

Best Practice Guidelines

Air Filtration Technicians on Site



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Why NAFA Guidelines?

The National Air Filtration Association (NAFA) provides “Best Practice Guidelines” to help supplement existing information on air quality management through proper filtration. While many organizations recommend “minimum” air cleaning levels, NAFA publishes best practices based on the expertise of its membership, combined with research from governmental, medical, and scientific communities. This guideline offers recommendations for achieving optimal air quality while considering the energy and environmental impact of data center HVAC systems.

For a complete explanation of principles and techniques found in this guideline, visit www.nafahq.org to purchase the NAFA Guide to Air Filtration.

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Best Practices for Air Filtration Technicians On Site, v2 2026

NAFA guidelines provide advice on achieving the cleanest air possible based on the design limits of existing HVAC equipment and with consideration of the impact on energy and the environment. Our guidelines are created and updated to collect and supplement existing information. However, we go beyond the “bare minimum,” publishing best practices based on the experience and expertise of our membership, as well as current mandates and research provided by governmental and scientific communities.

For a more complete explanation of principles and techniques found in this guideline, visit www.nafahq.org to purchase the *NAFA Guide to Air Filtration*. If you have any questions or comments about this publication, please contact NAFA Headquarters.

A special thank you to the following member contributors:

Lead Author

Kevin Delahunt, CAFS
BGE Indoor Air Quality Solutions Ltd.

Contributors

Timothy Ahn, NCT
Clean & Science Co., Ltd.

Nitim Mohan, CAFS, NCT
Tristate Filter & HVAC Supplies, Inc.

Glen Bergman, CAFS
G & B Environmental, Inc.

Hunter Most, CAFS
AAF Flanders

Josh Brandl, CAFS
The Filter Shop

Scott Parris, CAFS
Freudenberg Filtration Technologies Inc.

Randy Brannen, CAFS, NCT II
Kleen-Air Filters

Jay Reese, CAFS
J & BR Associates, LLC.

Dara Chhan, CAFS, NCT
TEX-AIR Filters

Patrick Rosenthal, CAFS, NCT
TEX-AIR Filters

Michael Corbat, CAFS
Rensa Filtration

Tavatchai Satiennrattanakul, CAFS
3V Engineering Solutions Co., Ltd.

Keith Jordan, CAFS, NCT
Colorado Air Filter LLC

Elijah Selzer
Pure Filtration Products, Inc.

Paula Levasseur, CAFS
LMF Services LLC

Trevor Smith, CAFS, NCT
BGE Indoor Air Quality Solutions Ltd.

Roberta MacGillivray, CAFS, NCT
BGE Indoor Air Quality Solutions Ltd.

Dan Strebeck, CAFS, NCT
Pure Filtration Products, Inc.

Adam Uszacki
BGE Indoor Air Quality Solutions

About Us

Our Mission:

The National Air Filtration Association (NAFA) mission is to be the global source for expertise, education & best practices in air filtration.

What can NAFA membership do for you?

NAFA brings together air filter and component manufacturers, sales and service companies, and HVAC and indoor air quality companies. By becoming a member, you can:

- Meet with industry thought leaders
- Strengthen your network
- Share best practices
- Receive up to date industry information
- Access professional development, certification and education

Be a part of something bigger

As a NAFA member, you are a part of a support system that shares the common goals of supporting industry growth and creating healthier communities. Following the coronavirus pandemic, we are more aware than ever of the important role that our members play in a well society. We know that our work is important to maintaining healthy, happy communities.

Benefits of Membership

As a member of NAFA, you'll have access to a host of benefits that offer networking, learning, and advertising opportunities. Here are just a few of our most popular benefits:

- Annual conferences and webinars
- Professional development programs (CAFS and NCT Level I & II certification)
- Air Media magazine
- Best practices guidelines
- Clean Air Award recognition program
- Library of resources, manuals, seminars, and training.
- NAFA advertising and sponsorship programs
- Exposure through NAFA social media and a listing on the NAFA website
- NAFA volunteer and leadership opportunities

...and more!

Click [here](#) to become a member today!

CAFS & NCT Certifications

Educate your team

Attract new customers

Be known as a leader in your industry

Now more than ever, customers seek professionals with the credentials for quality assurance and knowledge to ensure that their complex needs will be met. Addressing this concern, NAFA offers two certification programs to increase the level of education and professionalism in the industry.

The NAFA Certified Air Filter Specialist (CAFS) program

CAFS is the first education and certification program offering an extensive examination on the principles, methods and applications of air filtration. It differentiates professionals who have demonstrated a high level of professionalism and a thorough, up-to-date understanding of air filtration technology. The CAFS exam is pass/fail, and is based on the NAFA Guide to Air Filtration.

NAFA Certified Technician (NCT) Program

This open-book exam is based on the NAFA Installation, Operation, and Maintenance of Air Filtration Systems manual. This program was designed to increase the knowledge of technicians, facility managers, and building owners.

Both certifications are renewable on an annual basis pending successful completion of continued education requirements. While the exams are open to members and nonmembers alike, test fees are dramatically reduced for members. To find out more about the cost, study aids, test dates/locations, and requirements, visit the weblinks below.

[CAFS information page](#)

[NCT information page](#)

Minimum MERV Requirements

In reference to the NAFA Best Practice Guidelines, MERV recommendations refer to the baseline filtration efficiency levels that HVAC air filters should meet to achieve effective indoor air quality and protect building occupants, equipment, and systems. MERV (Minimum Efficiency Reporting Value) is a standardized rating determined by ANSI/ASHRAE Standard 52.2 that quantifies a filter's ability to capture airborne particles of varying sizes.

The recommendations set forth by the NAFA Best Practice Guidelines are produced by intense research into industry-wide best practices from accredited organizations such as (but not limited to) ASHRAE, ANSI, EPA, ISO, and Industry Experts. The Guidelines Committee research, compiles, and analyzes this data, along with their own Industry Experiences to produce a comprehensive document.

NAFA's objective is to go beyond minimum standards set by other organizations. For example, In many commercial and institutional settings, NAFA's best practice recommendations typically call for a MERV 13 air filter to effectively remove fine particulate matter (PM2.5) that can impact occupant health and harm sensitive equipment performance. Lower MERV rated filters (e.g., MERV 8) may be acceptable for pre-filtration stages, or less demanding environments, but NAFA's best practices strive to elevate performance above these basic minimums.

By specifying appropriate MERV requirements tailored to system design and environmental conditions, NAFA guidelines help industry professionals make informed decisions that improve indoor air quality, increase occupant wellbeing, and support HVAC system operation and longevity.

MERV Statement: Version 1, May 2026

Purpose, Scope and Background

1

PURPOSE

This Best Practice provides comprehensive guidance for the inspection, servicing, replacement, and retrofitting of filtration products and systems to the diverse HVAC equipment found in today's built environment. It will benefit every company that services air filtration products enabling them to perform the work in a consistent, safe, healthy, and environmentally friendly manner. The end goal of providing this level of service will be the knowledge that the air being supplied to the building and occupants will be of the highest quality.

2

SCOPE

Consistent protocols for the servicing of air filtration products provide a measure of quality control that would not be possible without this guidance. Some of the items listed here are mandatory, such as dust masks, coveralls, gloves, and hard hat for example, while others can be considered job specific. It is NAFA's hope that every air filter service company will create their own service checklist using all, or some, of the guidance listed here.

This Best Practice has three components: pre-site visit, on-site visit and post-site visit. All three are essential for exceeding customers' expectations and performing the work in a safe, healthy, and environmentally friendly manner.

3

BACKGROUND

The service of air filtration products is a dirty, labor intensive, and physically demanding job. Technicians performing this work require a level of training such as the NAFA Certified Technician (NCT) course offered by the National Air Filtration Association (NAFA). An NCT trained technician will have the knowledge of the role air filtration plays in providing a safe and healthy environment for building occupants and that the work they perform is directly related to the quality of that air.

NAFA Best Practices Recommendations - Pre-Site Visit

1

ASSESS:

- Is a hazardous assessment required prior to site visit?
- Are any permits required for the shut-down of the equipment and access to the service area?
- Is the work area considered a confined space and do special precautions need to be addressed?
- Is there adequate lighting in the unit to perform the work in a safe manner?
- Do you require supplemental lighting to complete the work?
- Are there special tool requirements such as a socket wrench, screwdriver etc.?
- Are the filters to be changed easily accessible and can the work be performed in a safe manner?
- Do you require a pull stick to remove the filters?
- Do you require a ladder to access the HVAC equipment to be serviced? Is the ladder fixed in place?
- Is an aerial work platform (AWP), such as a scissor or man lift, or scaffold required?
- Do you have the correct sizes and types of filters required to complete the change?

2

REQUIRED PPE

- Hard Hat
- Gloves
- Dust masks, breathing apparatus
- Safety Glasses
- Hearing protection
- Steel toed boots
- Coveralls
- Fall protection



NAFA Best Practices Recommendations - On-Site

PROFESSIONAL CONDUCT ON SITE:

- Be respectful and professional
- Follow site rules and protocols
- Represent your company like you are an owner

1

SAFETY:

- Check in with security.
- Contact operations personnel regarding permits and/or the shutting down of the equipment to be serviced.
- Avoid working with fans running. There are rare circumstances when this may happen. A hazard assessment needs to be performed before the work commences. The service technician has final approval on whether it is safe to proceed.
- Lock-out/tag-out of equipment during shut-down using your own locks.
- Place the filters to be replaced close to the unit being serviced. For pre-filter replacement carefully remove the filters to limit particulate off-loading. Remove row by row from top to bottom. When replacing pad filters minimize the offloading of dirt by carefully rolling or folding the pads during removal.
- Place the spent filters immediately in a garbage bag and seal when filled.
- When to stop work:
 - ☐ Unsafe conditions
 - ☐ Unexpected issues
 - ☐ Unclear instructions

2

UPON COMPLETION:

- Brush and vacuum frames and plenum upstream and downstream of the filter bank if access is available.
- Install new pre-filters of the same size and efficiency.
- Remove all tags and locks if applicable.

NAFA Best Practices Recommendations - On-Site

3

RESTART UNIT:

- Remove all garbage to disposal bins or remove from site.
- For secondary replacement, follow the pre-filter replacement procedure with the following additions:
- Carefully remove the secondary filters limiting particulate off-loading row by row from top to bottom.
- Place spent secondary filters in bags or back in the original box, seal box, and remove for disposal.
- Before installing new secondary filters brush and vacuum filter frames and plenum upstream and downstream of the filter bank if access is available.
- Inspect filter bank for overall structural integrity and bypass possibilities with special attention to filter and door gaskets as well as spacers.
- Inspect clips and filter hardware making note of any deficiencies. Replace/repair as needed.
- Remove all tags and locks if applicable. Restart unit.
- Validate system efficiency.
- Sign and date service card/maintenance record if one is at the unit.
- If the service card is unavailable replacement date should be recorded on the filter.
- Sign off work permit if required.
- Complete all necessary paperwork.
- Notify Operations staff upon completion of the work.
- Remove all garbage to disposal bins or remove from site.

Installation, Operation & Maintenance

The following identifies some of the more important factors to consider when installing, operating and maintaining an HVAC Filtration system. As a supplement to manufacturers' guidelines, see NAFA's Installation, Operation and Maintenance of Air Filtration Systems manual or consult a NAFA CAFS.

Installation of Filters & System Integrity

Maintaining integrity of the filter system is vital for the efficacy of the HVAC system and imperative for air filtration performance as unfiltered air bypass is a key contributor to poor IAQ.

A positively sealed filtration system will prevent unfiltered air bypass, maintain system pressure, and provide consistent filtration system efficiency. After each filter installation, the system must be checked to ensure that there are no possible leaks around the filters. This includes filter frames, fastening devices, caulking and gaskets.

NAFA recommends having a NAFA Certified Air Filtration Specialist (CAFS) inspect the installation for system integrity at least annually.

When changing or modifying the model or design of a filter system consult the manufacturer's specifications of the air handling system. Consideration must be given for:

- Size
- Fit
- Media area
- Airflow rate
- Initial and final pressure drop of the new filter system

Maintenance

A preventive maintenance program should include a monthly inspection of the filtration system. Use the following checklist as a starting point:

- ☐ Filters
- ☐ Filter hardware
- ☐ Fastening devices
- ☐ Caulking
- ☐ Gaskets
- ☐ Ductwork

Removing and replacing damaged or defective filters, filter hardware, gaskets, and duct insulation will keep unfiltered air from bypassing the filter system. Keeping the coils and fans clean and free from dirt and debris will improve airflow, increase system efficiency, reduce electrical consumption, and maintain overall design performance. Scheduled filter maintenance will keep the HVAC system working efficiently, providing clean, conditioned air and a reduction in contaminant levels.

Additional information regarding maintenance of HVAC and filter systems may be found in the ANSI/ASHRAE/ACCA Standard 180, "Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems."

Installation, Operation & Maintenance

(continued)

Monitoring of Airflow and Pressure Drop

As a filter loads with contaminants the resistance to air flow through the filter increases. This increase is referred to as “pressure drop” or “differential pressure.”

As an example, in a draw-through system, as the filters load and the resistance increases, the fan pressure is lower on the downstream side. Hence the pressure “drop” downstream of the filters.

This drop or differential can be measured with a pressure sensing device such as a manometer or magnehelic gauge. All HVAC units should have a pressure-sensing device installed to accurately monitor the pressure drop across the filter bank. In extreme temperature conditions, a magnehelic gauge is recommended over a manometer. When a filter has exceeded its useful life based on pressure drop or Life Cycle Costing, it should be replaced. Leaving a filter in service after this point may increase operational and energy costs and could damage the HVAC system.

Most molecular filters, over time, will not increase in pressure drop. Some particulate media, when impregnated with sorbent, could increase in pressure drop. This is not indicative of the service life of the sorbent. Service life of a molecular filter is a function of types and concentration of contaminants and filter design. Most manufacturers offer testing services to determine remaining filter service life. It is important to note that as the media life decreases, so does the efficiency of the molecular filter. Molecular filters are often recommended for change out before media is 100% spent.

Particulate filters should be assumed to be contaminated with viable organisms, possibly hazardous in nature, and need to be disposed of in a careful and safe manner protecting the HVAC equipment, building occupants, and especially, the technicians performing the work. Spent carbon in molecular filters may sometimes be returned to the manufacturer for reactivation. NAFA recommends that technicians performing the work be certified to NAFA Certified Technicians (NCT) standards.

Disposal

Particulate filters should be assumed to be contaminated with viable organisms, possibly hazardous in nature, and need to be disposed of in a careful and safe manner protecting the HVAC equipment, building occupants, and especially, the technicians performing the work. Spent carbon in molecular filters may sometimes be returned to the manufacturer for reactivation. NAFA recommends that technicians performing the work be certified to NAFA Certified Technicians (NCT) standards.

Supplemental Technician Training

- HVAC systems
- Ladder safety
- Confined space entry
- Risk management
- Shut down procedures
- Lock-out procedures



The use of specialized procurement devices (pictured above) should be used for safely adding, and removing product from difficult access points, such as a roof.

Installation, Operation & Maintenance

(continued)

Certification

The service of air filtration products is becoming more technical requiring specialized Knowledge and skills. It is for this reason that NAFA introduced the Certified Technician (NCT) Program in 1999 to increase expertise and professionalism to the air filtration industry. The NCT enables facility managers and building owners the opportunity to certify their employees on all aspects of filtration service and Indoor Air Quality.



For additional information visit the NAFA website: www.nafahq.org or contact a local NAFA member.

**You care about your residents and employees.
You care about the environment and your community.
You care about the fiscal health of your institution.
Indoor air quality matters.**

COSTS OF POOR AIR QUALITY

Lost productivity
Decreased Health
Increased absenteeism
Increased Equipment Maintenance/Replacement
Increased Energy

BENEFITS OF IMPROVED AIR QUALITY

Reduced absenteeism
Increased productivity
Improved health, wellness and satisfaction

COVID-19 Special Section

KEY RECOMMENDATIONS FOR YOUR HVAC SYSTEM

- Run the HVAC whenever the space is occupied.
- Direct the clean/cleaned air into the breathing zone in each occupied space.
- Return air vents should pull air from the room and not directly from the clean air inlet.
- Maintain temperature and humidity design set points.
- Set the HVAC system to bring in as much outside ventilation air as possible.

KEY RECOMMENDATIONS FOR FILTER MAINTENANCE

- To achieve the recommended MERV 13-equivalent or better levels of performance (which removes $\geq 85\%$ of $1-3\ \mu\text{m}$ particles), a combination of filters/air cleaners can be used.
- Use only air cleaners for which evidence of effectiveness and safety is clear.
- When upgrading filters, carefully monitor to ensure your current system can handle the upgrade (e.g. pressure drop).
- Upgrading both pre-filters and filters may cause unacceptable pressure drop. It may not be necessary to upgrade both.
- Consider using the AHAM Clean Air Delivery Rate (CADR) for sizing air-cleaners for your space
- Confirm filters are sealed in their frames, preferably with gaskets to prevent filter bypass.
- Personnel changing filters should wear PPE. Dispose of spent filters immediately and in a safe manner.

DID YOU KNOW?

Studies with SARS CoV-1 have shown that toilet flushing can generate airborne droplets and aerosols that could contribute to transmission of pathogens. Remember to:

- Keep toilet room doors closed, even when not in use.
- Encourage putting the toilet seat lid down, if there is one, before flushing.
- Keep bathroom fans running continuously and vent separately, where possible.

Bibliography

Installation, Operation, and Maintenance of Air Filtration Systems, National Air Filtration Association Sheet Metal Air Conditioning Contractors National Association (SMACNA) publication, “IAQ Guidelines for Occupied Buildings Under Construction” 601 N. Fairfax Street, Suite 250, Alexandria, VA 22314

NAFA Guide to Air Filtration, 5th edition, 2014

Copyright & Usage

As a global source for expertise, education & best practices in air filtration, we provide these guidelines with one important goal in mind: **To support best practices and ensure the cleanest air possible for our employees, our customers, and our community.** While the information provided is the property of NAFA and is protected by copyright and intellectual property laws, we strongly encourage the use and dissemination of this information - in print or electronically - to those within our industry.

These guidelines were created through the hard work and care of experts in the industry... your peers. By reading these guidelines you agree not to reproduce, broadcast, or otherwise distribute the information within these guidelines for commercial purposes without the prior written consent of NAFA. If such permissions are granted, you also agree to include in any printed/electronic uses the phrase, "Used with permission of The National Air Filtration Association®."

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Disclaimer

The information contained in this guideline is intended for reference purposes only. NAFA has used its best efforts to assure the accuracy of information and industry practices. NAFA encourages the user to work with a NAFA Certified Air Filter Specialist (CAFS), to ensure that these guidelines address user specific equipment and facility needs. Issues regarding health information, including COVID- 19, may be superseded by new developments in the field of industrial hygiene or by new information revealed by experts in science/ medicine. Users are therefore advised to regard these recommendations as general guidelines and to determine whether new information is available.

Send questions to: nafa@nafahq.org