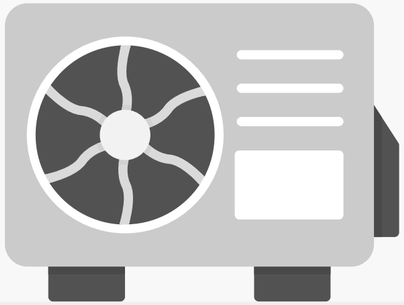
New Westminster



HEAT PUMP RETROFITS

BEST PRACTICES FOR IN-SUITE HEAT PUMP RETROFITS IN MULTI-UNIT RESIDENTIAL BUILDINGS (STRATA AND RENTAL)

FRESCo Building Efficiency

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Building Efficiency

A mechanical and electrical engineering firm specializing in building retrofits, research, program design, and retrofit implementation support.

Peter Sundberg

General Manager



AGENDA

1. In Suite Heat Pump Technology Summary
2. Planning a Heat Pump Retrofit
3. Heat Pump Installation Considerations
4. Retrofit Costs
5. Support & Resources

IN-SUITE HEAT PUMP TECHNOLOGIES

MINI-SPLIT HEAT PUMP



Electric heating and cooling

Efficient operation
Transfers heat rather than generating it

Zonal control
1 outdoor unit connects 1+ indoor heads

Quiet and compact
Suitable for suite-level applications

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WINDOW-MOUNTED
HEAT PUMP



Electric heating and cooling

Easy installation

Installs over the sill of a vertical sliding window, existing or replacement.

- Window width: 26–38"
- Wall thickness: 6.5–16.5"
- Standard 120 V plug-in
- No wall penetrations required
- Built-in condensate vaporizer

Zonal control

Multiple units can provide room-by-room heating and cooling

Quiet and compact

Suitable for suite-level applications

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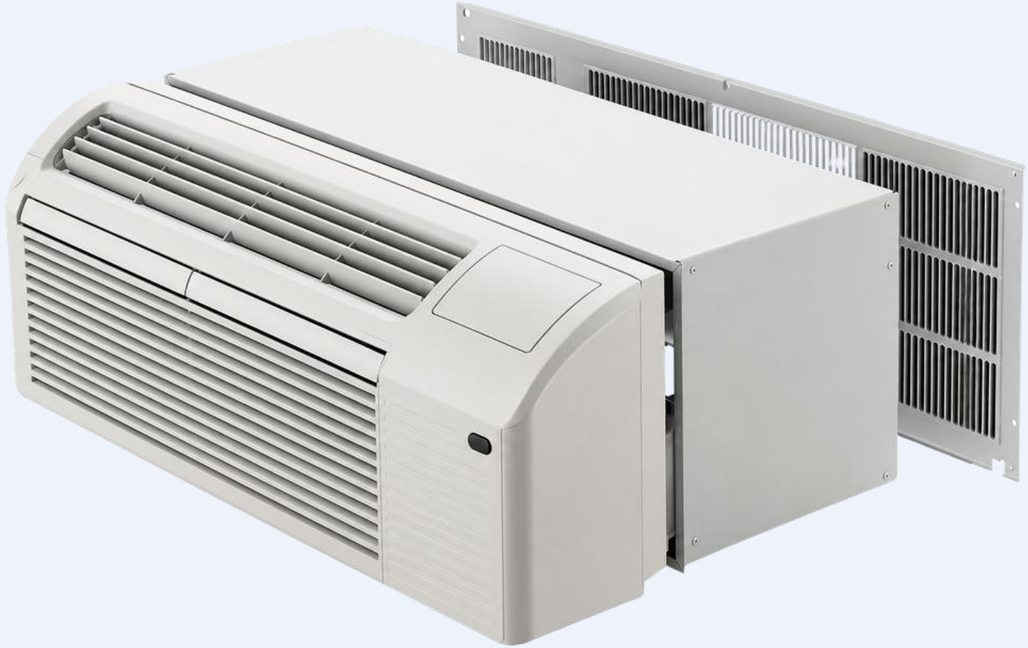
PACKAGED-TERMINAL
HEAT PUMP



Electric heating and cooling

Installation

- Installed through the wall
- No outdoor unit

Zonal control

Can install units in multiple rooms

Quiet and compact

Suitable for suite-level applications

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PRE-PROJECT PLANNING



WHEN TO RETROFIT

Aligned with other retrofits

- Offset other retrofit costs (heating or cooling systems)
- Other opportunities (window retrofit may enable window mounted heat pump)

During occupancy (for rentals)

- Requires suite access and resident coordination
- More predictable scheduling
- Delays generally do not affect rental revenue

Phased in at tenant turnover (for rentals)

- Easier access with no resident disruption
- Unpredictable timing - depends on turnover
- Delays can extend vacancy and affect revenue

Plan Ahead: Choose the approach that balances retrofit timelines, cost effectiveness & minimizes disruption

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BEFORE YOU BEGIN

PERMITS

- Electrical permits required
- Building/mechanical/development permits may apply
- Confirm requirements with the local authority before installation

STRATA CONSENT

- Confirm heat pumps are permitted under strata bylaws and rules
- Obtain approval for alterations to common property (e.g. exterior walls or balconies)
- Confirm outdoor-unit location, line-set routing, condensate drainage, noise and appearance
- Strata approval may require an alternation agreement defining owner responsibilities (maintenance, repair, addressing damages, etc.)

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BEFORE YOU BEGIN

REBATE PROGRAM APPROVALS

- Confirm building, suite, heating system and equipment eligibility
- Identify contractor and equipment requirements
- Confirm required strata, landlord or utility-account-holder consent
- Identify other pre-approval requirements and timelines
- Retain invoices, permits and installation documentation

TAX CREDIT PLANNING (for rental and commercial)

Clean Technology ITC (CT-ITC)

- Limited to taxable corporate building owners
- Confirm ownership and tax eligibility with an accountant
- Confirm equipment eligibility with a qualified technical professional
- Tax credit = up to 30% of eligible costs

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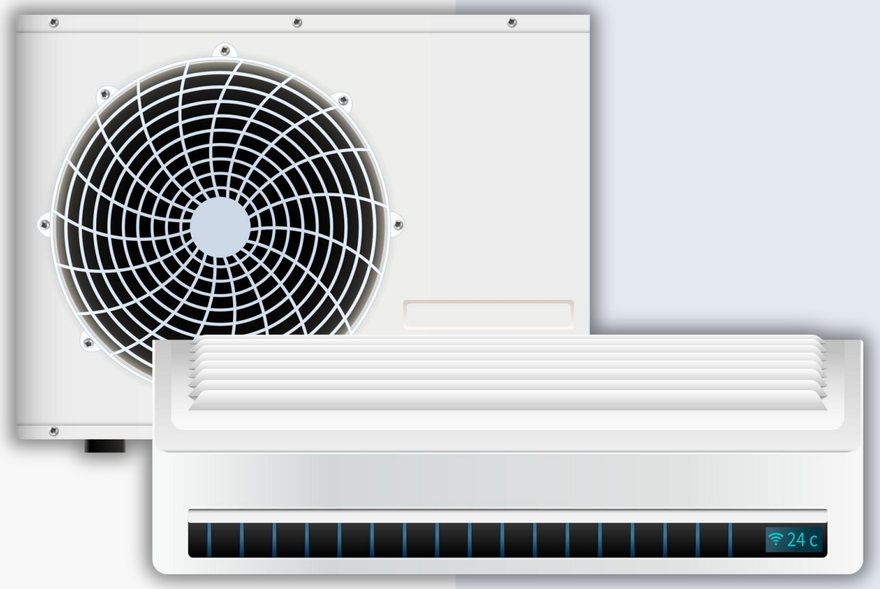
INSTALLATION CONSIDERATIONS

INSTALLATION **CONSIDERATIONS**

Heat pump retrofits in BC apartments are still relatively new, and installation differs from other building types.

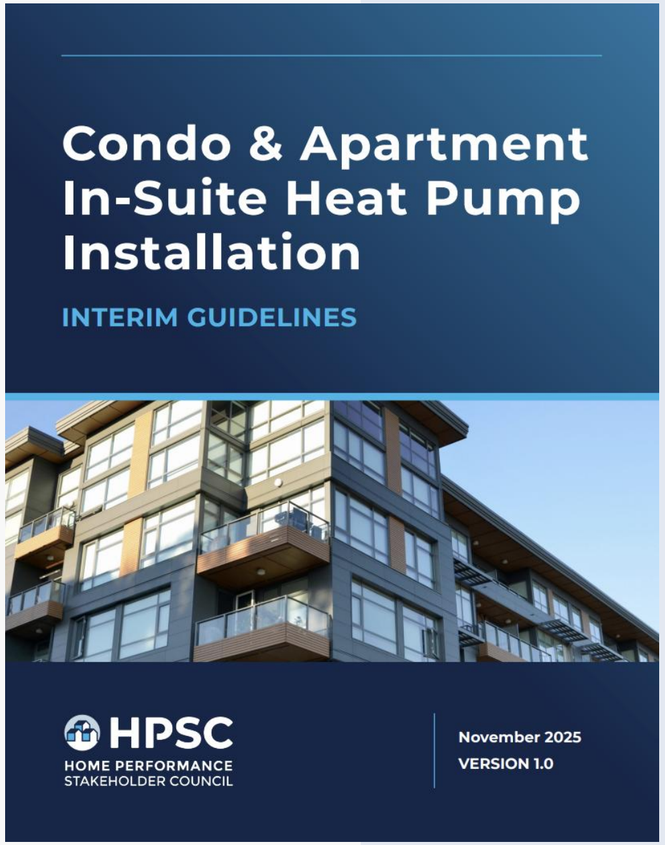


1. **Experienced Contractors & Registered Professionals**
   Multi-family building retrofit experience matters.

2. **Design Considerations**
   Building penetrations , placement, line set routing, electrical capacity and building integration.

COMMON **HEAT PUMP INSTALLATION ISSUES**

- Missing permits and approvals
- Building envelope penetrations (poorly sealed)
- Electrical installation issues
- Outdoor unit placement
- Condensate and defrost drainage
- Refrigerant lines routing, potential leakage
- Integration with existing heating



Updates to Interim Guidelines Pending



USE EXPERIENCED **CONTACTORS**

That will:

- Bring previous installation experience in apartments
- Secure proper permits
- Use supporting qualified trades
  - Electricians
  - Hazardous materials testing/handling
- Provide commissioning and warranties
- Understand registered professional support may be required

Ask for references from similar projects

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1 EXPERIENCED CONTRACTORS & PROFESSIONALS



Use the search tool below to find local contractors for your home upgrade needs. Contractors listed in the search tool are members of the Home Performance Contractor Network (HPCN).

How to Use the Contractor Search Tool

Do I need to hire a contractor from this search tool to access rebates?

What to expect from HPCN contractors

Contractor Search Tool

What type of home-upgrade professional are you looking for?

Click to select

Where is the home located?

Start typing your address and click on it from the drop-down

www.homeperformance.ca/find-a-contractor

Ask for references from similar projects

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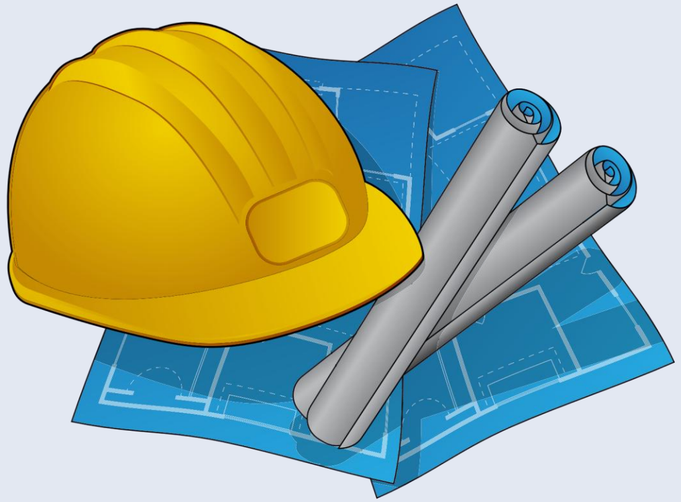
PROFFESIONAL OVERSIGHT



May be required depending on the building or retrofit scope:

Strata Common Property

Exterior walls, balconies & shared building systems may be common property. Alterations require strata approval & may require professional design/review.

Envelope / Structural Engineering

Penetrations, mounting & building protection

Electrical Engineering

Suite + building electrical capacity & load management

Mechanical Engineering

Sizing, equipment selection & system design

Architectural/Code/Project Oversight

Permits, code compliance & field reviews

ENVELOPE PENETRATIONS



Maintain Building Envelope Integrity: Ensure penetrations remain weather-resistant, airtight and thermally continuous to prevent water ingress, air leakage and thermal bridging.

Hazardous Materials Assessment: Assess potential hazardous materials before making penetrations through existing wall assemblies.

Protect Fire Separations: Maintain fire-rated assemblies.

Plan Location: Where practical, locate penetrations below balconies or roof overhangs. Coordinate refrigerant lines, condensate drainage and electrical routing.

Use Appropriate Penetration Sealing Details: BC Housing's Detailing Guide for Heat Pump Penetrations in Existing Buildings.

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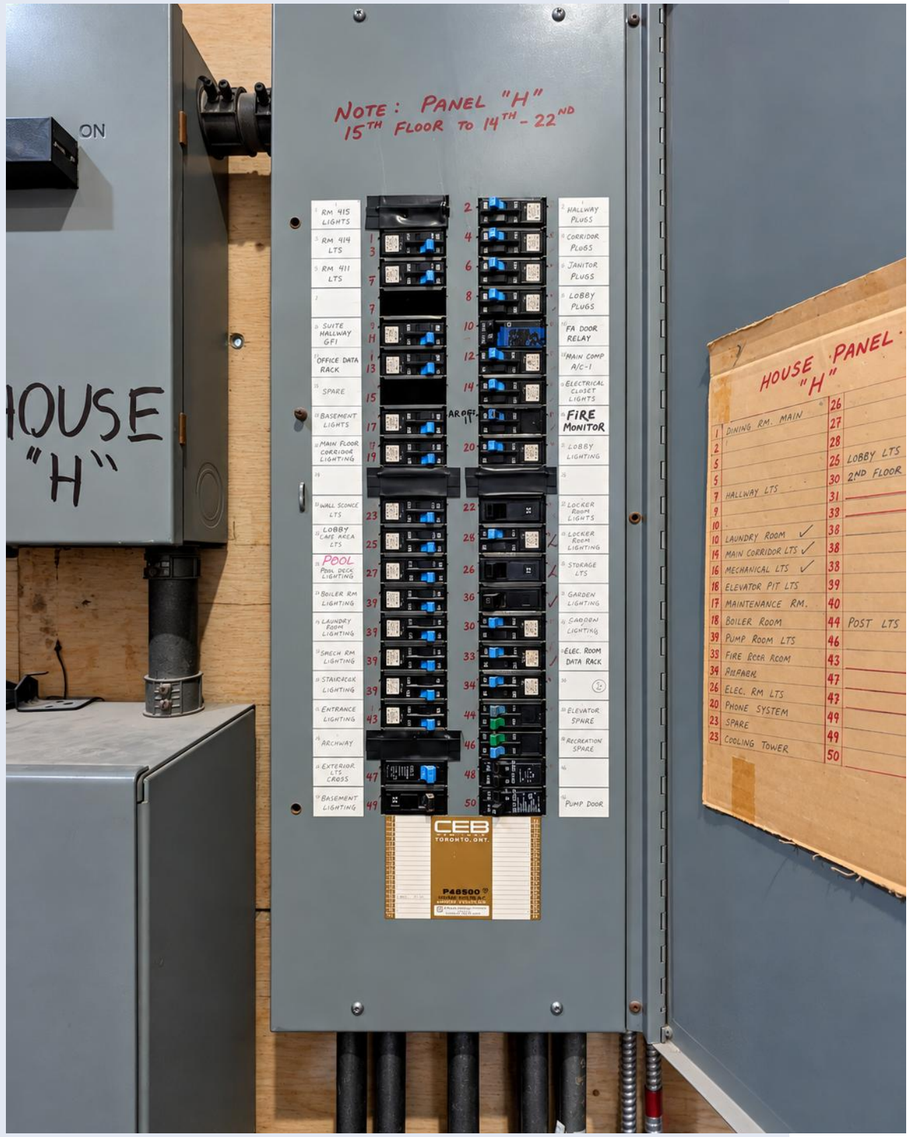
ELECTRICAL CAPACITY



HOUSE ELECTRICAL PANEL

Available electrical capacity can vary significantly

Review early

Design choices can reduce upgrade needs.

Electric-heated buildings

Often more flexibility.

Gas-heated buildings

May face tighter capacity.

Consider future loads and load management

- EVs and air conditioning
- Load management to work withing existing electrical capacity

Suite panel upgrades: $1,000+
Building electrical upgrades: $12,000 - 100,000+
Project delays (building upgrades): 1 month to 1.5+ years

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OUTDOOR UNIT **LOCATION**

KEY LIMITING FACTOR

Locations can include:

- Balcony
- Ground
- Roof
- Exterior wall-mounted

Considerations:

- Building asthetics
- Use of outdoor space
- Refrigerant line lengths
- Code requirements
- Cost of installation
- Noise
- Condensation management
- Service ability

SYSTEM SIZING

To heat and cool the suite

Heating and Cooling loads are influenced by:
Orientation • Corner/mid-suite location • Floor level • Glazing • Envelope efficiency • Shading • Internal gains

Right-sizing matters
Oversized and undersized systems can create comfort and performance issues.

Use qualified professionals for load calculations
To support equipment sizing and system selection.



SYSTEM NOISE

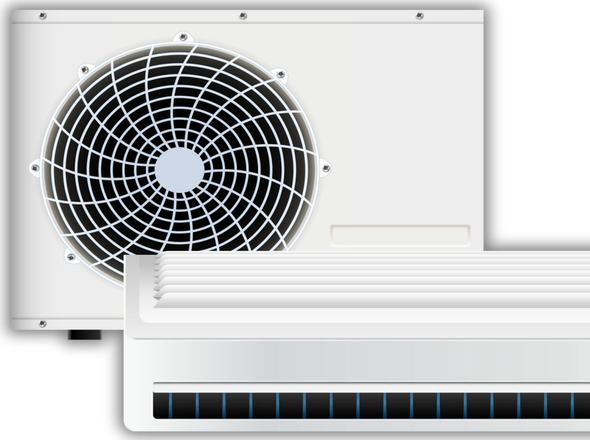
Quiet Systems Starts With Good Design/Installation

- Size equipment appropriately
- Specify low-noise equipment
- Include vibration isolation
- Locate equipment with surrounding spaces in mind

IMPORTANT: Ask for a quiet system

Recent Installation
Indoor unit: 24 dB.
Outdoor unit: ~30–56 dB

dB = Decibel



30 dB Soft whisper

50 dB Rainfall

60 dB: Urban Street

70 dB Vacuum

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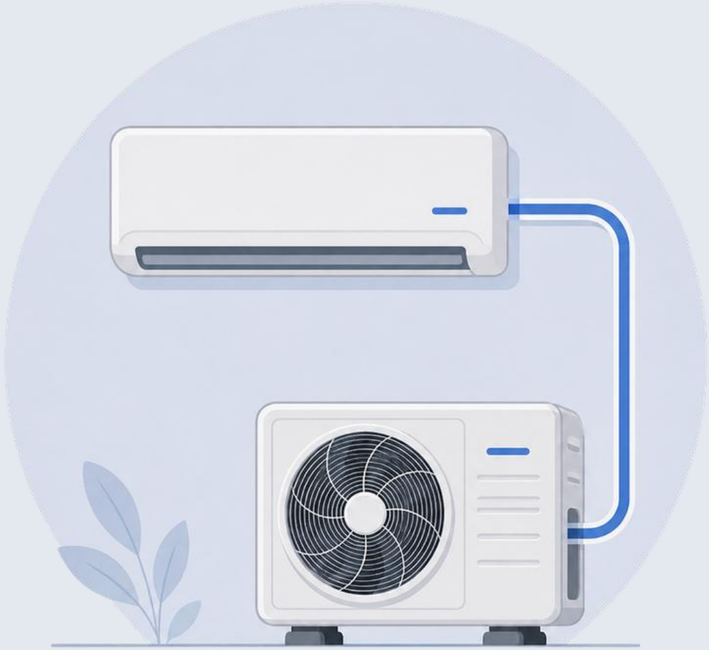

OTHER INSTALLATION **CONSIDERATIONS**

Structural Considerations

- Secure, safe, building protection

Refrigerant Line Routing

- Manufacture requirements, aesthetics

Condensate Management Strategy

- Consider freeze risk, building protection, maintenance, and aesthetics

Commissioning and Training

- Proper start up, control set up, user education and commissioning to ensure proper performance

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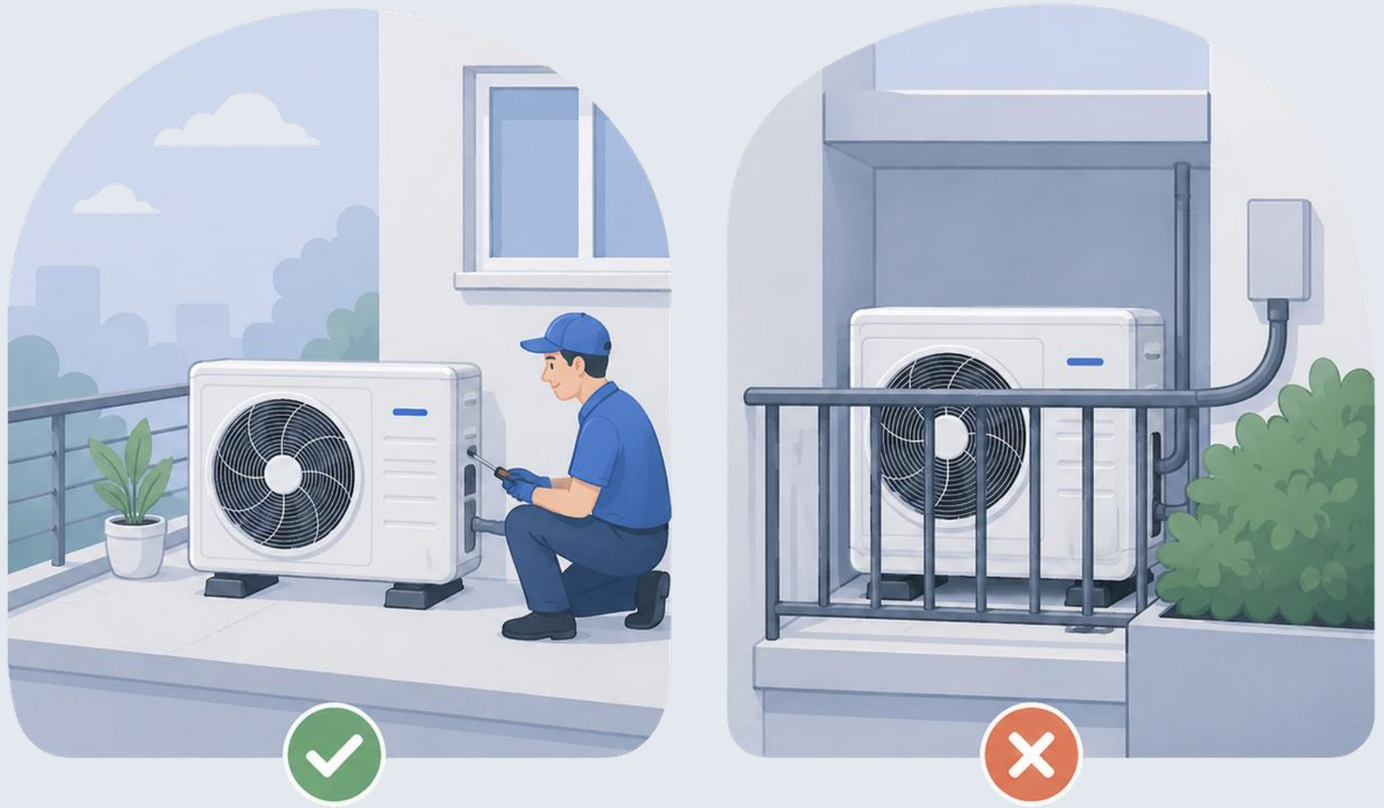
OPERATIONS & **MAINTENANCE**

- Ensure access to indoor and outdoor units
- Tenant education on use
- Clean filters and maintain outdoor equipment
    - Define owner/strata vs. tenant responsibilities
- Schedule and budget for annual maintenance



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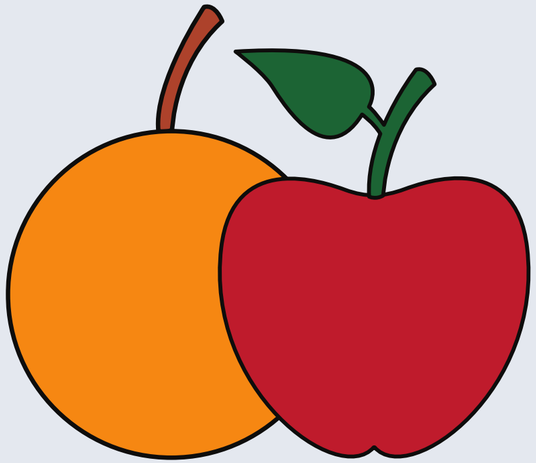
RETROFIT COSTS



PROJECT COST DRIVERS

SYSTEM

- Equipment type and brand • Capacity • Number of indoor units

CONTRACTOR & PROCUREMENT

- Experience • Labour • Equipment pricing • Competition • Warranty and service

LOCATION & ROUTING

- Outdoor unit location • Line-set length • Interior/exterior line-sets

ELECTRICAL UPGRADES

- Suite capacity • Building capacity upgrades

BUILDING INTEGRATION

- Hazmat (asbestos, lead paint, etc) • Envelope • Condensate management, etc

PROJECT REQUIREMENTS

- Use of registered professionals • Permit • Commissioning

SCALE

- Number of rooms + suites • Standardization • Occupied-suite access

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EXAMPLE #1:
MINI-SPLIT IN RENTAL

Number of Suites
3

Avg. Suite Size
~475 ft2

Per Suite Cost
~$13,640

Total Project Cost
$40,920

Other Included Costs

- Hazmat Survey: $795 /suite
- Concrete Coring: $1,750
- Condensation Pumps: $400/suite
- Evaporator Pans: $350/suite
- Drywall Repair/Painting: $1,870
- Concrete Repairs: $750

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EXAMPLE #2:
MINI-SPLIT IN RENTAL

Number of Suites

1

Avg. Suite Size

577 ft2

Suite Cost

$11,500

Other Included Costs

- Electrical panel upgrade+: $2,600
- Other (condensate pump, evaporator pan, dry wall repairs): $1,300
- Some interior repair costs could not be isolated.

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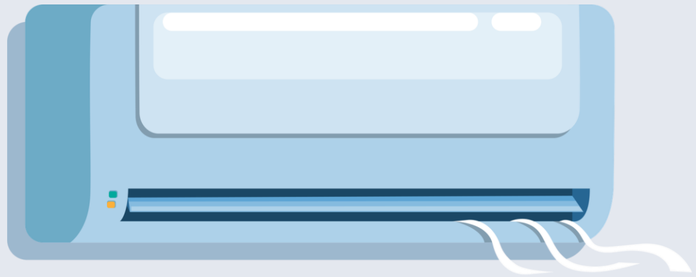



THE COSTS **FOR MINI-SPLITS**

COST RANGES

Costs: From two case studies

- **~$11,500–$13,640 per suite**

Costs: From other recent projects

- **As low as $10,000** per suite
- **Up to $19,000** per suite (for 1, 2 and 3 heads per suite)

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INCENTIVES & TAX CREDITS



INCENTIVES **FOR MINI-SPLITS**

CleanBC/BC Hydro MURB Retrofit Rebates
$800 - $3,000 per head (whole-building upgrades)

BC Hydro Condo and Apartment Rebate Program
$750 - $1000 per head (suite-level upgrades, electrically heated)

CleanBC Energy Savings Program
$4,000-$5000 per mini-split (income-qualified)

Federal Clean Technology Investment Tax Credit (Rentals)
30% of eligible equipment (i.e. heat pumps)

Other Incentives & Pilots, Including RARA
Variable

*(AS OF NOV 2026, BC)

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ASSESSMENTS **FOR MULTI-UNIT RESIDENTIAL BUILDINGS**



Retrofit Opportunity Assessments

A high-level building assessment to:

- Identify energy efficiency retrofit opportunities
- Estimate energy and GHG reductions
- Identify priority retrofit measures
- Provide estimated project costs
- Complete a high-level electrical capacity check
- Identify available rebates, incentives and other financial supports
- Recommend next steps, including where a more detailed feasibility stud required

Subsidized Assessment ($5,000) Value, Building Pays $250 GST

Apply Online: Opportunity assessments for multi-unit residential buildin

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SUPPORT FOR STRATAS

Strata Energy Advisor

The Strata Energy Advisor program is here to help you:

1. **Plan for upcoming retrofit project**
2. **Modernize and electrify**
3. **Prepare for a changing climate**
4. **Access rebates**

Did we mention it's FREE?



Strata Energy Advisor BC .ca

Eligibility

Multi-unit residential strata buildings.
Varies across programs.

- 5+ residential units
- Townhome and bareland strata ineligible

It's complicated! Let the Strata Energy Advisor program help. Visit:

Strata Energy Advisor BC .ca



SUPPORT FOR MARKET RENTAL

RentBC

Rental Apartment Retrofit Accelerator Services

FREE Retrofit coaching support including:

- Accessing financial incentives
- Retrofit & energy efficiency opportunity identification
- Energy benchmarking
- Options Study
- Feasibility Study
- Retrofit implementation support

CITY OF VANCOUVER

Original Funding & Supporting Partner

rentbc.ca/rara

Natural Resources Canada | Ressources naturelles Canada
Canada

cleanBC
our nature. our power. our future.

BC Hydro

CITY OF VICTORIA

Saanich

Lighting Rebate Program (Market Rental)

Turning retrofit opportunities into completed projects

- Program Benefits
- Access to Incentives
- Faster Payback
- Lower Operating Costs
- Reduced Maintenance
- Streamlined Process
- Improved Lighting Quality



rentbc.ca/rara/

KEY LESSONS

KEY LESSONS

1. **Variety of suite heat pump options for efficient heating and cooling**
2. **Use experienced contractors & registered professionals to enable a quality installation**
3. **Incentives, grants, tax credits and tax exemptions can significantly lower costs**
4. **There is support available** for strata and market rental buildings
5. **Feasibility is site-specific:** Especially electrical capacity and outdoor unit location

QUESTIONS?

THANK **YOU!**

Contact FRESCo

For support with assessments, planning, designing and implementing your heat-pump project

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