

— FREE QUICK-START • HOME ENVIRONMENT

The Clean Air *CADR & Purifier* Guide

Size a HEPA purifier for any room, read the label like a buyer, and pick the right furnace filter.



2

ROOMS SIZED

5

AIR CHANGES FOR
SMOKE

6

LABEL CHECKS

3

FILTERS COMPARED

HOME ENVIRONMENT • FREE BUYER'S GUIDE

The Clean Air *CADR & Purifier* Guide

Size a HEPA purifier for any room with two calculators, read the label like a buyer, pick the right furnace filter, and place and run the unit so it actually cleans the air.

2

ROOMS

sized by the calculator

5

AIR CHANGES

an hour for smoke

6

LABEL CHECKS

before you buy

3

FILTERS

on the MERV ladder

How to use this guide

BEFORE YOU BUY

STEP 1

Measure the room

Length, width and ceiling height in feet.

STEP 2

Let the page size it

It gives the two-thirds minimum and the CADR for five air changes an hour.

STEP 3

Check the label

True HEPA, a published smoke CADR, no ozone. Tick the six boxes.

STEP 4

Bedroom first, all the time

Run it continuously at a setting you can sleep with.

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Buy Clean Air, Not a Box

3 FACTS

Fine particles (PM2.5) have the strongest evidence of harm of any common air pollutant, and they are the pollutant a filter removes best. Two numbers decide whether a purifier helps: how much clean air it delivers (CADR) and how big the room is.

CADR is the honest number. The Clean Air Delivery Rate, in cubic feet per minute, is measured to a standard (AHAM AC-1) for smoke, dust and pollen. Smoke is the hardest test and the one to use.

The box's room size is often generous. A purifier that "covers 500 sq ft" may be counting one air change an hour. For smoke and cooking particles you want about five.

Some machines add pollution. Ozone generators and some ionizers put ozone, a lung irritant, into the room. A purifier should only take things out.

THE EVIDENCE BEHIND IT

AHAM TWO-THIRDS RULE

Smoke CADR in cfm should be at least two-thirds of the floor area in square feet (for ceilings up to 8 feet).

HEPA STANDARD

True HEPA captures at least 99.97% of particles at 0.3 µm, the hardest size to catch.

EPA AND CARB

Ozone generators are not safe air cleaners; California certifies air cleaners that meet an ozone emission limit.

THE ONE CATEGORY TO REFUSE

Do not buy an ozone generator or any device sold for "activated oxygen" or ozone. Be careful with ionizer, plasma and photocatalytic modes: choose a CARB-certified unit and keep extra modes off. Ozone irritates the lungs and can trigger asthma. A purifier never replaces a CO alarm, a vented range hood or fixing a damp problem.

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The Sizing Calculator

CALCULATES

	ROOM 1	ROOM 2
Room name		
Length (ft)		
Width (ft)		
Ceiling height (ft)		
Floor area		
Volume		
Minimum smoke CADR, two-thirds rule		
Smoke CADR for 5 air changes an hour		
A purifier's smoke CADR (cfm)		
Air changes an hour it gives		

ROOM (8 FT CEILING)	AREA FT ²	MINIMUM SMOKE CADR	TYPICAL USE
10 × 10 ft	100	67 cfm	Small office, nursery
12 × 12 ft	144	96 cfm	Standard bedroom
14 × 14 ft	196	131 cfm	Large bedroom
16 × 16 ft	256	171 cfm	Living room
20 × 20 ft	400	267 cfm	Open-plan living

At an 8-foot ceiling the two-thirds rule and five air changes an hour give the same answer. Higher ceilings need more: the calculator handles that.

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Read the Label, Pick the Filter

COUNTS ITSELF

LABEL CHECK

- ☐ Says "true HEPA" (or H13), not "HEPA-type" or "HEPA-like"
- ☐ Publishes a smoke CADR (AHAM Verifide seal or equivalent)
- ☐ Smoke CADR meets your room's number from the calculator
- ☐ CARB-certified, or states no ozone; ionizer can be switched off
- ☐ Replacement filter price and life (months) are listed
- ☐ Noise at the setting you will run all night is acceptable

BOXES TICKED

THE FURNACE FILTER: MERV LADDER (ASHRAE 52.2)

RATING	CAPTURES	FIT
MERV 8	Pollen, dust, larger mold spores	Typical pleated filter; weak on smoke.
MERV 11	Adds pet dander and some smoke	A step up for older systems.
MERV 13	50%+ of the smallest particles tested, 85%+ of 1–3 µm	The home target; check your system can take the airflow resistance.

PLACING AND RUNNING IT

Bedroom first	The room where you spend the most hours, then the living room.
Run it all the time	Medium all day beats high for 20 minutes; levels rebound within an hour of switching off.
Placement	About a foot from walls, intake clear, near where you sit or sleep; not over the stove.
Doors and windows	Closed while you want the room clean; the CADR is for that room only.
Filters	Pre-filter vacuumed monthly; HEPA every 6–12 months, sooner after smoke.

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From One Purifier to the Whole House

COMPANION E-BOOK

A purifier handles particles in one room. **The Healthy Home Air Quality Audit** covers the whole house: six room sheets that score themselves, the fresh-air rate for your home, mold, chemicals, carbon monoxide and radon, and a smoke-season plan set up in advance.

Six room sheets that score themselves
kitchen, bedrooms, living areas, bathrooms, basement and garage, offices and children's rooms.

Sizing for three rooms and the whole house
purifier air changes plus the ASHRAE 62.2 fresh-air rate for your house.

Mold, chemicals, CO and radon
source-first fixes, a radon converter and a testing table.

The smoke-season plan
a clean room set up in advance, the kit, and a smoke-day log.

THIS FREE GUIDE

- ✓ Purifier sizing for two rooms
- ✓ The label check and MERV ladder
- ✓ Placement and running rules

THE AUDIT ADDS

- ✓ A room-by-room audit with scores and a house total
- ✓ Fresh-air rate for your house (ASHRAE 62.2)
- ✓ Moisture, mold, chemical, CO and radon chapters
- ✓ The smoke-season plan, kit and logs

FILLABLE PDF E-BOOK
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FACT-CHECKED
Against EPA, WHO, ASHRAE, AHAM and CARB guidance.

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SEE THE AIR QUALITY AUDIT →

SOURCES • FACT-CHECKED BY THE HEALTH SECRETS EDITORIAL TEAM	
AHAM AC-1 (CADR method) and the two-thirds sizing rule.	CADR and room sizing.
US EPA: Guide to Air Cleaners in the Home; Ozone Generators that are Sold as Air Cleaners; PM2.5 standard (2024).	HEPA, CADR, ozone warning, PM2.5 evidence.
ASHRAE Standard 52.2 (MERV). California Air Resources Board air cleaner certification.	MERV ladder; ozone-free certification.

BEFORE YOU BUY

Size it right.
Run it all day.

01 • MEASURE

Length, width and ceiling, in feet.

02 • CHECK

True HEPA, smoke CADR, no ozone.

03 • GO FURTHER

The audit covers the whole house.

Keep reading on healthsecrets.com

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