Condo & Apartment In-Suite Heat Pump Installation

INTERIM GUIDELINES

HPSC
HOME PERFORMANCE
STAKEHOLDER COUNCIL

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Introduction

This document is intended to provide interim guidelines for contractors installing heat pump systems in apartment / condo building applications. A comprehensive and formal installation guide is currently under development and will be released in a future update.

These guidelines are not a substitute for professional judgment, manufacturer specifications, or compliance with applicable building codes, zoning bylaws, and permit requirements.

Contractors are fully responsible for ensuring that all installations meet:

- **Local and provincial regulations**
- **Manufacturer installation requirements**
- **Industry-recognized standards of practice**
- **Requirements for using registered professionals**

Contractors are encouraged to consult with qualified professionals and local authorities as needed.

Technical Requirements

The technical requirements for ductless heat pump installations in condo and apartments may reside under Part 3 or Part 9 of the BC Building Code. As such, contractors will need to adhere to the following technical requirements when installing ductless heat pumps in multi-unit residential buildings.

CATEGORY	SUMMARY
General Program	• If the heat pump is being installed as part of an energy efficiency rebate program, it must be installed in compliance with general eligibility requirements and terms and conditions for that program. ◦ **BC Hydro Condo and Apartment Rebate Program:** General eligibility requirements and Terms and Conditions ◦ **CleanBC Energy Savings Program Condo and Apartment Rebate:** General eligibility requirements and Terms and Conditions
Equipment	• Equipment must be installed in accordance with the equipment manufacturer's instructions and guidelines.
Building Ownership	• Equipment must be installed in compliance with strata council, building owner bylaws, rules, regulations, and guidelines. • Strata and building owner written consents may apply.
Building Code, Permit, Bylaw and Regulatory Requirements	• Equipment must be installed in compliance with all **BC Building Code** (BCBC) requirements and the bylaw and permit requirements of **Authorities Having Jurisdiction** (AHJ), including building, development, mechanical and electrical permits (when required). • BCBC clauses to be considered (not exhaustive): ◦ **Section 1.3.3. Application of Division B** to assist with classification of projects as Part 3 or Part 9 building type. ◦ **Section 2.2.7. Professional Design and Review of Division C** to assist with responsibilities of registered professionals and building owners. ◦ **Section 3.3.4.6. and Section 5.8. Sound Transmission of Division B** to assist with airborne noise, sound ratings, and sound conformance for dwelling units. ◦ **Section 5 Environmental Separation** to assist with penetrations through the building assembly. ◦ **Section 6.3.2.2 Drain Pains of Division B** to assist condensate management.

CATEGORY	SUMMARY
Building Code, Permit, Bylaw and Regulatory Requirements *(continued)*	• National Plumbing Code clauses to be considered (not exhaustive): ◦ **Section 1.4.1.2. Defined Terms of Division A** to assist with clear water waste and condensate drainage definition. ◦ **Section 2.3.3.11 Indirect Connections of Division B** to assist with condensate management. ◦ **Section 2.4.2.1. Connections to Sanitary Drainage Systems of Division B** to assist with condensate management.
Registered Professionals	• Equipment should be installed with support from registered professionals when required. Confirm requirements with AHJ.

Considerations with Heat Pump Upgrades

Through proper sizing, installation, and performance verification, a heat pump will achieve the intended home comfort, energy-saving, and carbon reduction benefits. The following section provides guidance on standards of practice for quality heat pump upgrades including pre-changeout, equipment installation, and performance verification.

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2.2.3 - Line Sets

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2.1 PRE-CHANGEOUT

2.1.1 Consents

The consents required for the installation of ductless heat pumps may vary depending on the Authority Having Jurisdiction (AHJ) and building ownership type. Contractors should consider the following potential written permission and documentation requirements:

- AHJ codes, bylaws, and regulation (e.g. electrical, gas, and mechanical permits)
- Strata council bylaws, rules, regulations, and guidelines
- Equity co-op board rules
- Homeowner or landlord consent to proposed location of components and any resulting limitations

Ensure that all parties understand whether the building is considered a Part 3 or a Part 9 project as the appropriate sections of the Building Code must be followed. Part 3 buildings typically require professionals such as architects and engineers to design and oversee the work.

The BC Building Code classifies Part 9 and Part 3 apartment buildings with the following typical characteristics.

PART 9 BUILDINGS (SMALL APARTMENTS)

- Maximum 3 storeys
- Building footprint not exceeding 600 m²
- Typically, does not require a registered professional (in most cases)

PART 3 BUILDINGS (LARGER APARTMENTS)

- More than 3 storeys
- Building footprint over 600 m²
- Registered professional usually required (e.g. architects, engineers)

2.1.2 Heat Pump Sizing

An understanding of heat loss and heat gain considerations specific to apartment or condo applications will help contractors with right sizing a heat pump. For contractors, it is important to carefully consider the following:

- For Part 3 buildings, the heat loss and heat gain calculations are performed by the mechanical engineer that has assumed professional responsibility for the project. They are required to complete the calculations using good engineering practices and standards such as ASHRAE® as described in section **5.2.1. Environmental Loads and Design Procedures in the BCBC**.
- Mechanical contractors working on projects that are designed under Part 9 of the BCBC typically perform their own heat loss and heat gain calculations using CSA F280-12 as required by section **9.33.5.1**. of the BCBC. The indoor design temperatures are prescriptive per section **9.33.3.1**. which requires the heating system to be able to maintain 22°C in all living spaces and cooling facilities to maintain 26°C in at least one living space in each dwelling unit at outside design temperatures.
- There is a wide range of heating and cooling loads in apartments and condos. It is not recommended to have a heat pump sized based on rule-of-thumb approaches, which would include estimating based on the size of the dwelling unit (i.e. square metres) or the number of bedrooms. The appropriate heat loss and heat gain calculations should be performed by a qualified person prior to completing the equipment selection.

Several key factors will influence the heat loss and heat gain within an apartment or condo unit:

Geographic location of the building:

- Small suites (e.g. bachelor and one bedroom) in Climate Zone 4 (e.g. Vancouver) can have very low heat loads.
- Colder locations like Climate Zone 6 (e.g. Prince George) may have higher heat loads.
- Consider both the heating and cooling requirements of the dwelling when sizing equipment.

Location of the suite in the building:

- Suites on the top or ground floor of a building can have significantly more heating load than suites of the same size in the middle of the building due to increased heat loss through the roof or floor and the effects of stratification.
- Corner suites will have higher heating loads than suites in the middle of the building (i.e. situated between other suites) due to heat losses through more exterior wall surface area and more windows.
- The direction the suite faces (e.g. north, east, south, west) can dramatically impact the amount of solar heat gain and the required heating and cooling load of the suite. A south facing, unshaded suite, will have a higher heat gain (i.e. cooling load) than a north facing suite.

Efficiency of the building and heat loss and gain through the building envelope:

- Heat loss and heat gain through the building enclosure can vary widely based on:
  - The amount of glazing and the thermal performance of the windows.
  - Roof/exterior wall insulation values.
  - Air leakage of the building.
- If a building enclosure upgrade is needed or planned, the modified heat loss through the enclosure should be considered and ideally, both projects coordinated for proper sizing. Potential interactions with the ventilation system should also be considered.

Existing building conditions:

- The hallway ventilation system should be reviewed at the design stage of the project. This is particularly important if there is no cooling available in the existing system. A significant amount of warm air will be inadvertently introduced to the building during peak summer conditions, which will make cooling individual dwellings significantly more challenging and reduce the thermal comfort of the entire building.
- Many older buildings have poor ventilation and were designed based on the assumption that operable windows and envelope leakage will balance air pressure. If an upgrade of the building envelope is part of the project, an upgrade to the ventilation system should be considered as well.
- Consider if the surrounding units will have heat pumps installed. Adjacent units that cannot be cooled will inadvertently transfer heat through internal walls, floors, and ceilings.

Regardless of whether the building is Part 9 or Part 3, based on the variable heat loss and gain ranges in different suites within apartments and condos, there are risks associated with both over-sizing or under-sizing heat pumps.

RISKS OF OVER-SIZING	RISKS OF UNDER SIZING
The apartment suites, and rooms, most at risk of heat pump over-sizing include: • Small apartments in the middle of the building on middle floors of all buildings (i.e. suites situated between other suites on sides, top and bottom), in particular more efficient buildings. • Bedrooms in all buildings. ***Recommendation:*** *In suites and rooms that are typically lower heat load, complete a heat load calculation, install smaller capacity heat pumps with a high turn-down ratio (see 2.1.3 Equipment Selection) to reduce chance of oversizing, prevent short cycling and enable efficient operation.*	The apartment suites, and rooms, most at risk of heat pump under-sizing include: • Apartments in colder climate zones. • Apartments in less efficient buildings. • Corner suite, top floor or corner/top floor suites. • Suites with a high amount of window area (glazing). ***Recommendation:*** *Have a qualified professional provide a heating and cooling load calculation.*

CONTRACTOR TIP

Contractors should have confidence they are selecting and installing a system designed to meet the heating and cooling loads of the suite, or room within the suite. Contractors need to be aware of when they are required to have a qualified professional provide a heating and cooling load calculation for the suite (for Part 3 buildings) and when it is recommended (for Part 9 buildings based on the likelihood of over or under sizing the system).

2.1.3 Equipment Selection

In addition to right-sizing as part of the equipment selection process, contractors should carefully consider other technical attributes of the heat pump including turn-down ratio, noise levels, and cold climate performance.

Turn-Down Ratio:

When selecting a heat pump for low heat load application (e.g. small units, energy efficient apartments or condos, or units in the middle of the building), it is important to select systems with higher turn-down ratio. The turn-down ratio refers to how much the system can reduce its output relative to its maximum capacity. A higher turn-down ratio allows the heat pump to operate at lower capacities without cycling on and off frequently. This improves comfort and efficiency – especially in smaller or well-insulated spaces.

- The turn-down ratio is the ratio of the heat pump's maximum heating output to its minimum stable operating output. This information is typically found on the manufacturer's equipment technical specifications sheets.
- For example, A 9,000 BTU/h heat pump with a 4 -to-1 turn-down ratio can operate as low as 2,250 BTU/h (9,000 BTU/h ÷ 4 = 2,250 BTU/h minimum output).

Noise and Vibration:

Without appropriate planning, the installation of heat pumps in apartments or condos can lead to noise complaints about outdoor units from your clients, or their neighbours. It is a requirement that all heat pump installations comply with applicable municipal noise bylaws or other relevant regulations.

In British Columbia, some municipalities have specific noise limits for heat pumps, while others apply general noise ordinances. These limits are generally measured in decibels as a 'sound pressure rating' with noise meter at the property line. In strata, equity co-op and apartment buildings, shared walls, balconies separating suites, or ceilings may be considered the boundary for noise compliance. Enforcement methods may vary by jurisdiction. Typical limits are:

- Daytime: ~50–55 decibels (dBA)
- Nighttime: ~45 dBA

Contractors are responsible for understanding and adhering to local noise regulations, and individual strata or equity co-op building bylaws or requirements, for each installation site. Below are some recommendations for contractors to consider when addressing heat pump noise:

- Select the appropriately sized system with a high turn-down ratio to meet the needs of the space that is to be heated and cooled. An oversized heat pump will turn on and off frequently (i.e. short cycle) and create excess noise.
- Select heat pump models with a low 'sound pressure rating', which are listed in decibels and represent the lab tested measurement of the noise generated by a heat pump at full capacity.
- Prioritize selecting heat pumps with features that will reduce the operational noise heard by neighbouring properties, such as:
  - Variable-speed or inverter-driven fans
  - Insulated compressor enclosures
  - Soft start and stop functions
  - Nighttime (quiet) operating mode, which reduces fan/compressor speed
- Outdoor units should be placed as far from neighbouring windows and balconies as possible, with the unit positioned to blow air away from windows, doors, and neighbouring balconies.
- Be aware that the installation of heat pumps in enclosed spaces (i.e. in corners on balconies), without sufficient clearances around the heat pump and without sufficient vibration protection can amplify noise levels.
- In some installations, the use of barriers (i.e. screens or acoustic panels) may be beneficial to reflect noise and direct sound away from neighbouring suites.
- Always install vibration isolators and/or sound-dampening mounts.

CONTRACTOR TIP

To ensure your clients, and their neighbours, are happy with the heat pump and to meet noise bylaw requirements, it is recommended that contractors install heat pumps rated at 50 dBA or less to minimize noise. Contractors should consult with the strata council, equity co-op board, and AHJ for specific noise bylaw requirements.

Cold Climate Performance:

Cold climate heat pumps have the ability to heat efficiently and maintain a higher output capacity at colder temperatures when compared to conventional heat pumps. For apartments and condo applications, the utilization of cold climate heat pumps can help mitigate potential technical issues with supplemental heating requirements when electrical capacity limitations are encountered.

- Review the manufacturer's performance data to confirm that the system can maintain adequate heating capacity at the design temperature for the region (e.g. heat capacity in BTU/h at -8°C (17°F) or -15°C (5°F) and whether the operating range will cover all expected temperatures.
- Contractors can access cold climate performance data through the **Northeast Energy Efficiency Partnerships** (NEEP) directory for **Cold Climate Air Source Heat Pumps** (ccASHP).

2.1.4 Electrical Capacity

An assessment of electrical capacity is an essential step before installing a heat pump to verify electrical panel load capacity, and for code compliance and safety. Contractors should engage building owners, strata councils, or equity co-op boards early if electrical upgrades or approvals are anticipated and ensure all relevant permits are acquired in advance of installation.

Electrical Assessment:

An electrical capacity assessment at the building and suite level must be completed by a qualified individual to confirm whether the existing electrical system can handle the load or identify potential electrical upgrades or remediation requirements. Generally, this requires the following steps:

- Verify the total capacity of the suite electrical panel.
- Evaluate existing breaker space and panel layout to ensure there is adequate space for the new circuit breaker(s) to be accommodated.
- Calculate the electrical load of the heat pumps and compare it to the electrical load of the existing heating system for each suite and for the entire building.
- Confirm total building load and individual suite load will not exceed their rated capacity with the addition of the heat pumps.
- If required, identify any electrical upgrades or enabling measures (e.g., panel upgrade, interlock controls, load-sharing device, or approved energy management system) required to accommodate the new heat pump.

Circuit Allocation:

In electrically heated suites, the existing baseboard heater should typically be disconnected from the suite panel to free up circuit space and capacity for the new heat pump. The baseboard heaters can then be decommissioned and removed or disconnected and left in place. When baseboard heaters are decommissioned, code-compliant approaches should be followed. Where supplemental or backup electric heat is required (e.g., colder climates) and the baseboard heater is to remain connected to the suite panel, a control system should prioritize the heat pump and coordinate operation between the two systems. If there's insufficient capacity and breaker space, determine potential enabling measures that could be performed to facilitate a heat pump upgrade. This may include:

- Interconnected Controls, such as a relay that disables the baseboard circuit when the heat pump is operating.
- Smart Thermostats, configured to prioritize the heat pump and only enable baseboards under specific conditions (e.g., outdoor temperature below -5°C).

2.2 EQUIPMENT INSTALLATION

All equipment and components should be installed according to manufacturer's instructions and requirements. Outdoor and indoor unit installation should be optimized for equipment performance (i.e. efficiency, noise, vibration, etc.), access for service and maintenance, safety considerations, and aesthetics.

2.2.1 Outdoor Unit

Outdoor units are typically located on exterior balconies, decks, rooftops, and yards. Occasionally outdoor units will be mounted to the exterior wall of the building.

General considerations for outdoor unit placement:

- Must comply with manufacturer's instructions, including minimum clearances for airflow and snow accumulation.
- Must comply with applicable local bylaws, permitting requirements and zoning regulations, including noise limits, clearance, and setback requirements.
- Must comply with strata council bylaws or building-specific rules, including restrictions on visibility, aesthetics, and placement locations.
- Must not obstruct required exit paths or access to individual suites.
- Must have sufficient slope to avoid discharge water from creating a slipping hazard or flowing back into the dwelling.
- Must be installed with sufficient seismic protection and secured to prevent falling from the buildings.
- Level installation is required. Patios, balconies, or ground surfaces may not be level.
- Must use anti-vibration pads, rubber isolators or other anti-vibration products to reduce noise and vibration transmission into the building.
- Part 3 buildings typically require input from structural engineers to assess the additional weight acting on the building as well as seismic considerations which can affect how a unit must be mounted. Confirm whether your project requires design or input from engineers during the design phase of the project.
- Should be installed to allow unimpeded airflow and access for servicing and maintenance, including space for snow accumulation.
- Units should be located away from neighbouring properties, windows, or door openings, with special care to avoid placement near bedroom windows to reduce potential noise disturbances.
- Should consider site specific design including clearance to snow accumulation, effects of wind, and protection of falling debris.
- Does not penetrate any horizontal surfaces or adjacent suites.

Other considerations:

Ground Installation:

- Unless different minimum setbacks are provided by a regulation or bylaw, the unit should be installed in the front or rear yard and at least 2 metres (6.6 ft.) from a shared property line. If located in the front yards, the unit must be at least 4.6 metres (15 ft.), no more than 1.25 m (4.1ft) in height, and be provided with appropriate landscape screening from the front property line.
- Must not affect protected trees, or reduce required parking, electric vehicle charging, or loading spaces.
- Must not reduce the number of regular parking spaces that are required by Parking Bylaw.
- Consider protection measures to prevent vandalism, snow buildup, and other physical damage.
- Do not block access to the building or any emergency pathways.

Balcony Installation:

- A structural assessment by a qualified engineer may be required before installing a heat pump on an apartment or condo balcony, to ensure compliance with the BCBC, local jurisdiction bylaws and/or strata bylaws.
- To prevent climbing and falling hazards, the top of the heat pump must be at least 1.07 metres (42 in.) away from the top of the guardrail or otherwise positioned to prevent climbing. Contractors are responsible for verifying whether the mechanical plan meets AHJ or building code requirements which may include a greater distance between the unit and the balcony railing, or a mechanical plan review to ensure the unit is positioned to hinder climbing.
- Must be installed with secure anchoring and wind protection.
- Does not require penetrations through any horizontal surface or adjacent suites.
- Do not obstruct a required exit path or access to a suite.
- Consider if the placement of the heat pump on the balcony will limit occupant use and enjoyment of the balcony.

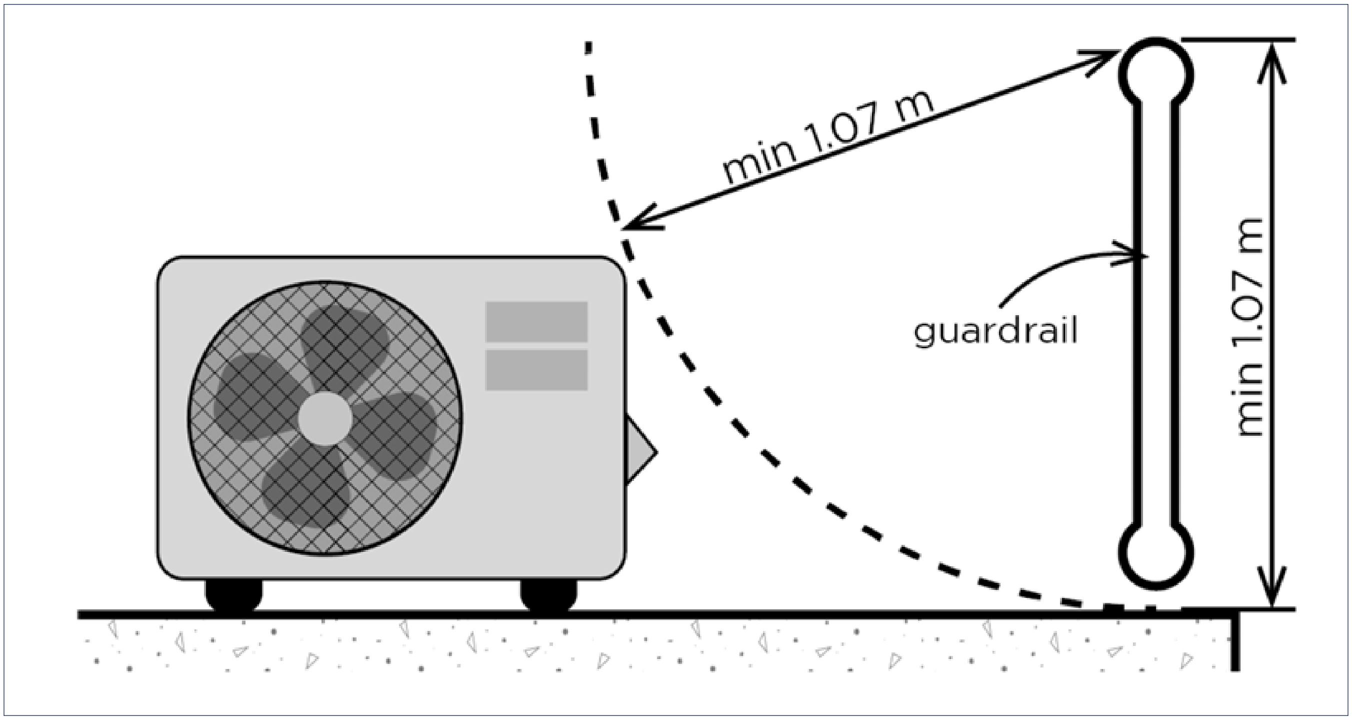

Figure 1 Heat Pump Outdoor Unit placement (example only). Source: [Mechanical Permit – City of Vancouver]

Roof Installation:

- A structural assessment by a qualified engineer may be required before installing a heat pump on an apartment or condo roof, to ensure compliance with the BCBC and/or local jurisdiction bylaws.
- May require additional review and permitting, including a development permit.
- Must be installed with secure anchoring and wind protection.
- Units should be no more than 1.5 m (4.9 ft.) in height and located at least 3 m (10 ft.) from the edge of the roof to ensure safety and prevent issues from wind or snow shedding, unless a different minimum setback is specified by local bylaw.
- Consideration should be given to snow and ice management around rooftop units in the winter, if access is limited.
- Preferred placement is above load-bearing walls, such as central hallways, to ensure adequate structural support.
- Safe access for installation and future servicing must be planned and documented.

Exterior Wall Mounted Installation:

- May require additional review and permitting related to engineering review, development permit, design guidelines, or aesthetic screening requirements.
- Must not obstruct egress routes, windows, or ventilation openings.
- Avoid installing on a wall adjacent to a bedroom wall or near a bedroom window.
- Utilize a heavy-duty, corrosion resistant bracket rated for the unit's weight and ensure it is securely anchored following recommendations by a structural engineer.
- Mount above snow level.
- Safe access for installation and future servicing must be planned and documented.

CONTRACTOR TIP

The City of Vancouver's bulletin "**Heat Pump Retrofits for Larger Buildings**" provides technical reference for installing air-source heat pumps in existing larger buildings including equipment placement on roofs, balconies, or decks serving a single dwelling unit.

2.2.2 Indoor Unit(s)

Indoor unit(s) are typically located on interior walls and floors.

- Ideal placement is on an interior side of an exterior wall to minimize refrigerant line length, simplify condensate drainage, and to avoid line-sets installed on interior walls for aesthetic considerations.
- Indoor unit(s) should be placed to allow unobstructed air distribution across the heated zone.
    - Wall mounted units located (where possible) with a minimum 30 cm (12 in.) around indoor heads for airflow (or as per manufacturer's instructions).
    - Floor mounted units located (where possible) with a minimum 60 cm (24 in.) in front of unit for airflow (or as per manufacturer's instructions).
- Provide accessibility to the indoor unit(s) for service and maintenance including filter cleaning.
- Avoid placing unit directly above a bed or seating area so airflow blown directly on to people does not create health and comfort issues.

- Indoor units should be securely fastened to prevent falling hazards.
- Indoor units should include a permanent condensate drain connection to an acceptable drainage location.
- Mounted to minimize noise or vibration to adjacent suites and/or common areas.
- Locate thermostats where they will be able to properly measure indoor air temperature. Locations such as on outside walls or in the path of the discharge supply air of the indoor unit should be avoided.

2.2.3 Line Sets

- Line set length installed to be within the manufacturer's specifications.
- Should be installed using the shortest, straightest, and most direct route. Installations should minimize bends.
- Insulation and UV-protection must cover entire line set (both line sets).
- Line sets and electrical cables routing from outdoor to indoor unit(s) should be concealed with conduit (if visible) for damage protection and aesthetics.

2.2.4 Building Penetrations

- The BCBC requires that all penetrations through the building envelope must maintain the integrity of the building envelope, be airtight, weather resistant, and thermally efficient and be sealed to prevent moisture ingress, air leakage, and thermal bridging. A building envelope engineer and/or architect may be required to review and approve detailing.
- Installation materials and methods should be consistent with BC Housing's "**Detailing Guide for Heat Pump Penetrations in Existing Buildings**".
- All penetrations through the building enclosure shall be sealed from both exterior and inside with appropriate materials based on cladding type.
- All penetrations should be located (where possible) under shelter (i.e. balcony or roof overhang) and accessible.
- Penetrations must never compromise fire separation assemblies.
- Any modifications to the building exterior, including line set attachments, may require strata council or equity co-op board approval, a building envelope review and potentially a building permit, depending on the AHJ.

CONTRACTOR TIP

Details D-1A to D-3C in BC Housing's "**Detailing Guide for Heat Pump Penetrations in Existing Buildings**" provide an overview of good installation and detailing methods for heat pump penetrations through walls in existing buildings.

2.2.5 Condensate Management

- All condensate management strategies must comply with applicable local bylaws and plumbing codes, which may vary by jurisdiction.
- Condensate must be disposed of in a safe and controlled manner.
- Drain lines must be installed with continuous downward slope to ensure proper drainage.
- If a continuous slope is not feasible, a condensate pump may be required.
- In unconditioned areas (e.g., balconies, attics, exterior walls), drain lines may need to be insulated and protected from freezing. Heat trace may be necessary in colder climate zones.
- Drain lines and pumps must be accessible for inspection, cleaning, and service. Avoid running condensate lines through inaccessible areas without access panels.
- Use drip pans under indoor units where needed. If a pump is installed, include overflow protection to prevent interior water damage.
- Drain lines should be concealed where possible (e.g., within soffits or conduit) to minimize visual impact.
- Exterior routing should blend with the building's design.

2.2.6 Controls

- Configure and test thermostat functionality (as per manufacturer instructions).
- Review the temperature setpoints with the dwelling occupant and demonstrate how to make adjustments to the temperature and schedule.
- Ensure that the setpoint for cooling mode is set at or below 26°C. When indoor temperatures exceed 26°C, there is a potential health risk for the occupants.
- Leave the instructions for the thermostat on site so the occupant can review the setpoint programming procedure in the future.
- If electric baseboard heaters are retained to act as backup heaters, ensure that they are set well below the indoor heating setpoint temperature so they are only activated when the heat pump cannot meet the required capacity output. Electric heaters should be interconnected with the indoor units so that they cannot activate while the heat pump is in cooling mode.

2.3 PERFORMANCE VERIFICATION

2.3.1 Commissioning

- Complete manufacturer required start-up sheet and/or commissioning form and provide completed documentation to the homeowner.
- Measure and document continuous sound level to ensure compliance with bylaw requirements.

CONTRACTOR TIP

The Home Performance Stakeholder Council provides a standardized "**Commissioning Report**" to support contractors with documenting installed performance verification data.

2.3.2 Documentation

- Provide a copy of the equipment manufacturer "Owners Manual", equipment installation manual(s), commissioning documents, copies of all permits, and other relevant literature to the homeowner.
- Provide necessary information and support to the homeowner to facilitate program rebate application, and equipment warranty registration processes. This includes a detailed copy of an equipment invoice with all information required.

2.3.3 Homeowner Education

- Demonstrate equipment operation and thermostat programming. Highlight relevant sections of manufacturer's instructions and information on changing the thermostat settings and programming.
- For homes with supplementary heating (e.g. electric baseboards), advise homeowner to use only when needed and set controls at least 5°C lower than your heat pump controller(s) (if controls are separate).
- Communicate "set it and forget it" approach is best for energy savings. The heat pump works most efficiently when they can slowly heat or cool a home. As a result, when it is very cold or very warm only adjust your heat pump by 2°C. For example, if the occupant prefers 21°C in the winter, they should only reduce their temperature (for a nighttime setback) to 19°C in cold weather so the heat pump can quickly and efficiently bring the home back to their preferred temperature. In extreme cold weather, 'set it and forget it' is the best approach.
- Discuss the maintenance requirements of all equipment, including any accessories such as condensate pumps.

Resources

The following suite of resources may be insightful to augment minimum technical requirements (as per Section 1) and additional contractor considerations with heat pump upgrades (as per Section 2).

- City of Vancouver: **Technical Bulletin on Heat Pump Retrofits for Larger Buildings**
- City of Vancouver: **Heat Pump Retrofit Guide for Strata and Co-Op Buildings**
- City of Vancouver: **Summer Cooling and Winter Heating**

  PLEASE NOTE
  Information presented provides visual guidance when installing a heat pump on balconies and decks in City of Vancouver.

- BC Housing: **Detailing Guide for Heat Pump Penetrations in Existing Buildings**
- BC Housing: **Maintenance Matters #23 - Electrical Planning for Multi-Unit Residential Buildings**
- Home Performance Stakeholder Council: **Heat Pump Best Practices Guide for Existing Homes**

  PLEASE NOTE:
  These installation practices in the Heat Pump Best Practices Guide for Existing Homes are designed for single family homes and may not all be relevant for apartments and Part 3 buildings.

- Engineers and Geoscientists of British Columbia: **Overheating Considerations for Existing Multi-Unit Residential Buildings**
- BC Building Code 2024: **BCBC 2024 Home Page**
- Technical Safety BC: **TSBC Refrigeration Safety & Permits**
- RDH Building Science: **Future Climate Design for Multi-Family Buildings**
- RDH Building Science: **UBC - Designing Climate Resilient Multifamily Buildings**
- Architects Regulation: **Professional Governance Act**
- Vancouver Island Strata Owners Association: **Handling Requests for Heat Pumps and Air Conditioners**