

The Essential Guide to Commercial & Public Building Air Filtration

Best practices to improve indoor air
quality in office, government, educational,
and other high-occupancy buildings



Anything Outside Your Building Can Get Inside

Your HVAC system pulls in more than just fresh air. Every time it draws in outside air at high volumes and speeds, it can also bring in allergens and airborne contaminants. And it's not just about the air coming in through your vents. Air intakes, leaks, poor ventilation, and even off-gassing from building materials can all compromise your indoor air quality (IAQ).

The building sector accounts for 40% of energy-related carbon emissions. With the global building stock predicted to double by 2060, emissions will only increase.

- ASHRAEⁱ

For building managers and maintenance teams, IAQ isn't just about comfort

— it's a high-stakes issue affecting occupant health, HVAC efficiency, and operational costs. And the pressure to get it right is growing.

IAQ regulations are tightening, with states like California introducing new energy codes that impact commercial filtration choices. And ASHRAE, the global authority for building energy standards, launched several initiatives that push for low-carbon, high-efficiency buildings.

Meanwhile, complaints about IAQ are rising. And today's buildings are sealed tighter than ever, making ventilation more complex.ⁱⁱ The result? Higher expectations, more scrutiny, and an urgent need for better air filtration strategies.

Whether you're managing an office, a school, or a government facility, the conversation has shifted. Clean air is no longer a luxury—it's a necessity.



Here are Four Key Factors Driving This Shift



Stricter air quality standards and regulations

Governments and industry organizations are tightening their IAQ guidelines. ASHRAE now recommends MERV 13+ filters for commercial buildings to reduce airborne contaminants, while the EPA's Clean Air in Buildings Challenge pushes for improved ventilation and filtration.

For schools, these stricter standards come with access to dedicated funding. Programs like the Elementary and Secondary School Emergency Relief (ESSER) Fund have allocated billions for HVAC upgrades, allowing schools to invest in better air quality solutions.ⁱⁱⁱ



Rising health and wellness expectations

The COVID-19 pandemic heightened awareness of airborne disease transmission, and tenants now expect better filtration. In response, buildings are upgrading their filter MERV ratings. But in doing so, many are increasing the strain on their HVAC systems. Higher-rated filters often create more resistance that forces fans to work harder, which can reduce airflow, drive up energy use, and cause system failures.

At the same time, research continues to highlight the direct link between indoor air quality (IAQ) and workplace performance. The National Library of Medicine found that improving office ventilation increased employee productivity by 8%—an annual gain of \$6,500 per person.^{iv}

Increasing ventilation rates in office buildings from 12L/s to 24L/s also reduced sick leave by 35%.^v In schools, raising classroom ventilation by just 1L/s per person led to a 5.59% decrease in annual absences.^{vi}



Energy efficiency and sustainability

Reducing emissions requires a careful balance between air quality and energy consumption, making smarter filtration choices essential. With HVAC systems accounting for 40% of a building's total energy use^{vii}, they are a prime target for improvements. Energy-efficient air filters with low pressure drops can enhance your indoor air quality and help lower energy consumption while reducing strain on your HVAC systems.



Rising maintenance costs and effort

Poor filtration doesn't just impact air quality; it also damages your HVAC systems. Outdoor environmental factors—like dust, large debris, and pollutants—can bring airborne particles inside, where they clog HVAC components and force your fans to work harder. This leads to more frequent repairs and premature equipment failures.

Upgrading to high-performance filters improves your IAQ while keeping your HVAC equipment in top condition, helping you spend less time and money on maintenance.

Challenges by building type

3 air quality challenges every commercial, government, and educational building faces.



Commercial office and retail buildings

Balancing indoor air quality with energy efficiency

Offices must maintain clean air while keeping HVAC energy consumption in check. Many facility managers struggle to implement high-efficiency filtration without impacting pressure drop—leading to increased costs and HVAC strain.

Addressing tenant health concerns and expectations

Today's tenants expect safer, cleaner indoor air. Facilities that fail to meet these expectations may see increased absenteeism, tenant complaints, and liability concerns. Poor filtration can also impact your ability to attract and retain tenants.

Adapting to hybrid work models

Varying occupancy levels due to hybrid work schedules can make it difficult to optimize your filtration. Many systems are designed for full-capacity usage, making them inefficient when occupancy fluctuates.



Government buildings

High traffic

Government buildings, such as courthouses and municipal offices, experience high foot traffic from the public. The more people your building serves, the more you increase your risk of airborne viruses and allergens.

Aging HVAC infrastructure

Many government buildings have outdated HVAC systems that weren't designed for modern, high-efficiency air filters. Retrofitting these systems to handle MERV 13+ filtration without overloading equipment can be a significant challenge.

Strict budget constraints

Public-sector buildings often have limited funding for HVAC improvements, forcing facility managers to find cost-effective air filtration solutions that balance performance with affordability.



K-12 schools, colleges, and universities

Protecting students and staff from airborne illnesses

Schools are high-density environments where airborne pathogens, allergens, and respiratory infections spread quickly. Effective filtration reduces transmission, particularly during flu and allergy seasons.

Minimizing disruptions from HVAC noise and maintenance

Some high-efficiency filters can increase fan noise or require frequent replacements, creating distractions in classrooms. Schools need quiet, low-maintenance filtration solutions that keep the focus on learning.

Budget and funding challenges

Schools often struggle to secure funding for air filtration improvements, relying on grants or district-wide initiatives to justify HVAC upgrades. Financial constraints may result in neglecting HVAC equipment due to understaffing, lack of knowledge, and operational costs.



5 Things to Consider When Choosing an Air Filtration Solution

If you've used the same air filters for years, it might be time to rethink your approach. Advances in air filtration technology have made today's options more efficient and cost effective, providing you with long-term savings.

Here are five key factors to consider before your next purchase.

1. Where your filters are located



If your air handling units (AHUs) are on the roof, transporting bulky filter skids can take time and effort. Opt for compact or lightweight filters that come in multiples per box to ease the burden on your maintenance team.



Ground-level or mechanical room filters can still pose accessibility challenges. Some units are in tight spaces, making changeouts difficult. Choosing filters with high dust-holding capacities and extended service lives will minimize your replacement costs and efforts.



Proximity to highways, airports, or railroads brings more pollutants and odors into your building. Upgrading to filters designed for high particulate loads and/or odor and gas absorption can improve your indoor air quality.

2. Your location



If your facility is in a dry or dusty region, outdoor airborne particles can quickly clog filters, restrict airflow, and strain your HVAC system. The more dust and debris in the air, the more frequently you must change your filters. To reduce your maintenance demands, choose filters with low pressure drop that hold a lot of dust and can go longer between changeouts.



Regions with high rainfall, snowfall, or humidity present different challenges. Moisture-laden air can cause filters to collapse or become clogged, reducing HVAC efficiency. Using filters made from moisture- and corrosion-resistant materials can prevent water absorption and ensure consistent airflow, even in challenging weather.



Located in an area with winter inversions, such as Phoenix? If so, your building will draw in more particles, causing filters to wear out faster. High-capacity products, such as MERV 14 synthetic pocket or deep pleat filters, will capture more particulates and help your filters last longer.



If you have seasonal variations, your filters might clog with cottonwood and other allergens during the spring. Pre-filters or mesh intake screens capture larger debris before it reaches and damages your primary filtration system.

3. Your sustainability and energy efficiency goals

Air filtration is often overlooked but plays a crucial role in sustainability. Inefficient filters consume excess energy and require frequent replacements, increasing your costs and waste. Choosing sustainable options can lower your operating expenses, reduce your environmental impact, and help you comply with evolving regulations. Here are five things to look for:



Longevity

Filters with high dust-holding capacity and extended service lives generate less waste while lowering your purchasing and disposal costs.



Low pressure drops

A lower pressure drop allows air to move more freely through filters, reducing your energy consumption and strain on your HVAC fans.



Filters that meet sustainability requirements

Environmental regulations are becoming stricter. Look for filters that meet industry-recognized standards, such as [ASHRAE's Building Decarbonization initiative](#).



Recyclable materials

You can get air filters made from recyclable or biodegradable components. Also, ask if your supplier has a recycling program so you can return used filters instead of sending them to a landfill.



Washable filters

Look for filters you can clean and reuse multiple times. For example, [Prevent air intake screens](#) are washable and act as a first line of defense to protect your downstream filters. These screens can help your other filters last longer and cut your HVAC coil cleanings by 75%.



4. Your customization needs

Commercial buildings have different layouts, tenants, and HVAC designs, so a one-size-fits-all approach to air filtration won't work. You need a filtration partner who will tailor their solutions to meet your needs. Here are some things your partner should customize for you:

Particle filtration efficiency

Your air filters should meet your required MERV ratings and other efficiency standards. Higher-efficiency filters can improve indoor air quality but may also impact airflow, so striking the right balance for your building is essential.

Filter dimensions

Not all commercial HVAC systems use standard filter sizes. If your building has unique air handling units or duct systems, look for a partner who can custom size your filters to ensure a perfect fit and prevent air bypass.

Filter media

Low-pressure-drop media helps air move efficiently through filters without overloading your HVAC system. You can choose different types of filter media based on your needs:



Standard pleats and mini-pleats offer moisture resistance and durability.



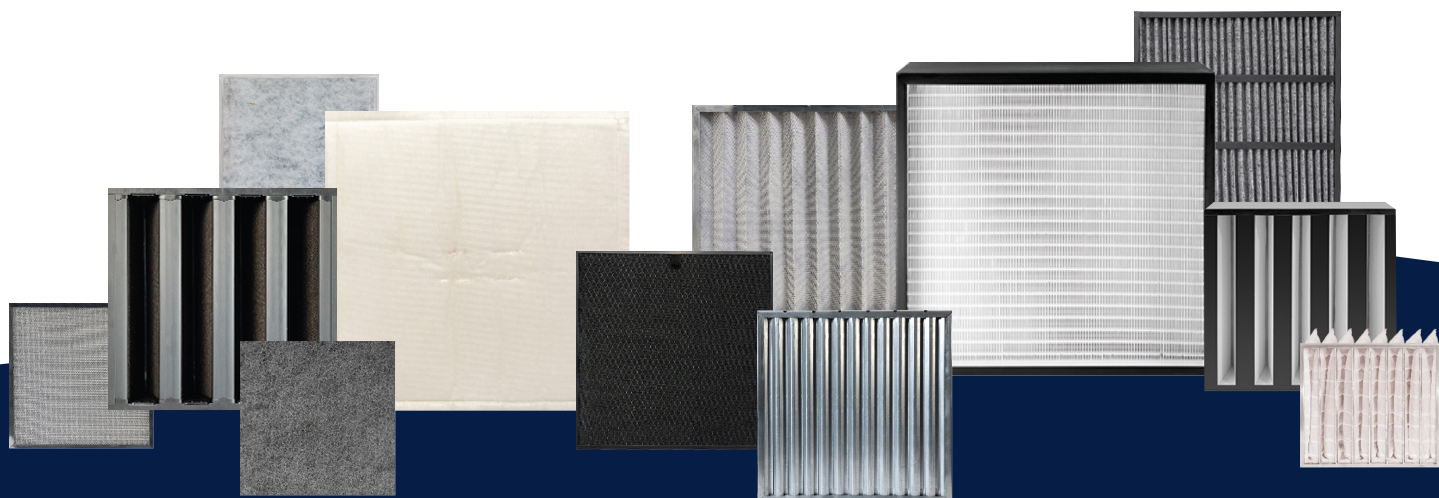
Carbon media targets odors and gases.



Washable options like polypropylene and metal are ideal for repeat use and easy maintenance.

Dust-holding capacity

Buildings in high-traffic urban areas or regions with heavy outdoor pollution require filters with high dust-holding capacity. These filters trap more particulates before clogging, reducing your changeout and maintenance frequency. For example, [Revolution Pocket filters](#), with their pre-formed pocket waves, have 2.5X the effective media area than competitive pocket or bag filters—making them ideal for dusty environments.



5. Your long-term total cost of ownership (TCO)

Many commercial buildings opt for the lowest-priced air filters to keep costs down. But, this short-term approach can lead to higher expenses in the long run. Low-quality filters degrade faster and require more frequent changeouts. They also clog more often, forcing your HVAC fans to work harder to maintain airflow. The increased strain raises energy consumption, accelerates wear and tear on equipment, and drives up operational costs.

While premium air filters may have a higher upfront cost, they provide better performance and a lower TCO over time. Switching to longer-lasting filters can significantly reduce your changeouts, labor costs, and waste disposal needs. Cutting replacements from twice to once per year can lower your purchasing costs and maintenance efforts by 50%. Filters with lower pressure drops also improve airflow efficiency, extending your HVAC equipment's lifespan and minimizing energy consumption.

“

While reducing costs for air filtration products may show immediate savings on the budget, keeping up with proper preventative maintenance with scheduled air filter changes will have a more sustainable impact in the long run.

Without filtration maintenance, key components of HVAC systems will deteriorate, resulting in costly repairs, possible replacement, and increased operating costs.”



Why Rensa

Lower your operations and energy costs by up to 40% with Rensa's air filtration solutions

Not all air filtration suppliers are created equal. You need a partner who goes beyond selling replacement products to provide a complete, cost-effective air filtration solution tailored to your building's unique needs.

At Rensa, we take a consultative approach to air filtration. We'll analyze your current filtration system and recommend products to improve your indoor air quality and energy efficiency while reducing your maintenance costs. In fact, we can help you cut your energy costs by up to 40%—and even identify if you're over-filtering and overspending. Here's why 16,000 customers trust Rensa for their air filtration needs:



A one-stop shop

With a catalog of over 42,000 air filtration products, we have what your HVAC system needs to operate at peak efficiency. Our high-performance options include pleated filters, mini-pleats, HEPA's, carbon filters, pre-filters, washable filters, and more.



Custom air filtration solutions

Rensa will work with you to develop a filtration strategy that meets your building's specific needs. We can customize every aspect of your air filters, including their dimensions, media, and particle filtration efficiency.



Fast shipping

Our manufacturing plants produce over 12 million air filters annually. With locations across the U.S., we can get you what you need quickly and cost-effectively.



Premium service

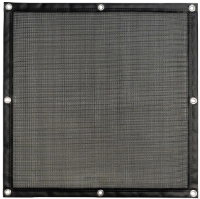
Replacing air filters can be time-consuming, but Rensa has you covered. We partner with hundreds of trusted distributors nationwide to offer exceptional products and services—including delivering, replacing, and disposing of your filters. Our Rensa family partners include Air Filter Supply in California, Downing Filtration in Arizona, The Filter Shop in Nebraska and Iowa, Air Filter Engineers in Illinois, and RP Fedder in Upstate NY. Whether you work with a Rensa-owned distributor or one of our many independent partners, we make filter maintenance seamless so your team can focus on more critical tasks.

Recommended Air Filters for Commercial and Public Buildings

There's no one-size-fits-all solution when it comes to air filtration. The right combination depends on your building's unique priorities—whether that's longevity, energy efficiency, odor control, or a balance of all three.

Rensa takes a customized approach to filtration and will tailor your solutions to meet your air quality goals. To get you started, here are some filter combinations we recommend for different areas of your building:

— Applicable to All HVAC Equipment with Air Intakes



PreVent Air Intake Screens

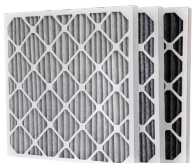
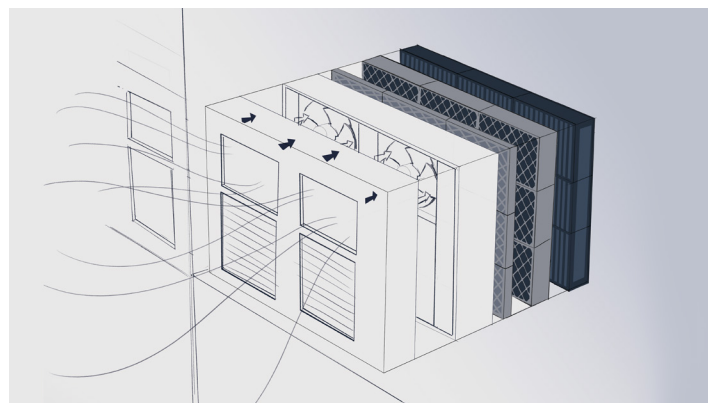
This pre-filter acts as a first line of defense against airborne particulates and protects your downstream filters from damage. Its washable design helps you cut down on waste and filter replacement costs.

— Fan Wall



Endurex HD (MERV 9/9A)

These filters trap small particles, such as dust, pollen, and mold spores. Their high dust-holding capacity helps you go longer between changeouts, reducing your maintenance efforts and costs.



CarbonWeb® Carbon Pleat (MERV 7, 8, and 10)

Carbon filters remove unpleasant odors and gaseous pollutants before they enter your HVAC system—dramatically improving your indoor air quality.



SuperFlo-V (MERV 11, 14, 15, and 16)

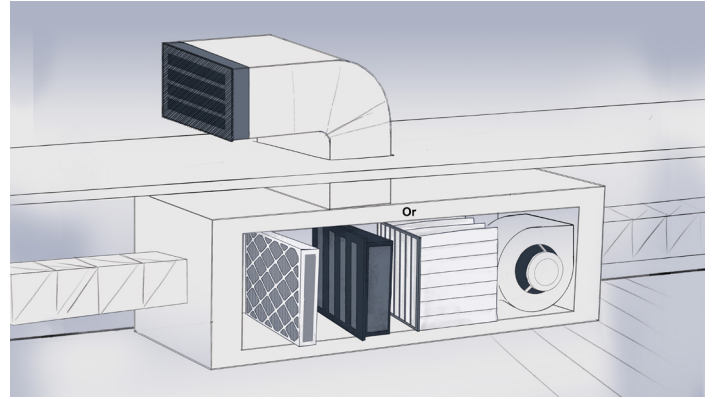
SuperFlo-V filters provide exceptionally high levels of particulate efficiency to protect your HVAC system against airborne microbes and bacteria.

— Air Handling Unit (AHU)



Endurex HD (MERV 9/9A)

These filters are ideal if you have a busy maintenance team that can't spend much time on changeouts. Their high dust-holding capacity allows you to go longer between replacements.



SuperFlo-V (MERV 11, 14, 15, and 16)

Improve your indoor air quality with high-efficiency particulate removal. A low-resistance design optimizes airflow to help reduce your energy costs while protecting your HVAC equipment.



Revolution Pocket Filter (MERV 11, 13-A, 14, and 16-A)

These durable pocket filters capture fine particulates while maintaining low resistance. Their extended surface area increases filter efficiency and longevity, helping you optimize HVAC performance.



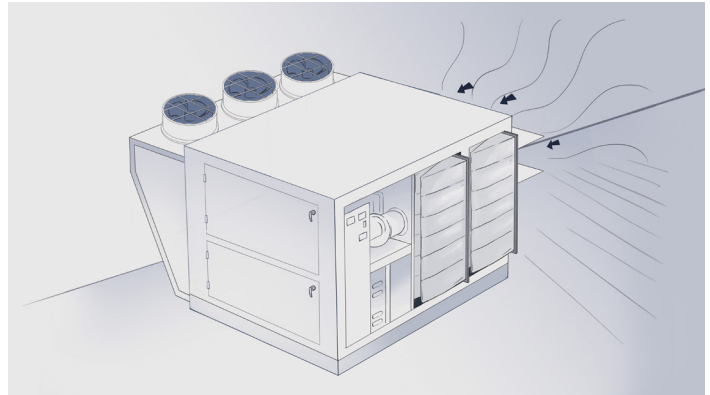


— Dedicated Outdoor Air System (DOAS): Long-Life Option



Revolution Pocket Filter (MERV 11)

These first-stage filters capture larger airborne particulates, including dust and debris, to prevent your higher-efficiency filters from clogging. Their durable construction and high dust-holding capacity extend service life to reduce your changeout frequency.



Revolution Pocket Filter (MERV 16)

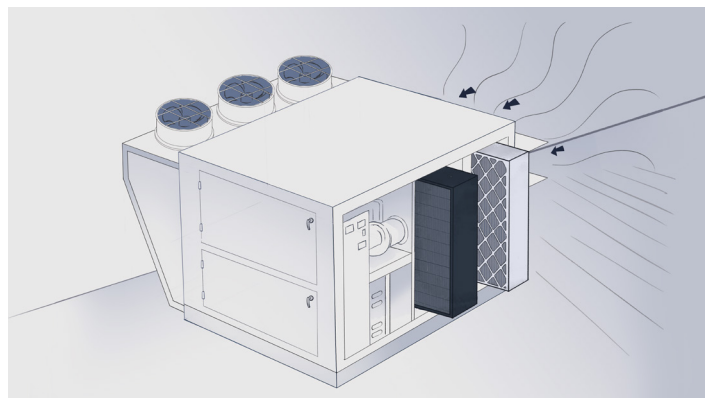
High-efficiency final filters trap smaller particulates and airborne contaminants for cleaner outdoor air intake. Their extended surface area enhances airflow and longevity, helping your DOAS operate efficiently with fewer maintenance demands.

— Dedicated Outdoor Air System: Compact Design Option



Endurex HD (MERV 9/9A)

This compact, high-capacity filter captures dust and debris before they reach your final filters. Its efficient design holds large volumes of dust without requiring much space.



SuperFlo Fine Particulate (MERV 12-15)

Built for durability in outdoor environments, these moisture-resistant filters maintain high efficiency even in humid conditions. Their compact, low-resistance design ensures reliable airflow, helping your DOAS perform optimally while minimizing energy use.

Stricter Air Quality Standards and Higher Expectations: Is Your Building Ready?

Indoor air quality isn't just about comfort—it's a critical factor that impacts occupant health, HVAC efficiency, and your operational costs. With stricter regulations and rising tenant expectations, commercial buildings must adopt better air filtration strategies to stay ahead.

Rensa's high-performance filtration solutions are designed for efficiency, durability, and cost savings to help you:



Meet evolving IAQ regulations and reduce airborne contaminants.



Lower energy and maintenance costs by up to 40% without sacrificing airflow.



Extend your HVAC system's lifespan and improve its performance.



Every day your building operates with outdated filtration, you risk higher costs, compliance issues, and occupant dissatisfaction. Now is the time to upgrade to more efficient and sustainable air filters.



Partner with us

UPGRADE YOUR AIR FILTRATION

Book a call with a Rensa air quality expert to order replacement filters. We can also analyze your current filtration system to help you uncover efficiencies and cost savings.



Email

sales@rensafiltration.com



Website

www.rensafiltration.com

Want to browse our products?

[Explore our commercial air filters](#) to see what meets your needs.

- i. ASHRAE: Center of Excellence for Building Decarbonization, 2025
- ii. National Air Filtration Association: Best Practice Guidelines, Filtration for Commercial Office Spaces, 2023
- iii. IMS Advance Notice: School Districts Find Funding for HVAC Upgrades, 2023
- iv. National Library of Medicine: Economic, Environmental and Health Implications of Enhanced Ventilation in Office Buildings, 2015
- v. National Library of Medicine: Ten questions concerning occupant health in buildings during normal operations and extreme events including the COVID-19 pandemic, 2020
- vi. National Library of Medicine: Associations between illness-related absences and ventilation and indoor PM2.5 in elementary school of the Midwestern United States, 2023
- vii. Cornell University: Planning for net zero by 2050, what HVAC system interventions will today's code minimum commercial buildings require? 2021
- viii. National Air Filtration Association: Best Practice Guidelines, Filtration for Schools, 2023

RENSA
FILTRATION