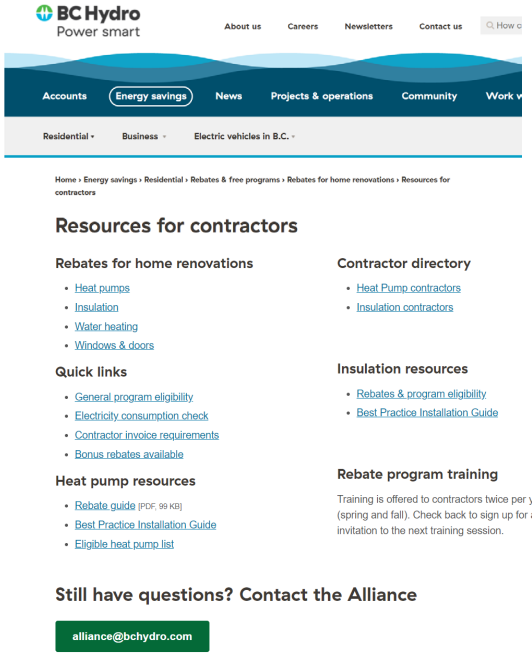
DESCRIPTION	HRS/QTY	RATE	SUBTOTAL
6 Supply and installation of new SEER 16 and HSPF 9.30 central ducted heat pump: 7 Make: WarmAir Outdoor Model: KW30-898UX-012 Indoor Model(s): KWVO60UX 8 AHRI number: 1234567 Number of tons: 2.5	1	$11,000.00	$11,000.00
9 Removal and or decommission of fossil fuel system including applicable tank(s) from customer premise on 15/04/2022.	1	$1,800.00	$1,800.00

10 PAID

SUBTOTAL	$12,800.00 11
GST (5%)	$640.00
TOTAL	$13,440.00

Program Support

BC Hydro	CleanBC	FortisBC
Home Renovation Rebate alliance@bchydro.com	Better Homes betterhomes@gov.bc.ca	Home Renovation Rebate qualityinstalls@fortisbc.com



Contractor Portal

bchydro.com/contractors

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Contractor Guidelines

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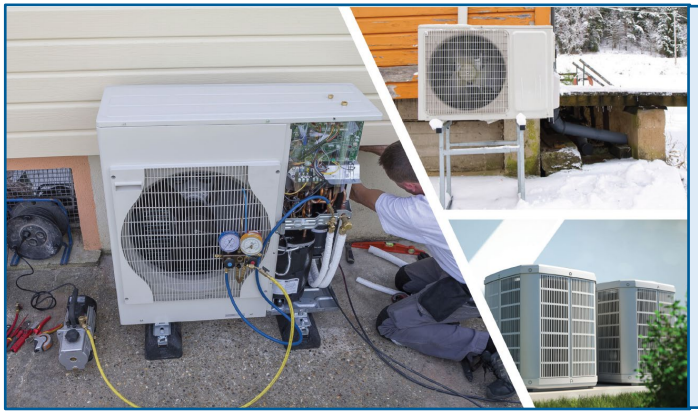
Agenda

- **Introduction to Contractor Guidelines**
  - Purpose and Structure
  - Contactor Resources

- **Industry Practices to Support Quality Installations**
  - Pre-Changeout Procedures
  - F280-12 Load Calculations
  - Duct Capacity
  - Case Study



Introduction to Contractor Guidelines

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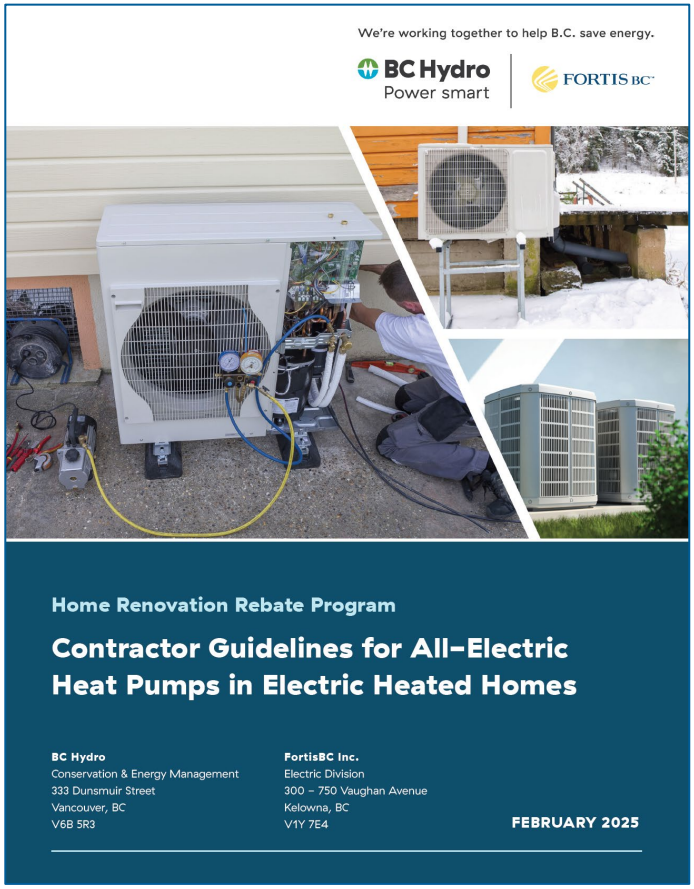
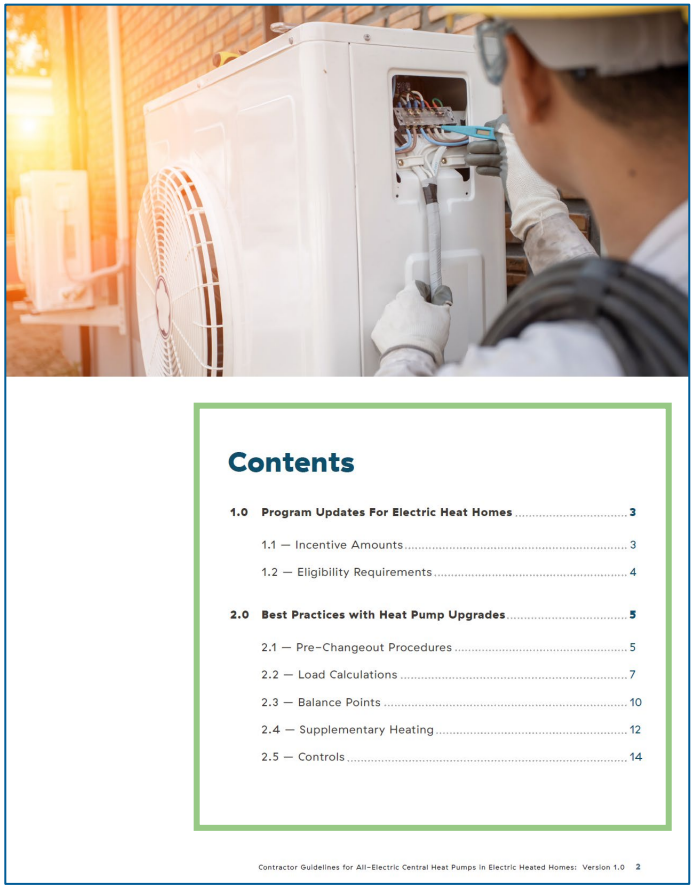
Contractor Guidelines



- Collaboration between BC Hydro and FortisBC to support contractors with information on new rebate requirements and promotion of best practices to achieve quality installations.
- Guideline focus is all-electric heat pumps including centrally ducted and ductless heat pump applications.

Purpose & Structure



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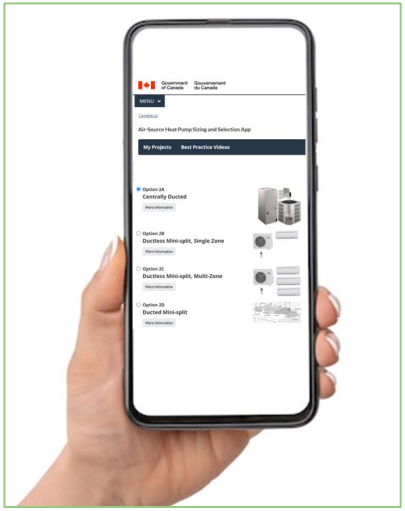
- Guidelines segmented into two (2) sections with program updates and best practices covered.
- Program updates include rebate amounts and eligibility requirements.
- Best practices content includes guidance on heat pump sizing, selection, and procedures designed to optimize equipment performance.

Contractor Resources



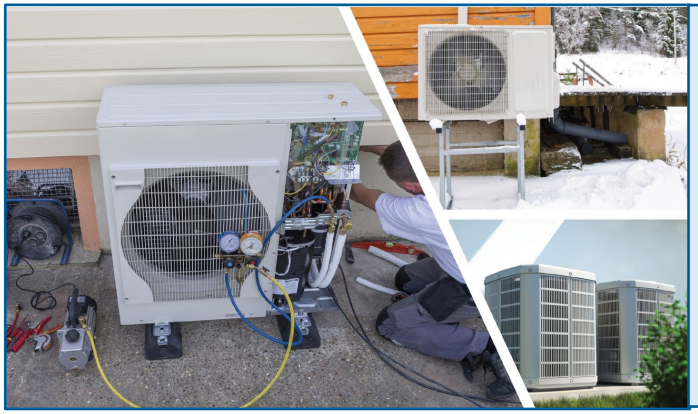
Natural Resources Canada

Air-Source Heat Pump Sizing and Selection App

Home Performance Stakeholder Council

Heat Pump Best Practices Guide for Existing Homes

- Provides access to additional HVAC industry and government / utility resources to support contractors.
- Complements existing HVAC industry resources and will be used to support upcoming all electric and dual fuel (hybrid) heating content updates with HPSC's "Heat Pump Best Practices Installation Guide for Existing Homes".



Industry Practices to Support Quality Installations

Pre-Changeout Procedures

- Pre-changeout procedures are designed to better understand the existing HVAC system and overall home performance that should inform proper heat pump sizing and equipment selection.

Homeowner Interview

Gathering information from the consumer to better understand their expectations and needs. This step is often overlooked to support informed decision making and heat pump recommendations.

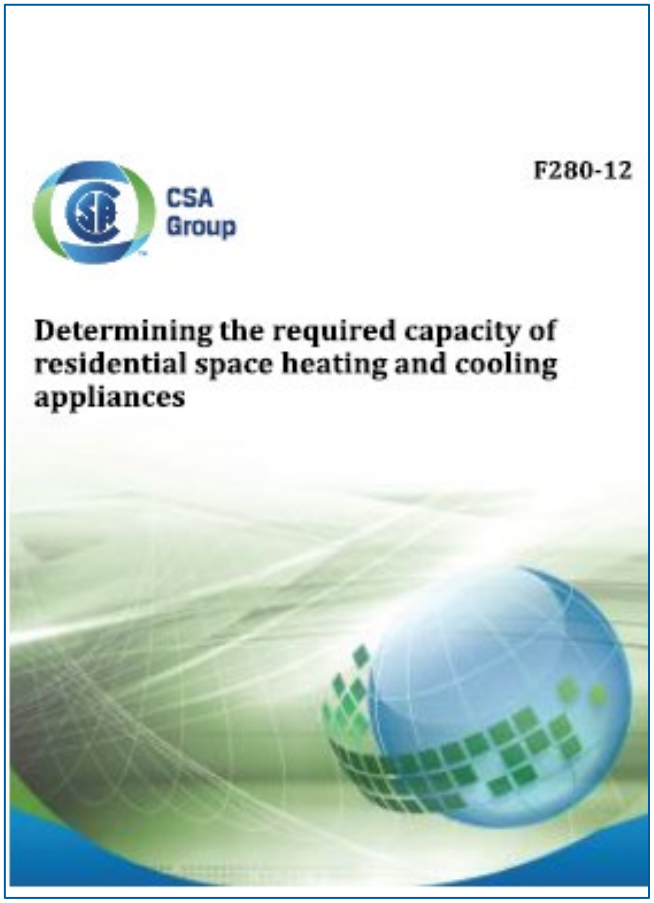
Load Calculations

Proper heat pump sizing and selection requires an understanding of existing home performance including heat loss and heat gain calculations using CSA F280-12.

Equipment Review

An assessment of the existing HVAC equipment is critical for gathering empirical data used to inform equipment options and potential limitations since a heat pump may operate at a different cubic foot per minute (CFM) of air flow.

F280-12 Load Calculations



- **CAN/CSA F280-12:** Canadian Standards Association (CSA) standard on how to properly size residential space heating and cooling equipment that is nationally recognized and referenced in the BC Building Code (Section 9.33.5)

- Making sure this standard is used can:

  - ✓ Ensure comfort
  - ✓ Reduce installed HVAC system costs
  - ✓ Ensure you comply with code
  - ✓ **Reduce your liability risks**

F280-12 Verified Software Tools

- HVAC Designers of Canada has published a list of verified software tools that are compliant with CSA F280-12.

- Using verified software gives both the HVAC contractor and those who rely on the outputs from the software confidence that the tool can generate correct results in line with the CSA standard.

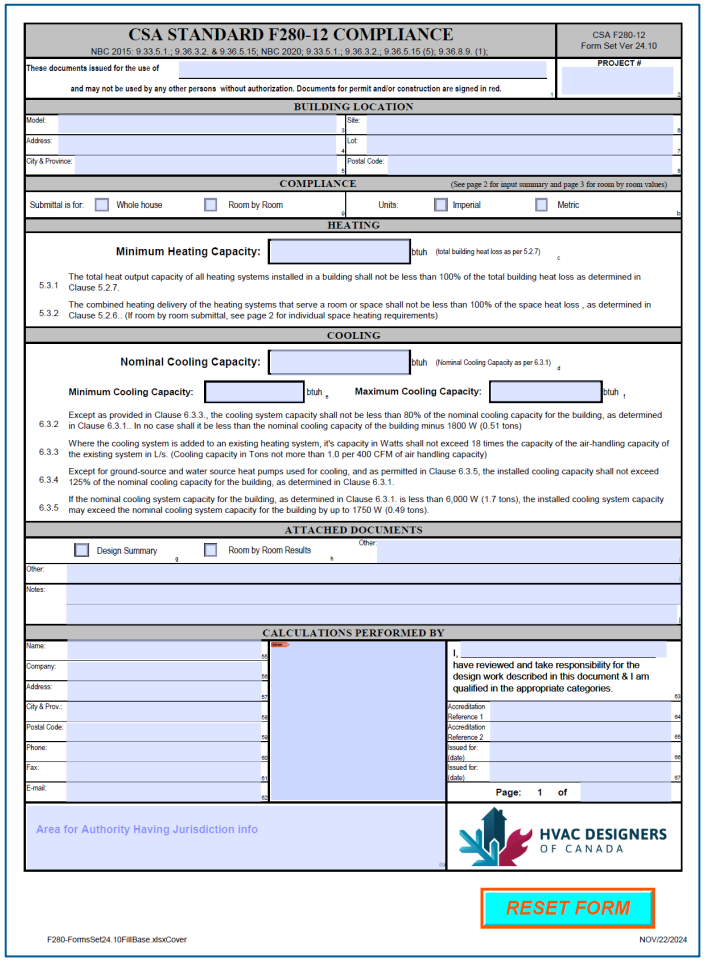
teca thermal environmental comfort association

wrightsoft

HeatCAD

volta SNAP

F280-12 Standardized Reports



CSA STANDARD F280-12 COMPLIANCE

NBC 2015: 9.33.5.1.; 9.36.3.2. & 9.36.5.15; NBC 2020; 9.33.5.1.; 9.36.3.2.; 9.36.5.15 (5); 9.36.8.9. (1);

CSA F280-12
Form Set Ver 24.10

These documents issued for the use of

and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.

PROJECT #

BUILDING LOCATION

Model: Site:

Address: Lot:

City & Province: Postal Code:

COMPLIANCE (See page 2 for input summary and page 3 for room by room values)

Submittal is for: Whole house Room by Room Units: Imperial Metric

HEATING

Minimum Heating Capacity: btuh (total building heat loss as per 5.2.7)

5.3.1 The total heat output capacity of all heating systems installed in a building shall not be less than 100% of the total building heat loss as determined in Clause 5.2.7.

5.3.2 The combined heating delivery of the heating systems that serve a room or space shall not be less than 100% of the space heat loss , as determined in Clause 5.2.6. (If room by room submittal, see page 2 for individual space heating requirements)

COOLING

Nominal Cooling Capacity: btuh (Nominal Cooling Capacity as per 6.3.1)

Minimum Cooling Capacity: btuh Maximum Cooling Capacity: btuh

6.3.2 Except as provided in Clause 6.3.3., the cooling system capacity shall not be less than 80% of the nominal cooling capacity for the building, as determined in Clause 6.3.1.. In no case shall it be less than the nominal cooling capacity of the building minus 1800 W (0.51 tons)

6.3.3 Where the cooling system is added to an existing heating system, it's capacity in Watts shall not exceed 18 times the capacity of the air-handling capacity of the existing system in L/s. (Cooling capacity in Tons not more than 1.0 per 400 CFM of air handling capacity)

6.3.4 Except for ground-source and water source heat pumps used for cooling, and as permitted in Clause 6.3.5, the installed cooling capacity shall not exceed 125% of the nominal cooling capacity for the building, as determined in Clause 6.3.1.

6.3.5 If the nominal cooling system capacity for the building, as determined in Clause 6.3.1. is less than 6,000 W (1.7 tons), the installed cooling system capacity may exceed the nominal cooling system capacity for the building by up to 1750 W (0.49 tons).

ATTACHED DOCUMENTS

Design Summary Room by Room Results Other:

Other:

Notes:

CALCULATIONS PERFORMED BY

Name: Company: Address: City & Prov.: Postal Code: Phone: Fax: E-mail:

I, have reviewed and take responsibility for the design work described in this document & I am qualified in the appropriate categories.

Accreditation Reference 1 Accreditation Reference 2 Issued for: (date) Issued for: (date)

Page: 1 of

Area for Authority Having Jurisdiction info

HVAC DESIGNERS OF CANADA

RESET FORM

F280-FormsSet24.10FillBase.xlsxCover NOV/22/2024

- All commercially available F280-12 verified software tools produce a **standardized summary report** of data inputs and outputs.
- Standardized reporting assists with:
  - ✓ Consistent presentation of data for review and interpretation.
  - ✓ Assists with Building Officials with code compliance and verification.
  - ✓ Improves rebate program administrative processes.

Understanding Duct Capacity

- Contractors at a minimum should complete external static pressure testing, and calculations to determine whether the existing ductwork and fittings are adequate for system distribution and gather insight into whether the new heat pump will have enough air flow to operate effectively.

- Combination of **static pressure testing**, **ductwork measurements**, and **air flow testing** is the most comprehensive approach to better understand existing ductwork capacity that should be used to inform heat pump sizing and selection.

Evaluating Duct Capacity

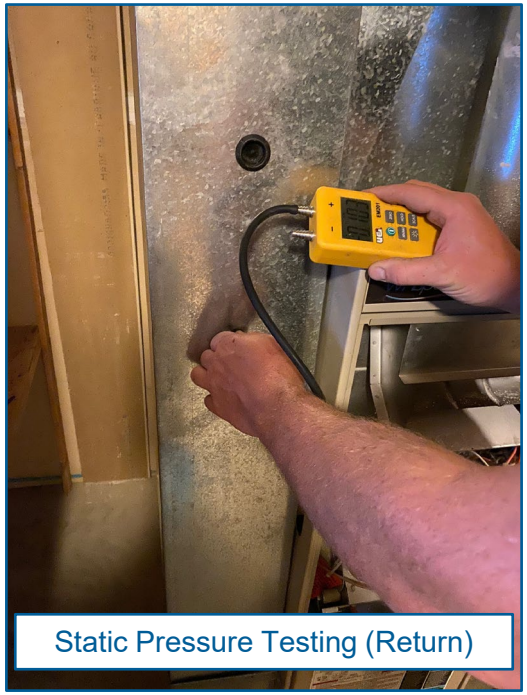
- Anything outside of the appliance would be external static pressure. For all-electric central heat pump, that would be ductwork and filter. For dual fuel (hybrid) heat pump that would be A-coil, ductwork, and filter.

- The air flow impacts the size and performance of heat pump.
  - ✓ Centrally ducted heat pumps need higher airflow.
  - ✓ Need to ensure ducts can handle the size of the system installed.
  - ✓ Coil also needs certain minimum airflow.
  - ✓ Airflow can play a role in dehumidification.

Calculate the possible airflow range to select the optimal heat pump size.

Evaluating Duct Capacity

Static Pressure Testing (Supply)



Static Pressure Testing (Return)

Air Flow Testing (Flow Grid)

Case Study – Background

Home Characteristics

- Location: Burnaby (Climate Zone 4)
- Year built: 1980
- Heated floor area: 2,595 sq. ft.
- Home has an existing all-electric furnace is 17.5 kW (59,710 BTU/h input/output) that covers 100% of heated floor area.

Design Heat Loss (DHL) & Design Heat Gain (DHG)
42,362 BTU/h (DHL)
18,949 BTU/h (DHG)

Case Study – Duct Capacity

Annex B (Informative)

Example Measurement Report

Measurement Report

Ductwork Airflow and Static Pressure

Company	Ecolighten Energy Solutions 201 – 1515 Barrow Street Vancouver, BC L5H 1X1
Technician	Dan Bradley
Standard	CSA X-X Airflow and static pressure measurements in residential ductwork systems for heat pump selection and commissioning
Date and Time	February 26th, 2024; 10am to 11am
Building	316 Mundy Street Port Coquitlam, BC V3K 5M4
Notes	-As-found ductwork evaluated in mechanical room found in good state of repair. -As-found ductwork evaluated in crawlspace found in good state of repair. -Some crawlspace ductwork unable to be accessed and viewed. -Supply grilles on main floor (3 total) identified closed. -Supply grilles on main floor (10 total identified open. -Air flow testing completed with all grilles open. -Difficult gathering supply air external static pressure due to downflow furnace install. -Upon arrival, thermostat set at 19°C in heating mode. -Existing 16"x25"x4" electronic filter used during measurements and found to be clean.
Airflow Method	Filter Slot Airflow Grid Method
Measured Values	Test #1 – All Grilles Open Measured static pressure in return ducting: 0.174 in. wc Measured static pressure in supply plenum: 0.156 in. wc Measured airflow: 992 CFM Total ductwork pressure loss: 0.33 in. wc

System Curve

Airflow [CFM]	Total Ductwork Static Pressure [in. wc]
992	**0.330**
1,000	0.335
1,200	0.483
1,400	0.657
1,600	0.858
1,800	1.087
2,000	1.341

Test #1 – All Grilles Open

- Measured static pressure in return ducting: **0.17" W.C.**
- Measured static pressure in supply plenum: **0.18" W.C**
- Measured airflow: **900 CFM**
- Total ductwork pressure loss: **0.35"W.C.**

Case Study – Heat Pump Design

- When the CFM and static pressure is known from existing equipment then a simple “Fan Law #2” calculation based on CFM of new equipment will show expected static pressure of existing ductwork system at new higher CFM.

- With inputs of 900 CFM and 0.35” W.C. total external static pressure (TESP):

    - 3-ton (36,000 Btu/h) heat pump @ 1200 CFM (400 CFM/ton) would create **0.622“ w.c. TESP**

    - 4-ton (48,000 Btu/h) heat pump @ 1600 CFM (400 CFM/ton) would create **1.106“ w.c. TESP**

    - 5-ton (60,000 Btu/h) heat pump @ 2000 CFM (400 CFM/ton) would create **1.728“ w.c. TESP**

Case Study – Heat Pump Design

Air Flow Table – GUD36AH2/A & GUD48AH2/A

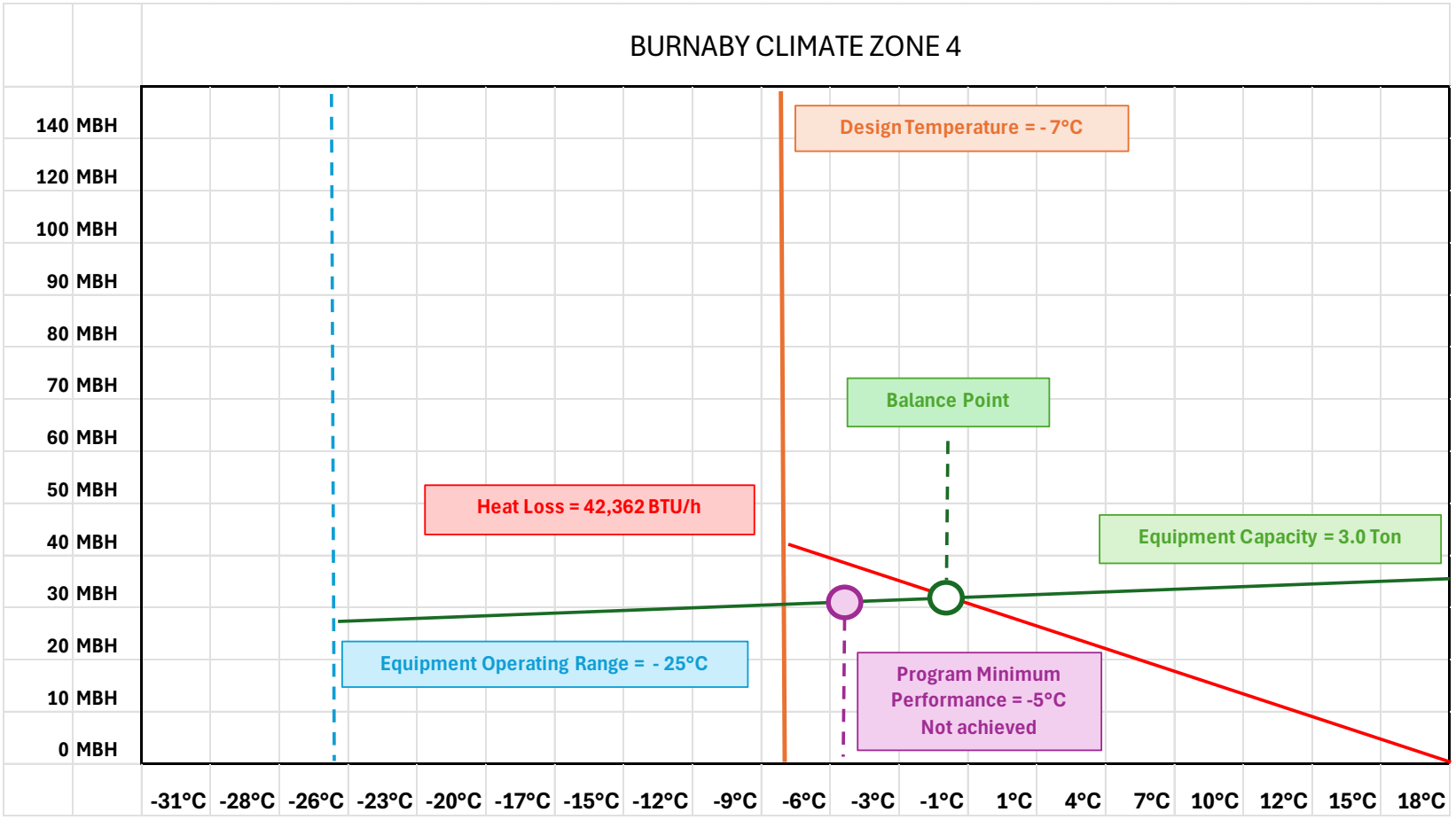
GUD36AH2/A-D(U)		ESP (in.w.g)											
		0	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Air Flow Volume	Speed-1	1150	1050	950	880								
	Speed-2	1200	1100	1000	940	850							
	Speed-3	1380	1260	1200	1100	950	760						
	Speed-4	1550	1460	1390	1310	1160	1010	830					
	Speed-5	1710	1650	1600	1560	1480	1400	1310	1210	1080	930		
	Speed-6	1840	1800	1750	1710	1640	1590	1500	1420	1330	1220	1100	960
	Speed-7	1870	1830	1810	1800	1760	1690	1620	1520	1440	1350	1250	1150
	Speed-8	1900	1860	1840	1830	1790	1720	1660	1600	1540	1440	1320	1220

Possible Selections for 3-Ton Capacity

GUD48AH2/A-D(U)		ESP (in.w.g)											
		0	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Air Flow Volume	Speed-1	1640	1500	1450	1400								
	Speed-2	1680	1560	1530	1470	1300							
	Speed-3	1810	1690	1620	1550	1380							
	Speed-4	1930	1830	1770	1710	1580	1430	1280					
	Speed-5	2200	2110	2040	1980	1860	1720	1620	1490	1380			
	Speed-6	2240	2190	2145	2100	2010	1870	1750	1615	1500	1380		
	Speed-7	2280	2240	2200	2180	2130	2080	2000	1880	1750	1600	1420	
	Speed-8	2300	2260	2220	2190	2140	2090	2040	1980	1930	1800	1700	1550

Possible Selections for 4-Ton Capacity

Case Study – Heat Pump Design

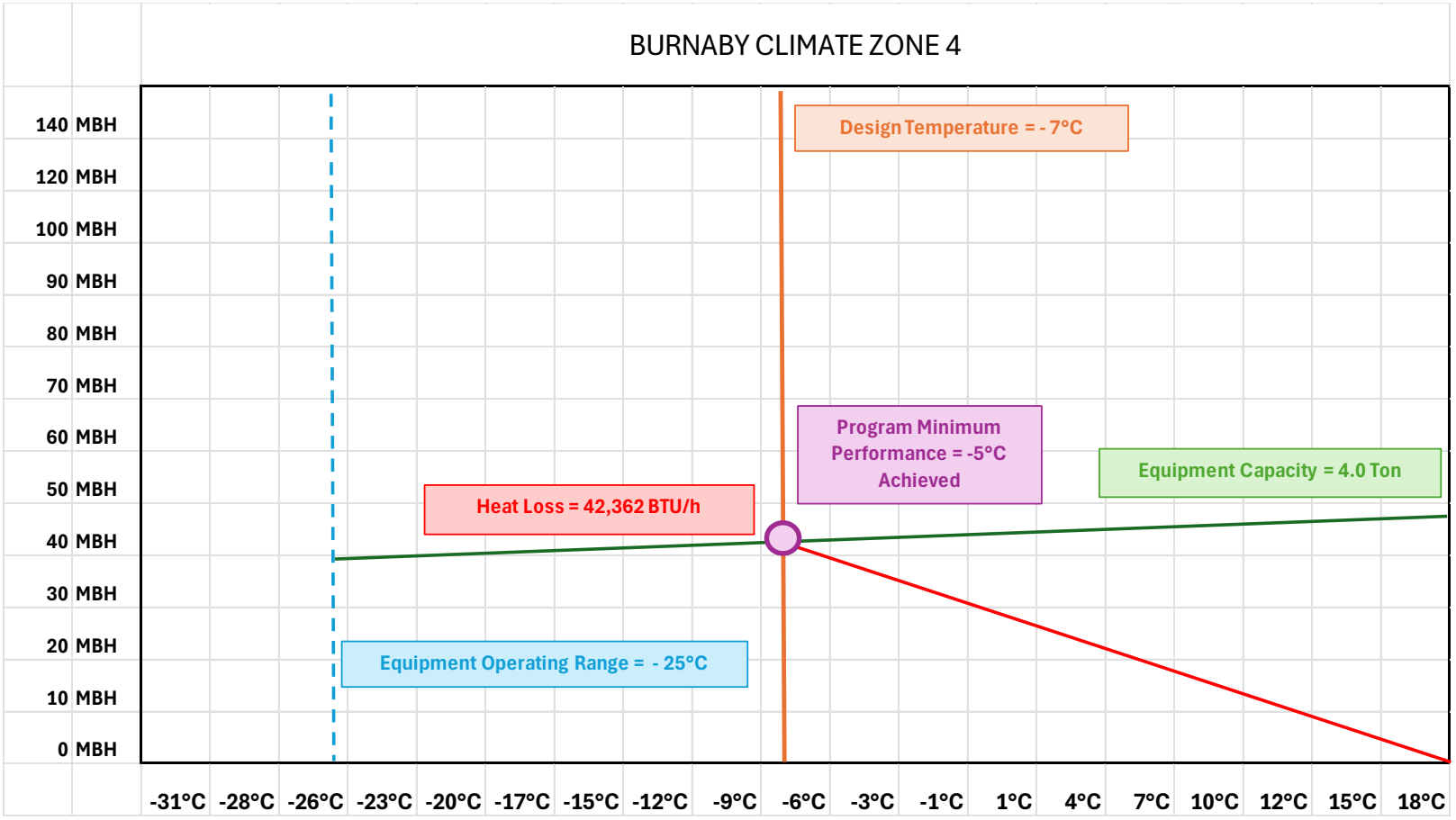


Case Study – Heat Pump Design

- To achieve optimum performance and meet minimum program requirements, minor ductwork modifications would be required to decrease external static pressure and allow an increase to a 4-ton heat pump.

- These modifications may include:
  - ✓ Add supply air (e.g. spill grille) or return air
  - ✓ Modifying supply and return air elbows and transitions
  - ✓ Turning vanes in return air elbow
  - ✓ Thicker (4” or 5”) pleated filter

Case Study – Heat Pump Design



Key Takeaways

1. **Contractor Guidelines are a support tool for contractors.** Guidelines provide easy access to new program requirements, and resources to assist contractors with proper heat pump sizing and selection.

2. **Load calculations using CSA F280-12 supports right-sizing of heat pumps.** Avoid any unintended consequences when using non-verified software tools or rule-of-thumb.

3. **Optimizing a heat pump selection requires a comprehensive approach.** This includes F280-12 compliant load calculations and understanding ductwork capacity that informs equipment options.

Q & A

Thank You

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