Ventilation Buying Guide

A step-by-step guide to find the right ventilation products for your home or project

YALE
APPLIANCE

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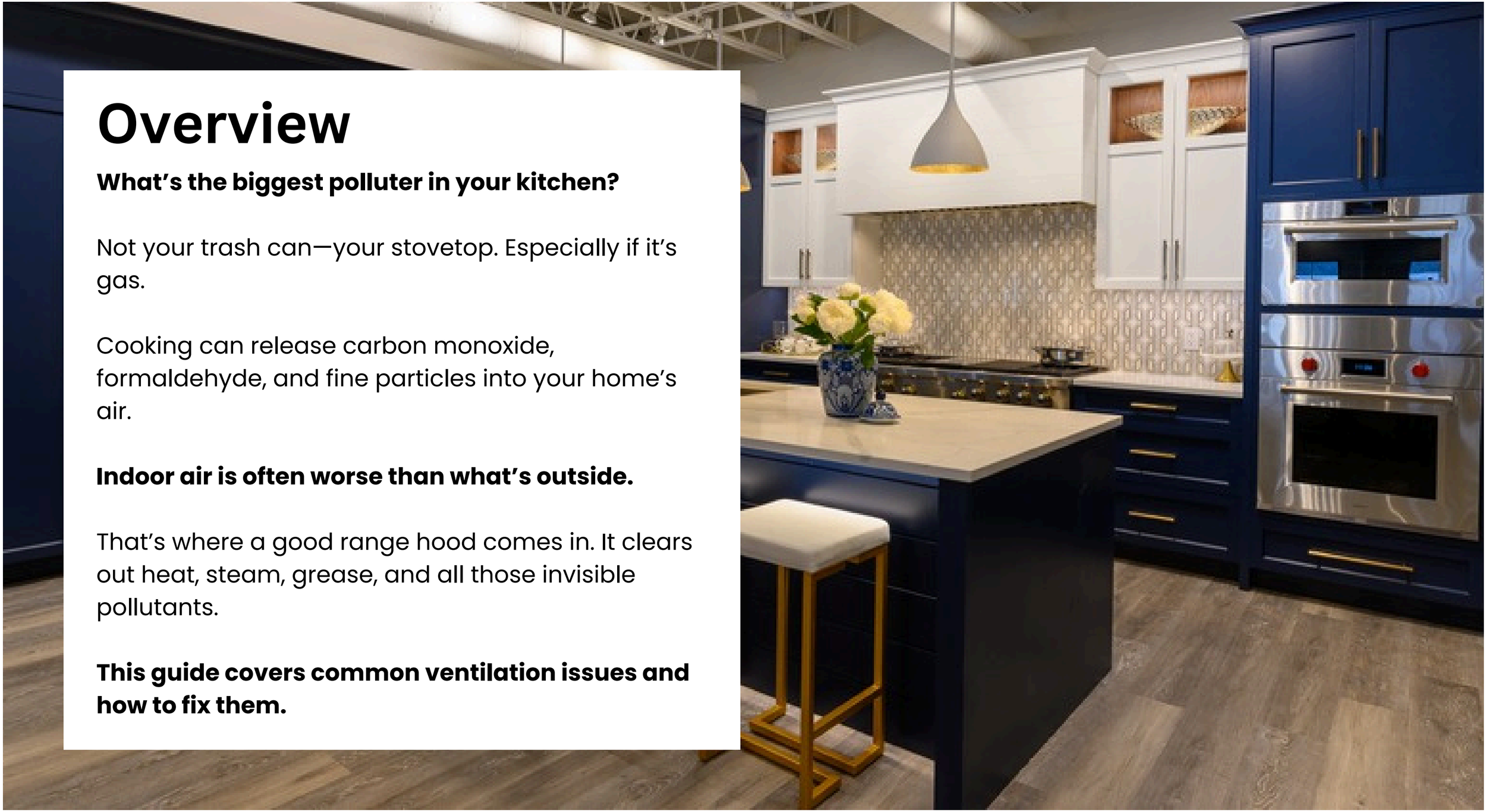


Overview

What’s the biggest polluter in your kitchen?

Not your trash can—your stovetop. Especially if it’s gas.

Cooking can release carbon monoxide, formaldehyde, and fine particles into your home’s air.

Indoor air is often worse than what’s outside.

That’s where a good range hood comes in. It clears out heat, steam, grease, and all those invisible pollutants.

This guide covers common ventilation issues and how to fix them.

4 Rules of Kitchen Ventilation

If you remember nothing else, remember these:

Rule 1: Capture beats CFM
If smoke is not contained, power does not matter.

Rule 2: Depth matters more than design
Shallow hoods miss the front burners where most cooking happens.

Rule 3: Short duct runs win
Long runs, turns, and flex duct kill performance.

Rule 4: Air out requires air in
Powerful hoods need make-up air to work safely and legally.

Good ventilation follows all four. Most bad systems break at least two.

VENTILATION FACTOR	PASS: WORKS IN REAL KITCHENS	FAIL: LOOKS FINE, PREFORMS POORLY
HOOD DEPTH	23 TO 27 INCHES DEEP. COVERS FRONT BURNERS	17 TO 21 INCHES DEEP. SMOKE ESCAPES THE ROOM
CAPTURE AREA	HOOD FULLY OVERLAPS THE COOKING SURFACE	FLAT OR SHALLOW HOOD. NO REAL CONTAINMENT
CFM POWER	MATCHED TO HOW YOU COOK. HIGH HEAT GETS MORE CFM	BIG NUMBER ON PAPER. NO DEPTH TO SUPPORT IT
DUCT RUN	SHORT, STRAIGHT, RIGID METAL DUCT	LONG RUN WITH BENDS, TRANSITIONS, OR FLEX DUCT
BLOWER LOCATION	CHOSEN FOR PREFORMANCE AND SERVICE ACCESS	CHOSEN FOR LOOKS OR CONVENIENCE
INSTALLATION HEIGHT	INSTALLED AT MANUFACTURER RECOMMENDED HEIGHT	MOUNTED TO HIGH TO SUPPORT SIGHTLINES
MAKE UP AIR	PLANNED AND INTEGRATED WHEN REQUIRED	IGNORED UNTIL INSPECTION OR FINAL WALKTHROUGH

STOP HERE IF YOU'RE REMODELING

Before cabinets are ordered or walls are closed.

- Hood depth must cover the front burners.
- Duct path should be short, straight, and rigid.
- Make-up air may be required by code.
- Blower location must allow future service.

Mistakes made here are expensive, permanent, and often invisible until it's too late.

Never Buy a Downdraft Vent

Ventilation Problems

High Output Ranges

Gas range burner outputs now average around 60,000 BTU (British Thermal Unit).

That’s over 50% more than when I started at Yale in 1986.

Yet most hoods haven’t changed.

Best Hoods for Pro Ranges

More Efficient Houses

Houses are now designed to be more efficient and less expensive to run.

Windows and building materials are designed to keep the air inside your home.

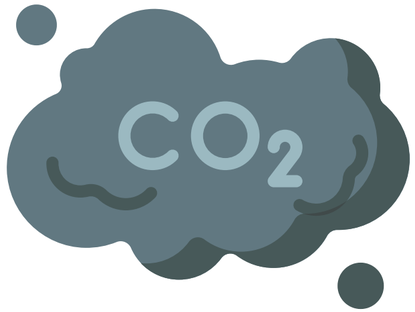
Thus, smoke, grease, and gases will now stay in your home longer.

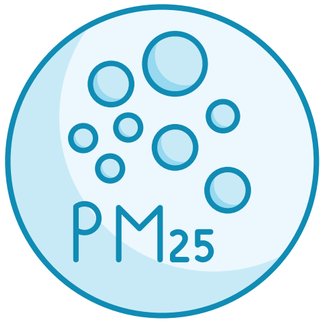
More than Just Smoke and Grease

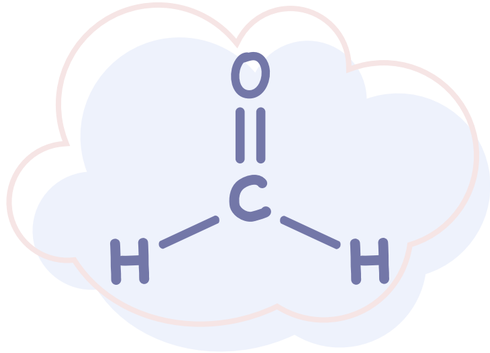
Potentially harmful chemicals emitted during cooking:

- Carbon Dioxide
- Carbon Monoxide
- Particulate Matter
- Formaldehyde
- Nitrogen Dioxide

Gas Range Installation Bans







Elements of a Good Vent Hood

CFM (Cubic Feet Per Minute

CFM (Cubic Feet per Minute) measures how much air a range hood can move.

It tells you how many cubic feet of air the hood exhausts every minute.

For example, a 600 CFM hood can remove 600 cubic feet of air per minute.

Higher CFM is important for high-heat cooking methods like frying, searing, or grilling, especially on larger ranges or pro-style cooktops.

In those cases, you may need at least 1,200 CFM to effectively clear smoke, grease, and odors.

Capture Area

Capture area" refers to the portion of the hood or ventilation system directly above the cooking surface.

This is where rising smoke, steam, grease, and odors are drawn in.

It includes the physical opening and surrounding area designed to funnel air toward the fan or filter system.

Smoke is not immediately evacuated, especially if you cook often or use high heat.

You need sufficient capture area, particularly over the front burners, where most cooking typically happens.

Duct Run

A duct run is the path air travels from your range hood to the outside.

The way this duct is designed plays a big role in how well your ventilation performs.

The best option is venting straight up, which takes advantage of gravity and minimizes resistance.

Venting straight back through the wall can also work well, as long as the run is short.

The longer the duct, and the more elbows, bends, or transitions you add, the harder it is for air to flow efficiently.

To get the best ventilation, keep your duct run as short, straight, and simple as possible.

Duct Composition

Always use a rigid stainless-steel or galvanized steel duct for proper airflow and safety.

Rigid ducts create a smooth interior surface that allows air to move efficiently and prevents grease buildup.

Flexible or plastic ducts can trap grease, increase fire risk, and reduce performance over time.

Follow the manufacturer’s specifications for duct size, and if you can, size up.

Using a duct that’s too small will restrict airflow and strain the motor.

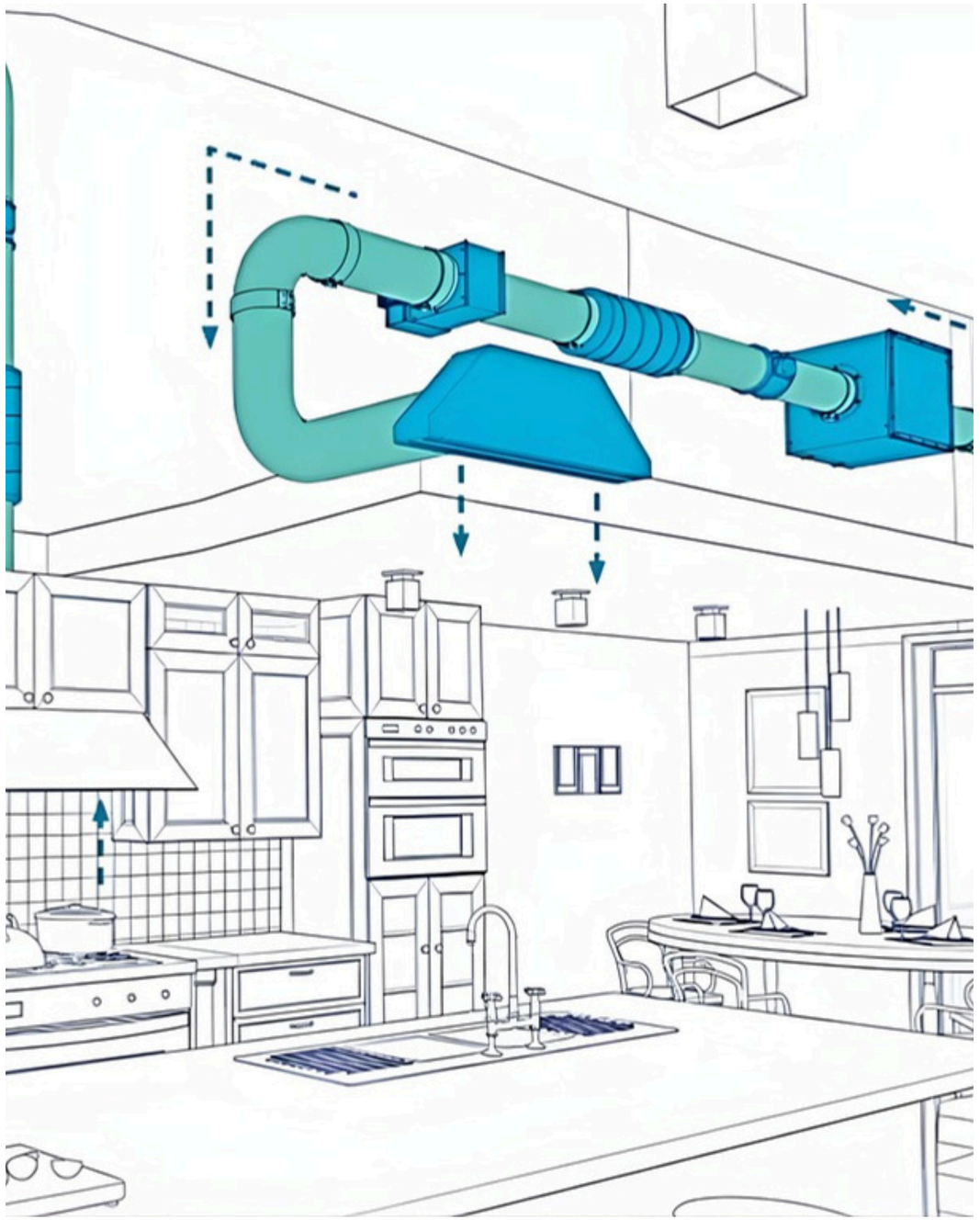
Make-Up Air

Make-up air laws, like Section M1503.4 in Massachusetts, require fresh air returns for any vent over 400 CFM.

This prevents air from being drawn in from undesirable places, such as garages or attics.

You can meet this requirement by having the fresh air returned through your HVAC.

Fresh air can also be placed 10 feet away on the opposite wall of your stove.



Why Is Make-Up Air Important

Think about a powerful 1,200 CFM hood. It's pulling a small room’s worth of air out of your home every minute. But air abhors a vacuum.

Without proper make-up air, it will find its way back in through less-than-ideal places like your garage, attic, or furnace flue.

In Massachusetts, it's required by law. You won’t pass inspection or get a certificate of occupancy without it.

Even if you’re outside Massachusetts, it’s smart to include make-up air returns in your renovation plans.

It protects air quality, efficiency, and safety.

Types of Blowers

Internal Blowers

The most common type of blower is an internal blower, which is installed inside the hood itself.

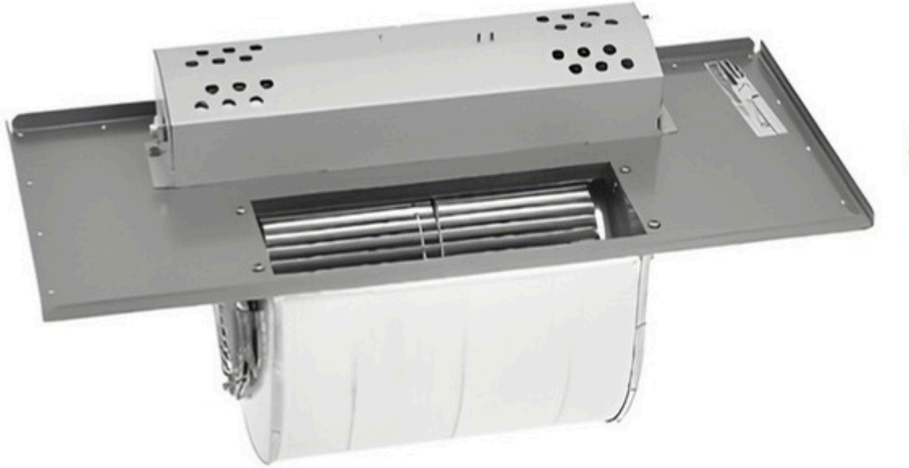
These are typically sold separately and do not come pre-installed

Pros:

- Easy to buy
- Easy to service

Cons:

- Louder because the blower is inside the hood which is in your kitchen.



External Blowers

External blowers are mounted outside your home, either on the roof or an exterior wall.

They’re purchased separately from the hood and installed as part of the ventilation system.

Pros:

- Typically available in higher CFM options
- Quieter operation since the blower is located outside

Cons:

- Harder to access and service, especially during winter or in bad weather
- Installation is more complex and may require a roofer or HVAC specialist

In-Line Blowers

In-line blowers are installed inside your home, typically in the attic or basement, along the duct run.

They offer quieter performance like an external blower, but without the bulky look outside.

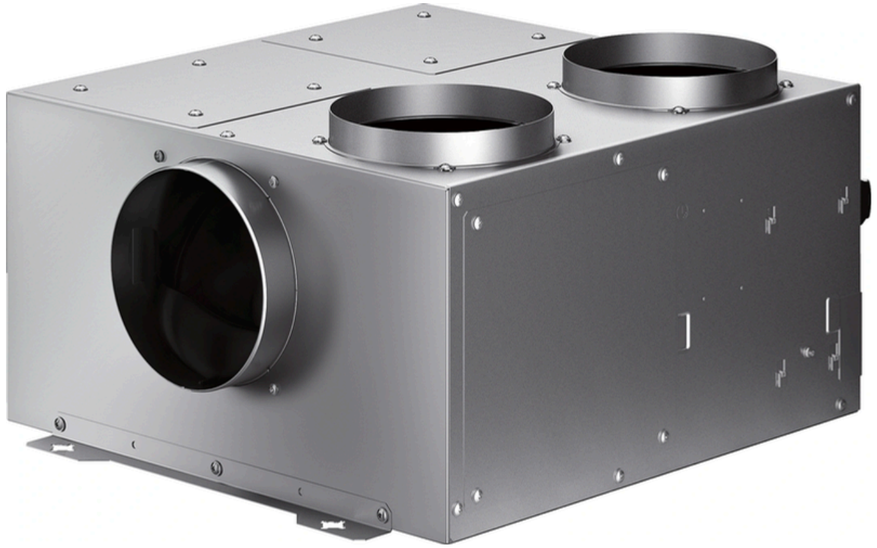
They usually range from 600 to 1,100 CFM and must remain accessible for servicing.

Pros:

- Quieter than internal blowers
- Powerful CFM options

Cons:

- Hardest type to service
- Must be accessible and not fully enclosed
- Some contractors may be unfamiliar with installation



Ventilation to Avoid

Over-the-Range Microwaves

These were a hit when they first came out, but **the design hasn’t kept up with today’s more powerful cooktops.**

Most over-the-range microwaves are only 15 to 16 inches deep and offer around 300 to 400 CFM.

That isn’t enough to properly vent smoke and steam, especially from the front burners.

Modern ranges are 22 to 23 inches deep, so these microwaves simply can’t capture what's coming off the front of the stove.

The Problem with OTR Microwaves

Slide-Out Hoods

These should have been phased out in the '90s.

A slide-out hood is essentially just a panel of glass that extends from the upper cabinet.

It’s not a true ventilation system and does little to contain heat, smoke, or grease.

It also doesn't reach far enough to cover the front burners, where most cooking happens.

To make things worse, the blower takes up valuable cabinet space above, making this option both outdated and inefficient.

5 Kitchen Vents You Should Never Buy

Ceiling Blowers

Ceiling blowers may look sleek, but they lack a proper capture area like a standard hood.

They’re often installed on tall or cathedral ceilings.

However, most manufacturers recommend placing them just 4 to 7 feet above the cooking surface for effective ventilation.

When placed too high, smoke, steam, and grease aren’t pulled in; they simply dissipate into the room.

Without a defined capture zone and proper placement, ceiling blowers offer style but fall short on performance.

You're left with poor ventilation and lingering cooking odors.

Downdrafts

Downdrafts are always at the bottom of the list when it comes to performance.

They have no capture area to contain smoke or steam.

Plus, they use a long exhaust run with at least one transition, which reduces efficiency even further.

It's a bad idea, especially if you like to cook on the front burners.

The 3 Most Powerful Downdrafts

Bad Ventilation Ideas

Ventless Hoods

Ventless hoods are an option with kitchens on inside walls.

The filters will capture some grease and smoke, but the gases will recirculate back into your home.

Ventless should be the last resort only.

Grills Inside the Home

It’s possible to install a grill inside your home or on a 3-season porch, but it comes with serious challenges.

You’ll need a large, commercial-style hood - at least 27 inches deep - with a powerful exhaust system to handle the smoke and grease.

Even then, getting a building inspector to approve a true indoor grill can be extremely difficult.

In some cases, we’ve worked around this by using a high-powered rangetop, like a BlueStar, with add-on grill components.

It’s not a true grill, but it can give you similar results with less red tape.

Downdraft Venting Gone Wrong

Using a downdraft with a professional range is one of the most common ventilation mistakes.

Pro ranges give off intense heat, smoke, and grease during high-heat cooking.

Downdraft systems rely on a narrow two-inch opening and a long duct run to vent it all - and they just can’t keep up.

There’s no capture area. Most of that smoke ends up right back in your kitchen.

For better performance, place your range on a back wall and use a proper overhead hood.

Hoods Less Than 23" Deep

Most hoods are only 17 to 21 inches deep. That’s too shallow to work well.

There’s no real capture area, so smoke and grease from the front burners just spill into your kitchen.

If the hood doesn’t cover the cooking surface, it can’t do its job.

Stick with a hood that’s at least 23 inches deep for proper coverage and ventilation.

Installing a Hood Too High

When a range hood is mounted too high, it loses its ability to capture smoke, grease, and steam effectively.

The farther it is from the cooking surface, the less effective it becomes.

Always follow the manufacturer’s height guidelines for the best performance.

Ceiling Blower Over a Pro Range

As you've seen, **a flat ceiling blower can't match the performance of a proper range hood,** especially over a professional range.

It's mounted too high and lacks the capture area needed to handle heat.

I get that the windows are a design focal point, but for a larger range, a proper hood will always be more efficient.

Working Around a Bad Kitchen Vent

- Open a window while cooking
- Cook on the back burners if you can
- Use electric or induction if possible. They throw less gas into your kitchen.
- Turn the hood on high 5 minutes before you start cooking.

Anatomy of a Good Vent

- The hood should be 24 to 27 inches deep to provide proper coverage.
- A powerful motor ensures strong airflow and effective ventilation.
- Baffle filters are durable and efficient for capturing grease.
- Short duct runs improve performance and reduce airflow resistance.

The Ultimate Guide to Kitchen Ventilation

Well-Vented Kitchens

Wood Hood Done Right

Wood hoods can be good or bad depending on the depth.

In this case, the hood is 23 inches correctly covering the front burners

How to Buy a Custom Hood Insert

Brands to Consider

Yale Exclusive

Our brand is the most updated with the best filters, LED lighting, and flexible blower placement - internal, in-line, or external.

Most models are compatible with make-up air systems.

The **PUCCM630SS** and **PUCCM636SS** are 23 inches deep with up to 1,200 CFM, offering better front-burner coverage than typical undercabinet hoods.

The **PINTR146SS** insert is a good option for custom wood hoods, with strong performance and all components included.

Wolf

Wolf has the deepest hoods at 27 inches and the highest available CFM at 1,500.

This depth gives Wolf the best capture area on the market, ensuring smoke and grease are contained before they escape into your kitchen.

You can choose from internal, in-line, or external blower options - up to 1,500 CFM.

Like Yale hoods, Wolf includes a heat sensor that automatically turns on the fan when temperatures reach 200°F.

The hood will also switch to high speed when needed, helping to prevent overheating and keep your kitchen air clear with no extra effort.

BlueStar

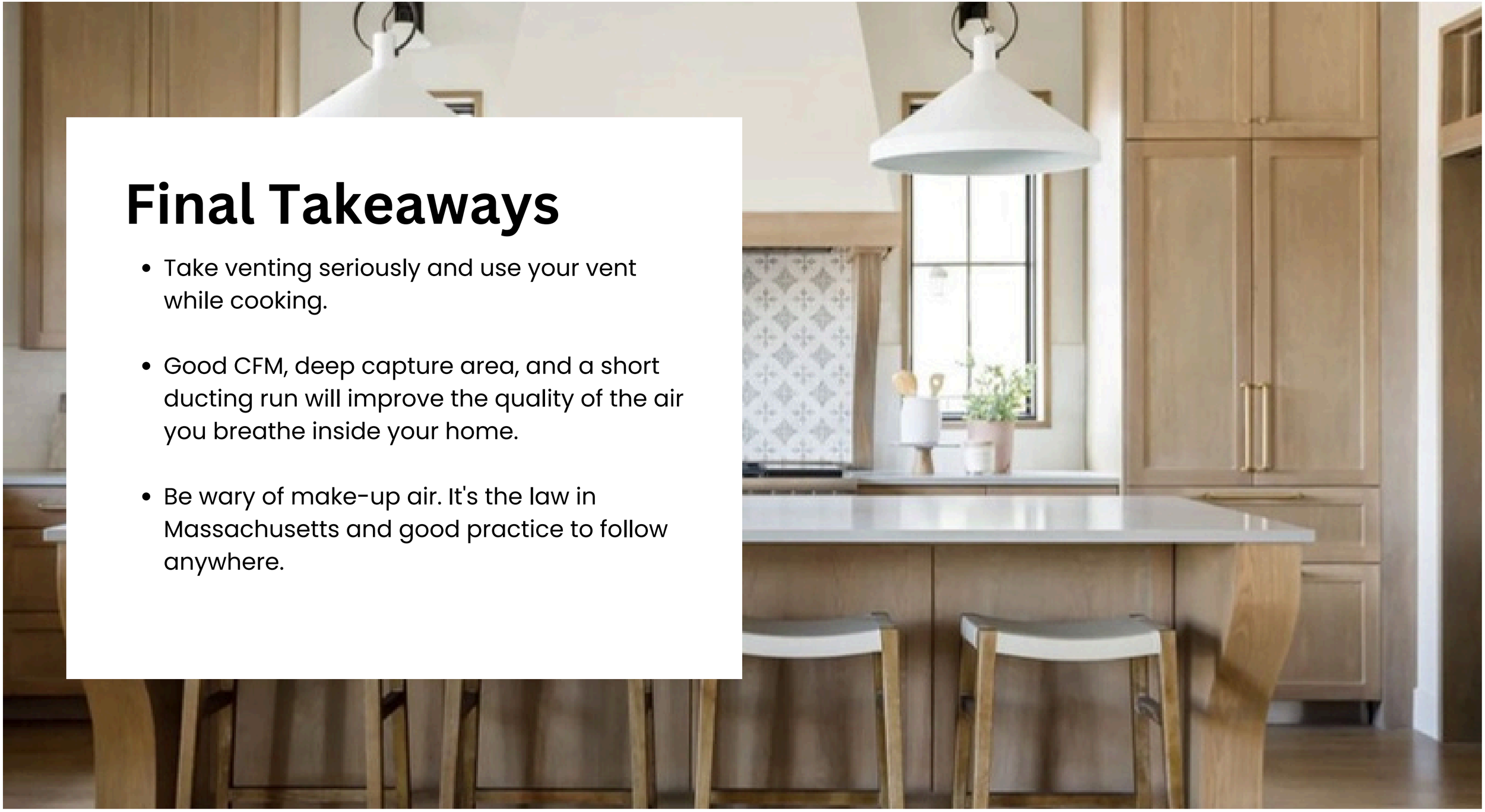
BlueStar offers unmatched customization, with over 1,000 colors and ten trim options to choose from.

If you're designing a custom kitchen, BlueStar makes it possible to match your range and hood—even down to a specific nail polish color.

It’s a great option for a fully personalized look, but be prepared to pay a premium.

Custom colors can add up to $10,000 to the total cost.

For those looking to create a one-of-a-kind kitchen, the investment might be worth it.



Final Takeaways

- Take venting seriously and use your vent while cooking.
- Good CFM, deep capture area, and a short ducting run will improve the quality of the air you breathe inside your home.
- Be wary of make-up air. It's the law in Massachusetts and good practice to follow anywhere.

Yale Appliance Webinars

Want to know how to start your kitchen?

How about learning from others' mistakes or about appliances you shouldn't buy?

Check out a Yale Webinar for deep dives on appliances, design, mistakes, and more.

Over 100,000 people have watched a Yale Webinar.

Yale Appliance Webinars

How to Protect Yourself

You may think appliances will be an easy purchase.

Unfortunately, with delivery, installation, damage, and the increasing amount of service, it can be a stressful ordeal.

Read the articles below to protect yourself and make the best buying decisions.

Remember, you have the most leverage before you buy anything.

Why Doesn't Every Brand Offer Service

Wisdom of Crowds

Buy where you're comfortable.

There are tons of stores and products, but a limited number of consumers.

Check review sites like Yelp, CitySearch, Google and the Better Business Bureau before you purchase.

Remember, any store can sell an appliance; the biggest issues are shipping and service.

Appliance Delivery Checklist

Our free checklist will help you avoid a delivery nightmare by teaching you what to ask your appliance dealer.

Delivery issues are a major cause of dissatisfaction. Be prepared.

In the Delivery Checklist, you'll learn:

- How to choose a dealer with top-notch delivery
- Questions to identify a quality delivery team
- The importance of online reviews for your appliance search

Get the Free Appliance Delivery Checklist

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We do not sell your email to anyone for any reason – ever.

We don’t spam or promote. Over 100,000 people have found value in Yale Appliance emails.

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About Us

Yale Appliance has been serving the Boston area for over 100 years and operates six showrooms: in Boston, Framingham, Hanover, Hyannis, Nantucket, and Norton.

We have the largest independent service and repair department in New England, staffed with over 40 people.

Our sales team has an average of 10 years of experience, and our staff chef offers cooking demonstrations to help you make the most of your new appliances

Visit Our Stores

Schedule a showroom visit to meet with our team and discuss your appliance project.

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