



GRAND AIR
Heating & Cooling

Servicing the Heart of Sun City

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ROC# 291340

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Trends & Developments

Air Flow- Is Your System Suffocating?

Heating and cooling systems must have good air flow in order to maximize the longevity of its moving parts and operate efficiently. A system will fail pre-maturely from extensive wear and tear if the indoor evaporator coil is burdened with dirt and debris. Improper airflow increases the rate and cost of repairs to the system and leads to higher electricity bills. The National Air Filtration Association (NAFA) agrees that **replacing** dirty air filters **often**¹ is the best thing a homeowner can do to ensure their system is not “suffocating.”¹ If it has been sometime since your system’s air filter was changed, consider scheduling a coil cleaning to debride the system.



Figure 1: Dirty Air Coil

Regular replacement of the system’s air filter can also improve the air quality in your home. According to the U.S. EPA, the air inside your home can be 2 to 5 times worse than the air outside.² This is why proper air filtration or air purifiers are sought by millions of customers annually. However, many choose a filtration system that may be too restrictive for their heating

¹ National Air Filtration Association RSES Conference Presentation 2014

² United States EPA “Healthy Indoor Environment Protocols for Home Energy Upgrades” Protocols 2011

and cooling system. The NAFA recommends when choosing an air filter, look for ways that reduces particulates in your home without restricting the air flow to your system.³

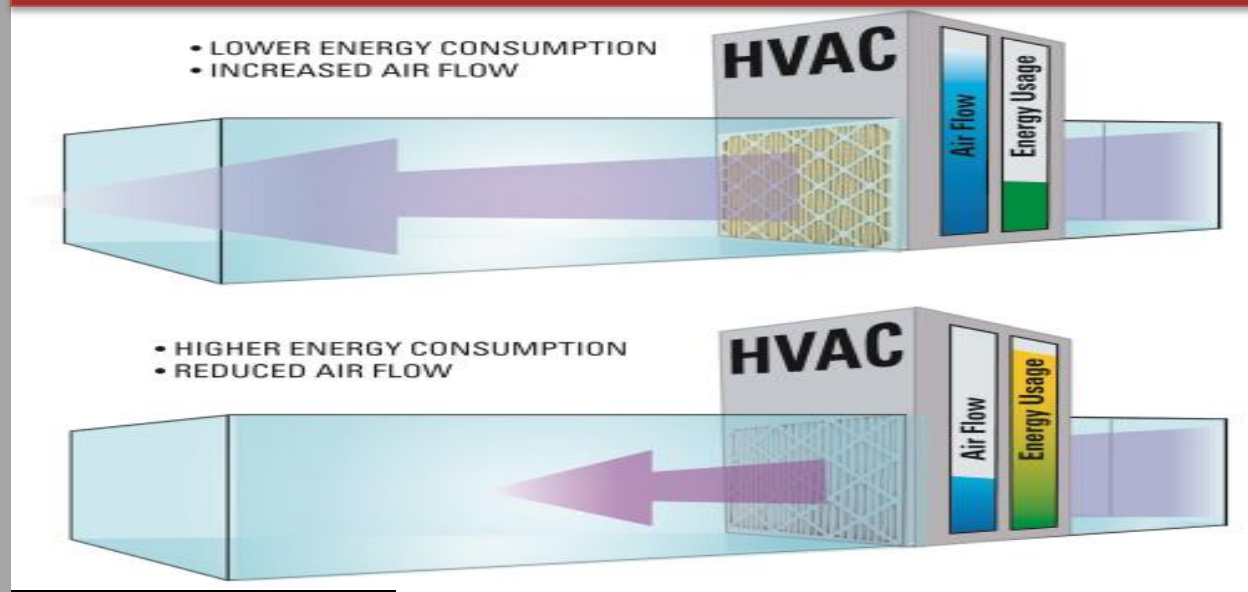
MERV Scale

All air filters have a standard Minimum Efficiency Reporting Value (MERV) rating from 1-16 (Appendix A). The higher the MERV rating, the better the filter is at trapping small particulates from passing through. MERV ratings were created by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) organization, founded in 1894, to rate the effectiveness of air filters. Ron Wilkinson, an ASHRAE Distinguished Lecturer and an AIA Continuing Education provider, acknowledges that the scale ‘represents a quantum leap in the precision and accuracy of air-cleaner ratings’ and allows for improved health, reduced cost and energy efficiency in HVAC design.⁴

Increasing Energy Efficiency and Reducing Cost

It is important to remember that heating and cooling systems need proper air flow. According to ASHRAE, “with a lower pressure drop filter, the HVAC system motor needs to overcome less resistance to deliver the required airflow, thus reducing the motor’s energy consumption.”⁵ By using a higher MERV rating air filter, you may be restricting the amount of air the system is pulling across the coil during operation; potentially causing the system to fail. If a higher rated air filter is desired, have a licensed contractor evaluate the system prior to installation to ensure your system is able to “breathe” properly.

Figure 2: Air Flow and Energy Usage Dependency



³ National Air Filtration Association RSES Conference Presentation 2014.

⁴ Wilkinson, Ron. "Air Filters: New Facilities, New Standard". Retrieved 2014-11-01.

⁵ Arnold, D., Matela, D., and Veek, A. ASHRAE Member Publication-“Life-Cycle Costing Of Air Filtration;” 2005.

Improving Indoor Air Quality with Air Filtration:

Reusable Filters

- Many systems come with a washable type of filter. These will usually be made of foam and carry a MERV rating of 1 to 4.

Disposable Filters

- Fiberglass filters are generally inexpensive and can be purchased with a MERV rating from 1 to 4.
- Pleated filters are able to capture more particles due to its larger surface area and can be found with MERV ratings from 5 to 8.
- Allergy filters are commonly found at the higher end of the MERV rating scale.
 - Electrostatic filters are made of advanced materials which set up a static electrical charge to capture smaller particles.
 - Antimicrobial filters prevent organisms from living on the filter when they are trapped.
 - High Efficiency Particulate Air (HEPA) filters are designed to capture the tiniest particulates from the air. These filters are typically expensive and carry the highest MERV ratings.



Using the right air filter is only part of the solution. Filters must be replaced/ cleaned to ensure suitable air flow is achieved in the system. Grand Air recommends its customers **replace air filters every 30 days for best results.**

For more on how Grand Air can help keep your system operational, call us at (623) 299-7000 or alternately, contact us at info@grandairaz.com and www.grandairaz.com.

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What are MERV ratings?

MERV is Minimum Efficiency Reporting Value.

Every furnace filter has a **MERV** rating, which measures how efficiently the filter captures particles of specific sizes that pass through it as your furnace operates.



MERV ratings range from 1 (least efficient) to 16 (extremely efficient).

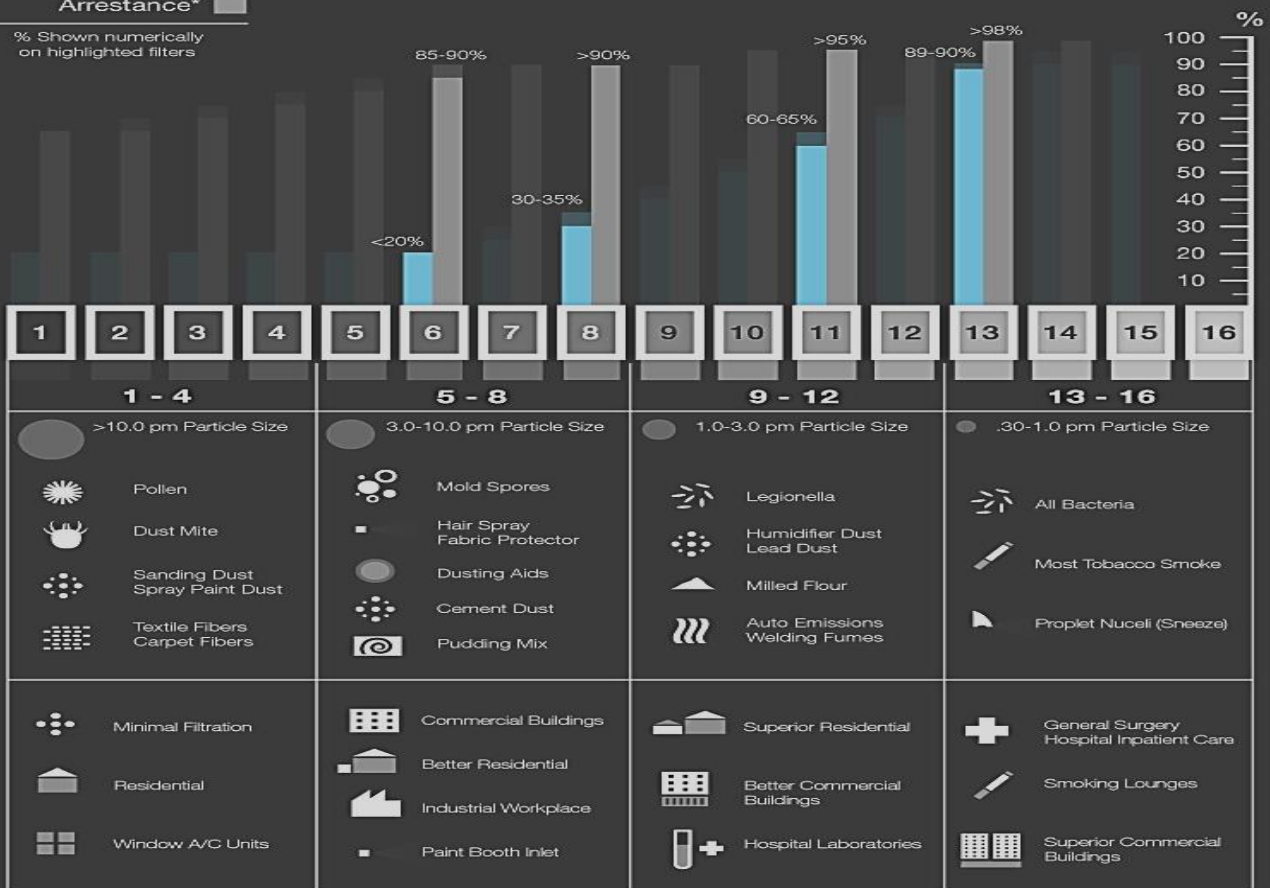


Up to a point, a higher **MERV** rating means a better filter, but filters with very high **MERV** ratings, which capture extremely small particles, tend to be pricey and are probably a smart investment only for people with allergy problems and for commercial applications where, for instance, electronic equipment must be protected from small particles of dust.

We offer filters with MERV ratings of 6, 8, 11 and 13, which is the range of ratings that will cover the needs of most homes, providing clean, healthy air and protecting your HVAC equipment.

Dust Spot Efficiency* ■
Arrestance* ■

% Shown numerically on highlighted filters



*Dust Spot Efficiency

A measure (expressed in percent) of the ability of a filter to remove atmospheric dust from air.

*Arrestance

The ability of a filter to remove injected standard dust from the test air. It is calculated as a % relationship on a weight basis.