

Best Practice Guide for Heat Pump Installation

AND NOISE MITIGATION

What you need to know to support a high quality heat pump installation in Oak Bay



This guide provides simple advice for residents looking to purchase and install a heat pump. It will help you:

- Determine an optimum outdoor location
- Select a quiet heat pump system
- Properly maintain your heat pump
- Control and prevent noise travel

Benefits of Heat Pumps

Heat pumps are efficient heating and cooling systems that provide several benefits:

- due to their high energy efficiency, heat pumps can lower the cost of electricity bills
- heat pumps provide both heating and cooling, which is increasingly important during extreme heat events and hotter summer months
- due to BC's low-carbon electricity grid, heat pumps emit less greenhouse gas emissions than fossil-fuel based home heating systems such as oil, propane, or natural gas furnaces

How to Select a Heat Pump

SELECT A QUIET UNIT

Most manufacturers will specify a 'sound power rating,' a lab-tested decibel dB(A) measurement of the sound generated by a heat pump at full capacity. Most quality models are around 40-50 dB(A) while newer 'ultra-quiet' models are achieving lower ratings.

These mechanical ratings are different than the Noise Bylaw which specifies a 'sound pressure rating' measured with a noise meter at the property line.

That's why properly locating the unit is critical to achieving a no-complaint system.

SELECT PROPERLY SIZED EQUIPMENT

The contractor should select the appropriately sized system based on the space that is to be heated/cooled. An oversized unit may 'short cycle' i.e. turn on and off more than necessary. This can result in excess noise and can reduce the life of the system.

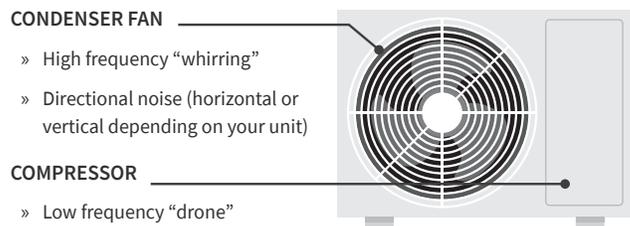
Consider other energy efficient improvements with your heat pump installation. A less leaky house with more insulation requires less energy to heat and cool, and could help further reduce the size of the unit needed.

Noise Considerations

DISTRICT OF OAK BAY ANTI-NOISE BYLAW

The District of Oak Bay Anti-Noise Bylaw includes a daytime (7am-10pm) limit of 50 dB(A) and a nighttime (10pm-7am) limit of 45 dB(A) on noise from exterior heat pump condensing units.

WHERE DOES HEAT PUMP NOISE COME FROM?



COMPARATIVE NOISE LEVELS IN dB(A)

| Common Outdoor Sound Levels | Noise Level dB(A) | Common Indoor Sound Levels |
|-----------------------------|-------------------|---|
| CAR HORN AT 3FT. | 110 | ROCK BAND |
| GAS LAWN MOWER AT 3 FT. | 100 | INSIDE SUBWAY TRAIN (NYC) |
| DIESEL TRUCK AT 150 FT. | 90 | FOOD BLENDER AT 3FT. |
| NOISY URBAN | 80 | GARBAGE DISPOSAL AT 3FT. SHOUTING AT 3FT. |
| BUSY HIGHWAY AT 50 FT. | 70 | VACUUM CLEANER AT 10FT. |
| COMMERCIAL AREA | 60 | NORMAL SPEECH AT 3FT. |
| QUIET URBAN | 50 | LARGE BUSINESS OFFICE DISHWASHER IN NEXT ROOM |
| QUIET RURAL | 40 | SMALL THEATRE, LARGE CONFERENCE ROOM (BACKGROUND) |
| | 30 | LIBRARY BEDROOM AT NIGHT |
| | 20 | CONCERT HALL (BACKGROUND) |
| | 10 | BROADCAST + RECORDING STUDIO |
| | 0 | THRESHOLD OF HEARING |



