Importance of Air Filters

The Front Lines to Achieve Better Air Quality

School Heating, Ventilation and Air Conditioning (HVAC) equipment requires regular maintenance – work that has surged in importance given the COVID-19 pandemic.

As air moves through centralized or room-based HVAC systems, filters are the front lines to trap large-to-small contaminants – dust, allergens, virus-causing microorganisms – that recirculate internally or come into the systems from outdoors. In addition to improved indoor air quality, filters help HVAC equipment run more efficiently to avoid potential costly repairs.[4]

Filters carry a Minimum Efficiency Reporting Value (MERV) measure rating to show how effectively they remove and prevent contaminants from entering the air stream. MERV is based on American National Standards Institute (ANSI) and American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards.[1,2,3]

Capture the maximum amount of airborne viruses with the right filters

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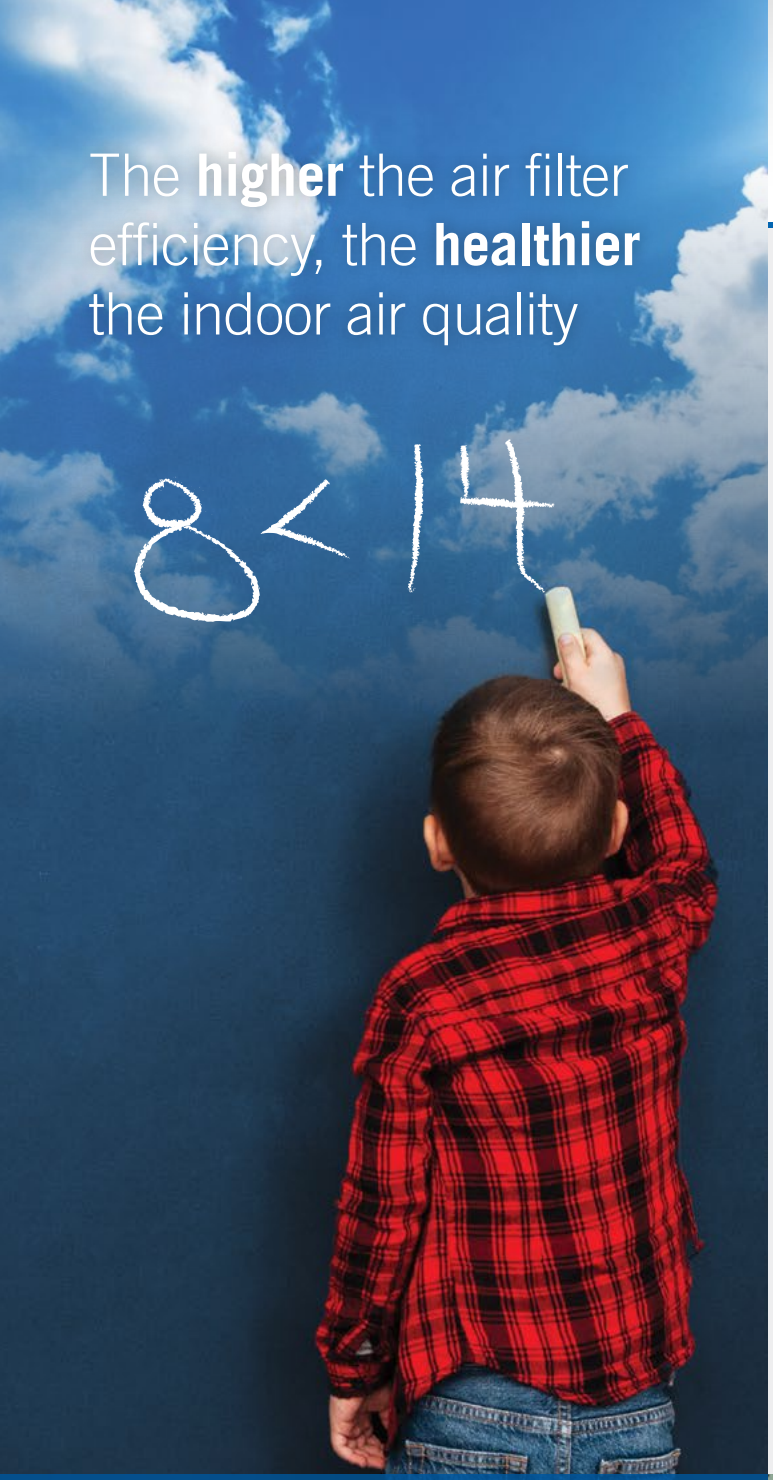
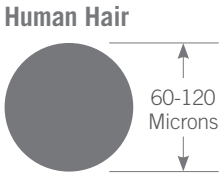
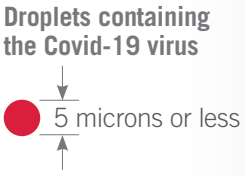


MERV FILTER ESSENTIALS

- The higher the air filter efficiency, the healthier the indoor air quality and better protection from airborne contaminants and disease.[1]
- Filters with a rating of at least MERV 13 are now recommended for use in school HVAC systems **if those filters do not affect system operation**, according to a growing consensus of experts – EPA, NAFA, and ASHRAE among them.[2,6]
- Research indicates MERV 13 filters are at least 85% effective at capturing SARS COVID-19-sized virus particles and the respiratory drops on which they travel; MERV 14 filters are at least 90% effective at capturing those same particles and are ASHRAE's preferred filters for schools.[3]
- MERV-rated filters play a key role in daily multi-hour purge cycles, where facilities are flushed out with clean air pre- and post-school occupancy.[3,4]
- A proper filter should be obtained and changed on a routine basis based on HVAC system guidelines, filter maker recommendations, as well as NAFA and EPA practices.[5]
- Filters that carry MERV ratings above what is recommended by HVAC manufacturers can reduce system performance.[6]
- In addition to using the highest-rated filters for a given system, cleaning evaporator coils, fans and other major HVAC components are all recommended as short-term measures for schools.[7,8]
- Replacing aging, outdated or inadequate HVAC systems may be an optimal solution to achieve clean air, a healthy, comfortable environment and the best learning experience for all.[8]

MERV FILTER EFFICIENCY





Efficiency Rating	MERV 8	MERV 11-12	MERV 13-15	MERV 16	HEPA Filter
Particle Size	3-10 microns	1-3 microns	0.3-1.0 microns	0.3-1.0 microns	0.3 microns
Particle Type	dust, pollen	lead dust, vehicle emissions	smoke, exhalation droplets	smoke, exhalation droplets	bacteria, viruses
Effectiveness of capturing air borne viruses					
Filter Efficiency	20%	65 - 80%	85 - 90%	95%	99.97 - 99.9995%

FDA Minimum

ASHRAE Preferred Filters (MERV 14)

Filters that carry MERV ratings above what is recommended by HVAC manufacturers can reduce system performance.

HOW EFFECTIVE IS YOUR SYSTEM?

MVP: The Modine ViewPoint

Modine wants every student to do their best everyday – to live, laugh, and learn in comfortable, clean, healthy environments. Air quality is central to that opportunity in our schools – now more than ever.

Modine understands this and is equipped to respond to your air quality challenges. We recognize you want the healthiest learning environment, the safest educational institution, and the highest-performing school community. We will help you gain the maximum benefit that improved air quality and control systems can play in achieving those outcomes.

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From single classrooms to campus environments, Modine delivers smart, flexible solutions. Working in schools for over 90 years, Modine is a trusted leader for Heat, Ventilation and Air Conditioning (HVAC) systems in educational institutions. Modine's legacy is your leverage. Modine's innovations, ideas and ingenuity will resolve your school air system quality control and ventilation challenges today – and tomorrow.

Modine – a leader in school solutions for 90 years.

For additional resources, visit **https://ventilationforclassrooms.com**

Sources

1 American Society of Heating, Refrigerating and Air-Conditioning Engineers. "Reopening of Schools and Universities.
2 "U.S. Environmental Protection Agency." Reference Guide for Indoor Air Quality in Schools
3 Centers for Disease Control and Prevention. "CDC Ventilation in Buildings: Summary of Recent Changes."
4 U.S. Environmental Protection Agency. "What is MERV Rating?" EPA
5 American Society of Heating, Refrigerating and Air-Conditioning Engineers. "ASHRAE Epidemic Task Force Schools and Universities."
6 National Air Filtration Association. "Guidelines: Recommended Practices for Filtration for Schools."
7 American Society of Heating, Refrigerating and Air-Conditioning Engineers. "Filtration and Disinfection FAQ."
8 Learning Policy Institute. "The Air We Breathe: Why Good HVAC Systems Are an Essential Resource for Our Students and School Staff."

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Modine Manufacturing Company
1500 DeKoven Avenue
Racine, Wisconsin 53403-2552

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