

# Air Conditioner Buying Guide

# Introduction

Buying a central air conditioner can be intimidating for the average homebuyer. As you research models and installers, you can get overwhelmed by all of the unfamiliar terms. Not to mention optional components and features that can differ from one model to the next.

Advanpro has created this guide to help make your decision-making process a breeze!

We'll begin by explaining some of the terminologies you'll need to know, and discuss critical components (including pro's and cons of various systems). Just as important, we'll cover the importance of maintenance and guarantees. Enjoy!

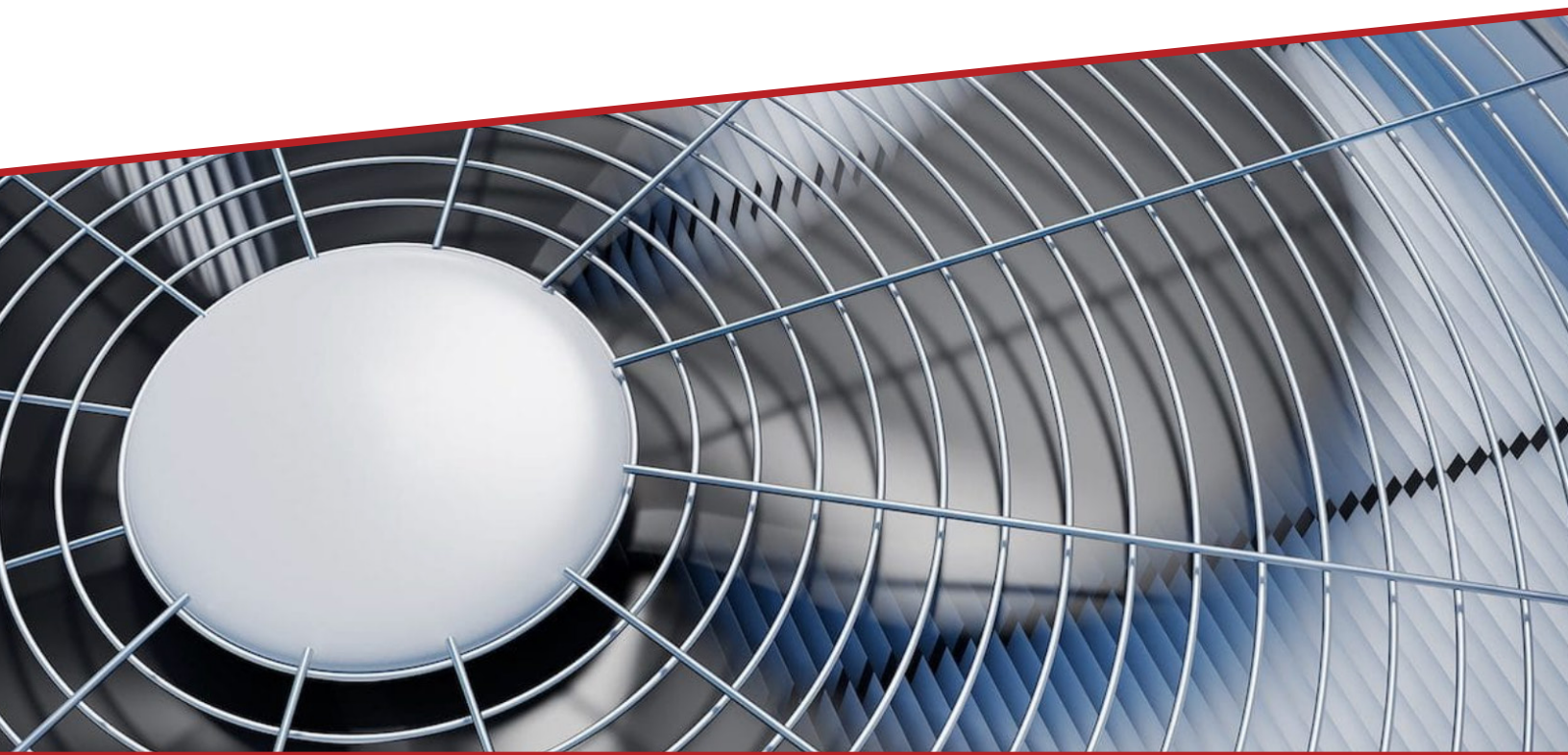
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# Explaining Key Terms

## Choosing the right size of air conditioner

Air conditioners come in a variety of sizes. It's important that you choose a unit that is capable of efficiently cooling your entire home. Here are a few things you need to know.

### What Does “Ton” Mean?

**In the context of air conditioners, the word “ton” does not refer to weight.**

Ton is a term used to define the cooling capacity of an air conditioner unit. It measures how much hot air can be removed from a home in an hour. The measurement for heat is the British thermal unit (BTU).

Your home dictates the size of air conditioner size required. A larger home will generally require a larger unit that is rated at a higher tonnage capacity (and removes more BTUs of hot air).

There are a few ways for calculating AC sizing. The most accurate being a heat gain (manual J). Ballparks/rule of thumb calculations can be achieved via counting the vents or internal square footage.

#### 1 Ton of cooling

- ▶ can remove 12,000 BTU/hr
- OR
- ▶ cool up to 700 sqft on a traditional, modern home

Note: You can choose a unit that is  $\frac{1}{2}$  ton bigger without causing any issues to performance or life span.

**Installation requirements based on tonnage: Air conditioning requires 3-4 supply lines and at least one 16” return run per ton of cooling.**



## What Does “SEER” Mean?

**SEER stands for Seasonal Energy Efficiency Ratio/rating. It’s the maximum potential efficiency a unit can achieve. This is not guaranteed but possible performance.**

**In today’s market, units have a SEER rating ranging from 13-26.**

In Southern Alberta, most homeowners will choose a 13 SEER unit. The 14.5 SEER or 16 SEER models are also popular choices.

### The higher the SEER rating...

- ▶ higher the purchase price
- ▶ less electricity used
- ▶ quieter the unit
- ▶ more self-protection technology
- ▶ usually bigger the unit

### Facts to consider

- ▶ Maintaining 20-21 degrees means typically 500 hours of run time over four months of summer in our region. (In Ontario it is 3000 hours)
- ▶ We only pay approx. 5 cents per kWh (Ontario 18 cents)
- ▶ Based on these stats. A 16 seer unit only saves us approximately \$2.50 a month or \$10 a year!

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### Explaining confusion around seer requirements and building code.

Alberta building code 9.36 states that any home built after November 1st, 2016 must install a 14.5 SEER unit or higher!

This is a building code and not an electrical code. Air conditioner installations require a city electrical inspection (insurance and home resale purposes). The only city currently enforcing this code is Airdrie.

# Understanding & Comparing Critical Air Conditioner Components

## Evaporator Coil

The evaporator coil is the part of an air conditioner that absorbs the heat from the air in your house. It is located above the furnace.

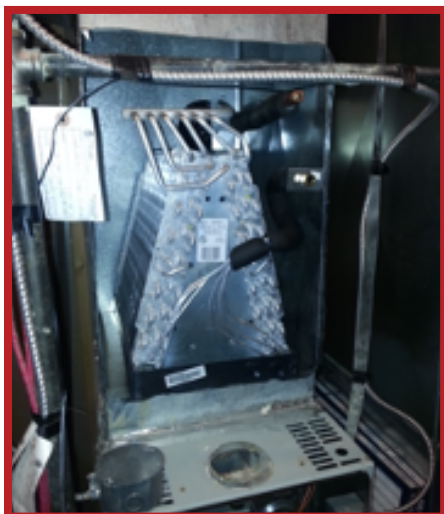
You have the option of installing a cased coil or an uncased coil.

There are pros and cons to each approach.



### Cased Coil

- ▶ It is designed to mate to your furnace
- ▶ Guarantees max airflow
- ▶ Achieves max performance out of the furnace and air conditioner
- ▶ More comfortable to access for inspection and cleaning
- ▶ Costs \$100-\$300 or more (depends on required size)



### Un-Cased Coil

- ▶ It is installed in ductwork above the furnace
- ▶ Must be installed correctly
- ▶ It is sealed with a metal hatch
- ▶ Costs \$100-\$300 or less
- ▶ Little harder to clean and inspect in the future (on some applications)

# Aluminum Coil vs Copper Coil: Which is Better?

There are two common types of evaporator coil: aluminum or copper. The newer aluminum coil evaporators are the preferred choice, for several reasons.



## Aluminum Coil

- ▶ The NEW industry standard
- ▶ Eliminates corrosion (formicary)
- ▶ Lasts longer
- ▶ Available through all manufacturers

\***Formicary corrosion** is caused by a chemical reaction requiring three parts: oxygen, water, and an organic acid. If any of the three components are removed there can't be any further formicary corrosion. Formicary corrosion only occurs in copper-based alloys.



## Copper Coil

- ▶ The OLD Industry standard
- ▶ High risk of leakage within 3-5 years (formicary corrosion)
- ▶ Has major issues that have resulted in class action lawsuits
- ▶ Still made by 3rd party manufacturers (Aspen, ADP) and used by some local contractors

# Thermostatic Expansion Valve vs Piston Design: Pros & Cons

These components supply refrigerants to the system to cool the air. Each option has its advantages and disadvantages.



## TXV (thermostatic expansion valve)

- ▶ Usually recommended for larger homes with zoned systems
- ▶ Supplies optimum amount of refrigerant no matter the weather situation
- ▶ Achieves maximum performance
- ▶ Can be 3rd party bolt-on or installed from the factory (factory option is better)
- ▶ Costs \$160-\$200
- ▶ Prone to failure (regular inspection recommended)



## Piston (fixed orifice)

- ▶ Most units installed in Southern Alberta use a piston system
- ▶ Supplies only one quantity of refrigerant (less efficient)
- ▶ Fewer moving parts and less to go wrong
- ▶ Doesn't allow the AC unit to achieve maximum performance
- ▶ Keeps upfront costs down

# Condenser Unit

This is the unit installed on the outside of your home. It is responsible for drawing hot air from inside the home. The hot air is expelled out the top or side of the unit. Airflow is crucial to its performance.



## Quality units share the following features:

- ▶ Has heavy duty louvred shrouds and hail protection
- ▶ Long lasting paint
- ▶ High/low-pressure switches that protect the unit
- ▶ Self-diagnostic hardware components
- ▶ Sound blankets installed at the factory
- ▶ Quality/efficient fans
- ▶ Scroll compressors





# Mounting Your Condenser Unit: Condenser Pad vs Bracket Mount

Most condenser units will be installed one of two ways. The installer will recommend the approach that is best for your home, based on a number of factors.



- ▶ Condenser PAD
- ▶ Required level ground and finished landscaping
- ▶ Recommended that the home be older than three years
- ▶ The unit can be manipulated and moved around a little
- ▶ The unit will sit in the snow
- ▶ If the ground shifts, it can become uneven over time: impacting longevity and performance (common in soils with heavy clays)



## Brackets

- ▶ Recommended for uneven ground
- ▶ Stable design
- ▶ Sits above the snow
- ▶ No vibrations or sound when installed by professionals
- ▶ Requires 18" of exposed, above-ground concrete foundation



### Limited space? Optional Slim Units

Traditional condenser units are often too large to be installed in townhomes, condos, infills and side-by-sides. For these home styles, slim units are the perfect option.

- ▶ Very quiet
- ▶ Small footprint
- ▶ No height restrictions above the unit
- ▶ Cost more than traditional units

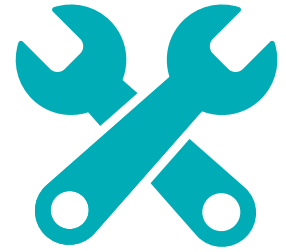


### Slim Ducting

This option is available for those who want a cleaner, more aesthetic appearance.

- ▶ Hides line set and electrical conduit
- ▶ Long exterior runs required
- ▶ Also used for interior applications when exposed pipes are necessary
- ▶ Cleaner, nicer looking install
- ▶ Roughly \$150 per 10 feet

# Do I Need Annual Maintenance?



**No, not annually, but we require maintenance every 2 years to maintain warranties. This can differ from contractor to contractor and brand to brand.**

## What exactly is maintenance?

An air conditioner's filters, coils, and fins require regular maintenance for the unit to function effectively and efficiently throughout its years of service. Neglecting necessary maintenance ensures a steady decline in air conditioning performance while energy use steadily increases.

A maintenance appointment will typically include inspection and cleaning. Your outdoor condenser and the indoor coil are cleaned correctly. If

required, the fins on the condenser will be combed. The drainage system is inspected and cleaned.

Additionally, all components are checked for wear and tear, and functionality. Damaged parts will be proactively replaced if under warranty.

**The city average is \$169.95**

**Spring specials can be had for \$149.99**





# Guarantees

**A good contractor will generally back up their work with actual guarantees on top of the warranty.**

- ▶ Advanpro guarantees the heating and cooling systems we install in your home are properly sized and will heat or cool the areas of your home served by the new equipment.
- ▶ Advanpro guarantees that the price in our quote is the price you will pay on the date of installation. There are NO extra fees or charges! Our price is good for 30 days from the date of quotation.
- ▶ At Advanpro, we pride ourselves in delivering the best service and the highest quality workmanship available. We guarantee that the installation will pass inspection and conform to all applicable building codes. Any deficiencies will be corrected immediately at NO cost to you.

Quality of installation varies from contractor to contractor and installer to installer. Not all contractors are equal.

While it is important to choose a leading name-brand unit, **the quality of the installation is even more critical to performance, efficiency, safety and long life.** Choosing a respected installer with a proven track record is an area where you cannot afford to compromise.

**Equipment will only perform as well as it's installed!**



# GET AN ACCURATE QUOTE. INSTANTLY!

With the Advanpro Air Conditioning Quote Calculator

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