



# Heat Pump Retrofit Guide

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Planning and Building Department



**Maple  
Ridge**



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## Guide for Homeowners, Stratas, and Contractors in B.C.

The purpose of this guide is to assist homeowners, strata owners, and contractors with the City of Maple Ridge's requirements for the installation of air-source heat pumps and air conditioning into existing dwelling units.

This guide outlines the key requirements, responsibilities, and resources to support efficient and BC Building Code compliant retrofits.

**Note:** This guide is intended as a general resource. Requirements may vary depending on the building and site conditions. Always confirm applicable requirements before proceeding.





# Understanding Air-Source Heat Pumps and Air Conditioning

## What is an air-source heat pump?

An air-source heat pump is an electrical system that provides year-round heating and cooling, through the extraction and transfer of heat energy from the surrounding air via refrigerant lines. In the winter, an air-source heat pump can move heat from the outside environment into the home, whereas in the summer, it can move heat from inside the home to the outside environment.

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## Benefits of heat pumps

Heat pumps are currently one of the most energy-efficient systems available for space heating and cooling as these systems can provide ample electricity savings relative to baseboard heaters and/or air conditioners, and reduce greenhouse gas emissions compared to traditional gas-powered heating systems.

## Resources:

- [Better Homes BC - Home energy rebate programs](#)
- [Condo and Apartment Rebate Program - Heat pump retrofit guide for stratas](#)





## Roles and Responsibilities for Retrofitting a Heat Pump

Every heat pump retrofit requires clear roles and responsibilities, decision making, and effective coordination as every building and project has unique needs.

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**Strata Council** provides oversight and manages the strata corporation to ensure that it operates in accordance with the *Strata Property Act*, regulations, bylaws and rules. The strata council is responsible for maintaining common property and assets for the benefit of all its owners. The strata council is also responsible for providing written approval to the City for the installation of a heat pump in a suite, taking into consideration the overall electrical demand on the site's electrical service, as determined by a qualified registered professional. Strata councils may consider developing clear bylaws to provide a consistent framework for decision-making and guidance for owners and contractors.

**Energy Consultants** help owners and strata councils navigate the process of switching from electric baseboards to high-efficiency electric heat pumps. They assess building electrical capacity, calculate heat loads for suites, and provide advice on heat pump system sizing and selection.

**Registered Professionals** provide support on issues such as structural load impacts (e.g., for balcony or roof installations), changes to a building's exterior appearance, and building envelope penetrations.





## Electrical Planning Report

Under section 94.1 of the *Strata Property Act*, strata corporations with five or more strata units must obtain an Electrical Planning Report (EPR).

An EPR helps strata councils and owners understand the overall electrical capacity of their buildings and plan for future demands. As identified in the *BC Hydro Heat Pump Retrofit Guide*, EPRs:

- Estimate available electrical capacity and new load requirements,
- Identify potential system upgrades or modifications, and
- Highlight opportunities to reduce or manage electrical demand.

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**Note:** EPRs are high-level planning tools only. A qualified professional engineer must confirm capacity, equipment selection, and compliance before installation.



# Design and Installation Standards for Heat Pumps

Design and installation of an air-source heat pump system is required to comply with relevant standards and codes, such as:

- Canadian Standards Association
- *BC Building Code* and
- *BC Safety Standards Act*.

It is the responsibility of the certified contractor to ensure that the heat pump system's design and installation complies with manufacturer specifications, applicable editions of the relevant standards and codes, and best practices.





# Certified Designers and Installers

## Certified Contractor

Mechanical design and installation of the air-source heat pump system is required to be performed by a certified contractor with appropriate licences and qualifications, including:

- Thermal Environmental Comfort Association,
- Technical Safety BC (TSBC) Class REF Licence (where TSBC Refrigeration Installation Permit is required), or
- A Field Safety Representative individual certified by Technical Safety BC.

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## Refrigeration Installation Permit Requirements

A certified contractor is required to obtain a Refrigeration Installation Permit from TSBC where the proposed heat pump system has a total prime mover rating of 5 kW or greater, or where the system contains toxic or flammable refrigerants and is located in a building containing more than four dwelling units.



# Design Package

## When is a design package required?

As part of the electrical or gas permit application, a **design package** is required to be submitted to the City to confirm that sufficient service capacity will be provided by the proposed system.

## The design package is required to include the following documents:

- Permit Application Form,
- Strata Approval Letter (only applicable to Strata Property),
- Electrical Planning Report (only applicable to Strata Property),
- Site Plan, which must include: parcel dimensions, legal description and civic address, location and dimensions of all statutory rights of way, easements and setback requirements, location and dimensions of all existing buildings or structures on the parcel, location of the proposed heat pump unit,
- Electrical Load Calculations (for the entire building) prepared by qualified Field Safety Representative or Professional Engineer, and
- TECA (or Professional Engineer) Sealed Design and CSA F280 Heat Loss Calculations.
  - room by room or block load for retrofit,
  - room by room for new construction.

The certified contractor is required to determine the heat pump type and capacity sizing based on manufacturer's data and/or capacity data from Air-Conditioning, Heating and Refrigeration Institute Directory, and provide details on supplementary heating systems where determined to be required.





## Required Permits and Inspections

Prior to the installation of ductless air-source heat pump systems within existing dwelling units, application and issuance is required:

**Electrical Permit** - where the proposed system operates on electricity, or where altering/decommissioning of electrical heating systems is within scope of work, and/or

**Gas Permit** - where the proposed system operates on gas, or altering/decommissioning of gas appliances are within the scope of work.

**Building Permit** - where work, involves the installation of a system that requires modification/disassembly of the existing building structure (i.e., ducted system within floor, wall or roof assemblies, air to water system within floor assemblies). Under these circumstances, a **Building Permit** is required to be applied prior to the **Electrical Permit** and/or **Gas Permit**.

A Building Permit is not required for the self-contained installation of a ductless air-source heat pump system with ground-mounted condenser unit within an individual dwelling unit.

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## Inspections:

Upon complete installation of the heat pump system, the certified contractor is required to arrange for inspection by the City and submit a **compliance letter** at the time of inspection, confirming that the system has been designed, installed, and commissioned in conformance with the manufacturer's specifications, relevant codes and standards, and best practices.

The **compliance letter** is required to include the following attachments:

- TECA (or Professional Engineer) Sealed Final Commissioning Sheet,
- Commissioning Sheet by Red Seal Certified Refrigeration Mechanic, and
- where TSBC Refrigeration Installation Permit is required,
  - copy of TSBC Refrigeration Inspection Declaration Form, and
  - copy of TSBC issued final Certificate of Inspection.

The heat pump system installed under electrical or gas permits is required to be inspected by the City's Electrical or Gas Inspector, with the certified contractor present. Requests for electrical or gas inspection can be made through [eServices](#).





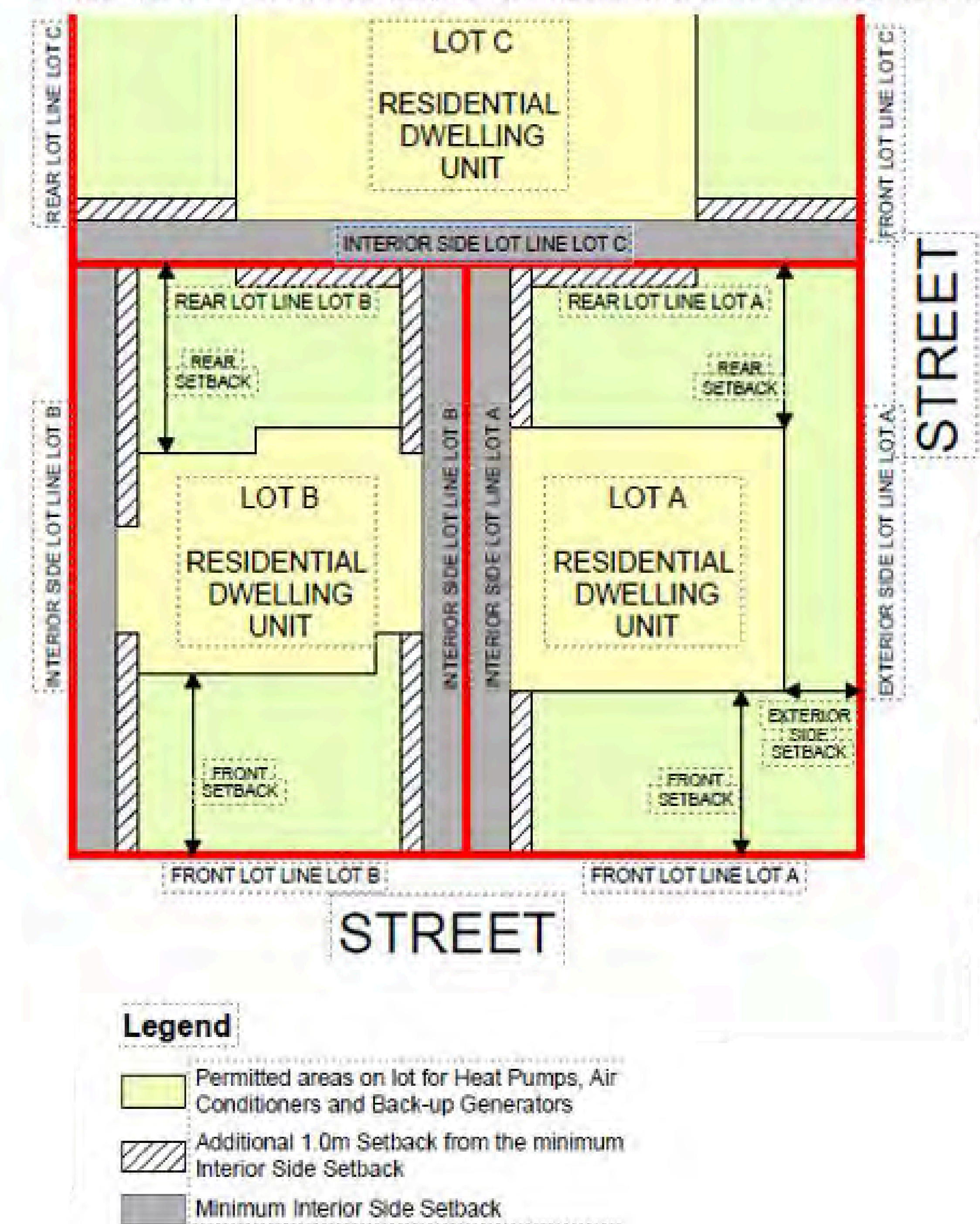
# Permitted Installation Locations

The exterior condenser unit of the heat pump system is permitted to be ground-mounted in locations adjacent to the building's exterior wall, provided the condenser unit:

- is not located within any paths of travel for building access,
- does not drain its outlet onto any paths of travel, and
- is located outside of the required front and side yard depths (refer to the requirements of the Zoning Bylaw).

The required front and side lot line setbacks will vary based on the zoning of the residential zones. Refer to the zoning Map to determine the zoning of the residential zone, and Section 401 of the Zoning Bylaw for the specific requirements on front and side yard setbacks.

Placement of Heat Pumps, Air Conditioners and Back-Up Generators



## Resources:

- Maple Ridge Zoning Map to determine the residential zoning
- Section 401 of the Zoning Bylaw for applicable front and side yard setback requirements

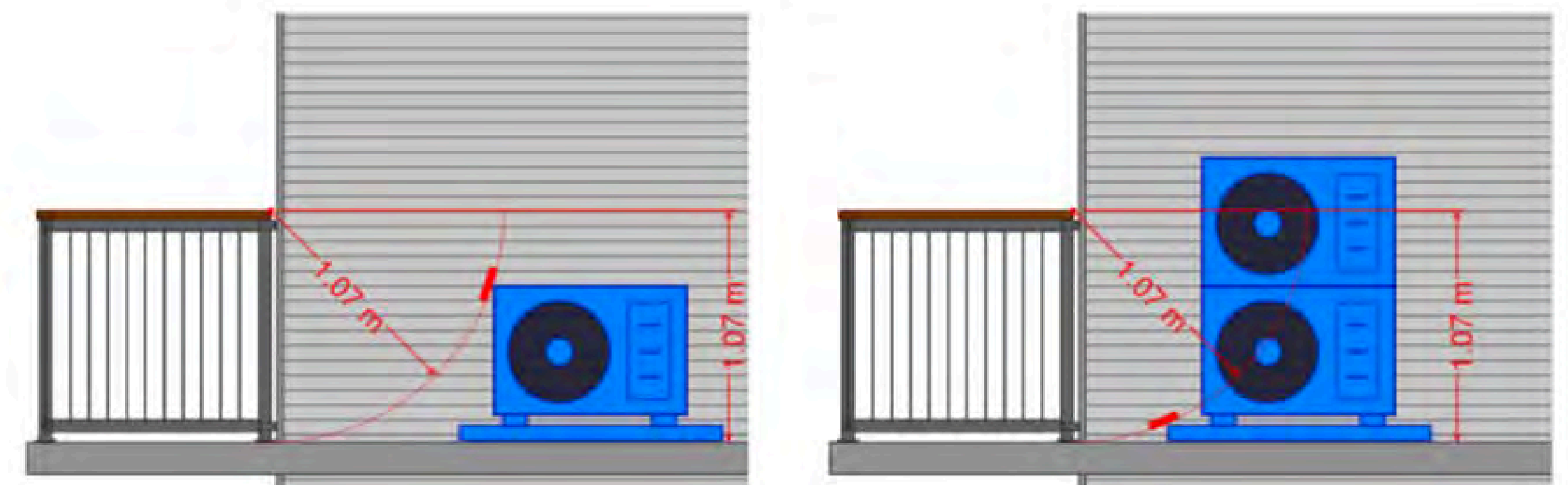




## Installation on Balcony or Deck Above Ground Level

Where the exterior condenser unit of the heat pump system is proposed to be located on a balcony or deck, the unit is required to:

- be positioned not less than a 1.07 metre radius away from top of the guard, or be positioned with all climbable surfaces not less than 1.07 metres above from the balcony/deck floor, where the balcony/deck floor is more than 4.2 metres below above the adjacent ground,
- not penetrate the floor assembly where located above interior space, or the floor/wall assemblies of suite(s) adjacent to the one serviced by the heat pump system, and
- be mounted upon the balcony/deck floor.



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## Roof or wall-mounting of condenser unit

Similarly if roof or wall-mounting of the condenser unit is desired, an application for a Building Permit will be required with submission of **structural drawings prepared by a Professional Engineer.**



## Additional Information

### **HPSC Heat Pump Best Practices**

- Learn more about heat pump systems
- Review visual guide for identifying quality installations
- Discuss design and installation options with your certified contractor

### **TSBC Website (Technical Safety BC)**

- Safety, operational, and maintenance requirements and guidance
- Contact: 1-866-566-7233

### **City of Maple Ridge**

- For questions related to this guide and the City's heat pump requirements, please contact the Building department at [BuildingEnquiries@MapleRidge.ca](mailto:BuildingEnquiries@MapleRidge.ca)

