



# FilterTalk

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Indoor air quality (IAQ) is a critical component of providing a healthy and comfortable learning environment.

•US Environmental Protection Agency

"We saw a significant decrease in absenteeism rates of children, especially for a child with severe asthma, since we completed the IAQ upgrades."

•Priscilla Santiago School Nurse

Poor air quality can affect children's desire and ability to learn and can cause them to miss valuable days of school.

•National Safety Council



## BACK TO SCHOOL

### MANY SCHOOLS RECEIVE LOW GRADES FOR INDOOR AIR QUALITY

Students are back in school gaining the education that will last them a lifetime. Teachers and parents strive to provide students the best learning environment possible. Some obvious distractions to learning include environmental noise, security, and comfort. Survey results have found room temperature to be the greatest comfort complaint, followed by indoor air quality (IAQ) complaints.

Condition	% of Schools	# of Schools	# of Students
Lighting	15.6	12,200	6,682,000
Heating	18.9	15,000	7,888,000
Ventilation	27.1	21,100	11,559,000
Indoor Air Quality	19.2	15,000	8,353,000
Noise Control	28.1	21,900	11,044,000
Physical Security	24.2	18,900	10,638,000

U.S. GAO Identified Unsatisfactory and very Unsatisfactory School Environmental Conditions

#### Outdoor Pollution Sources

Pollutants that enter the classroom are generated both internally and externally. Outdoor pollutants include the combustion products resulting from school bus and automotive exhaust fumes entering through the air intakes and becoming trapped in the building envelop. Teachers and students can also bring pollen and allergens, such as pet dander and dust mists, into the classroom on their skin and clothing. Molds, pollen allergens, and other bioaerosols are also potential irritants that enter the learning environment.

#### Internal Pollution Sources

Building structure and design materials (such as paints, carpet and wood adhesives, furniture and decorative items) contain volatile organic compounds commonly referred to as VOCs. These irritants and potentially harmful chemical compounds are also found in the classroom in cleaning chemicals, pesticides, paints for art, printers, and many other small sources. Without adequate ventilation and filtration indoor VOC concentrations can accumulate several times higher than comparative outdoor levels.

Indoor biological pollutants include molds, fungi, bugs, mites, kitchen odors, and the extremely high particulate and molecular (gaseous) generation caused by human activity. HVAC systems that are not properly maintained and cleaned can also be a source of indoor pollutants.

#### Results Of Air Quality Problems In Schools

Poor air quality in schools has the same effect as poor air quality in office buildings, factories, airports, or any other indoor environment where people congregate. Inadequate ventilation and air filtration can lead to burning eyes, coughing, dry itchy skin, sneezing, and lethargy. Many students and teachers get hit extra hard during the spring and fall when seasonal allergens and pollens are at their peak. Poor air quality can lead to increased absenteeism, distraction from task, and discomfort. Airborne particulate has been implicated in a number of health effects, primarily respiratory and cardiac. Bioaerosols from molds and fungi can induce an immune response capable of causing illness at very low exposure levels.

As with adults not all students are affected the same when exposed to poor air quality. However, the learning environment is still compromised if just one student has a negative reaction to airborne irritants that student will be distracted as may other students.



#### Raising Air Quality Levels

There is considerable data and reference material to address capturing both particulate and molecular airborne pollutants from the occupied environment. Many schools still use low efficiency fiberglass disposable filters or polyester pads in their primary HVAC units offering no IAQ benefits. MERV 13 and higher (ASHRAE Std. 52.2) high efficiency air filters are now affordable and can be very effective in the removal of allergens, airborne dust and irritants.

Filtration Group has a wide selection of high efficiency filters that can improve the air quality in our kid's schools and help them get the best education possible.

### click...click...boom

If you haven't visited our new and improved website lately take a few minutes and check it out at [www.filtrationgroup.com](http://www.filtrationgroup.com). You will be able to access our product sales and technical data, including submittal drawings and brochures on the AeroStar®, Filtrair®, and Power-Systems product lines. The website is constantly being updated, and as we develop new products and services you can find the information you need there first.





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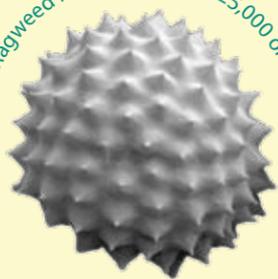
## GOT A QUESTION FOR US?

Q. What is the size of airborne pollen, and how hard is it to capture?

A. Pollen grains come in a wide range of shapes and sizes, they can be anywhere from 2 microns to 250 microns in size, most are between 24-50 microns. For reference, particles that are considered visible to the naked eye are 100 microns or larger. Pollen grains can be present in the air as individual particles or as loose conglomerates of particles due to the sticky oils that are present on the shells of some varieties.

Many of these pollen grains are large enough that they will settle out of an airstream rather quickly (witness the yellow film on your car or windows during pollen season!). Because of their relatively large size, pollen grains can be readily and easily removed by an efficient particle filter. Focus on the filtration efficiency in Range 3 of ASHRAE Standard 52.2 (3.0-10.0 microns) and generally you can expect to achieve equal to or better performance for most pollen grains.

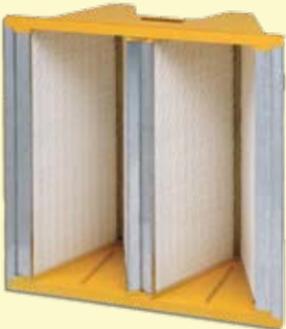
*Spikey Ragweed Pollen is about 1/25,000 of an inch*



For expanded information on this topic contact us at: [filtertalk@filtrationgroup.com](mailto:filtertalk@filtrationgroup.com)

## Product Spotlight: One Tough Customer

**titanFP**



Filtration Group's Titan FP was designed from conception to be extremely rugged and durable during the entire life cycle. We could have used lower grade construction materials, but chose to use a premium grade high impact plastic frame and thick galvanized steel interlocking struts to create a light weight but super-strong industrial filter. The Titan also has a patented handle (US Patent # 6,955,696) to ease handling and installation that the Titan knock-offs can not offer.

FGL designed and marketed the first 4-V and 2-V high efficiency mini-pleat filters in the US. Try it once and you will see why the Titan is the best selling 2-V in the country. The Titan is available in MERV 11, 13 and 14 efficiencies.

## IAQ IN CEDARBURG SCHOOLS GETS AN **A+**

Parkview and Thorson elementary schools in Cedarburg, Wisconsin are known for high academic performance. Student achievement is attributable to great teachers, involved parents and John Koster. John is the Director of Maintenance and Facilities at those schools and he takes Indoor Air Quality (IAQ) very seriously. Studies show that children are more likely to excel in a learning environment that has clean and well ventilated air that is free from airborne allergens, particles and irritants.



John recently installed UV lighting to keep coils and duct work free from molds and microbial growth, and now John wants to continue maximizing the air quality and system efficiency. Working with Mike Perinovic of Filtration Concepts in Lannon, WI the decision was made to upgrade the HVAC system by installing AeroStar® FP MERV 13 high efficiency air filters. Both schools have air handlers with variable frequency drives which will adjust to the ultra low resistance to air flow of the FP, substantially reducing energy consumption and associated costs.

The air passing through the HVAC system and entering the "learning environment" of Parkview and Thorson schools is now virtually free of allergens, most airborne particulate, pollens, and other irritants. The air quality exiting the HVAC units of these two twin schools rivals that of many hospital operating rooms.

Not only did John maximize the air quality, he lowered energy costs as well. Replacing the current traditional ASHRAE box filters with the MERV 13 FP lowered the pressure drop across the filter bank by .20" w.g., resulting in an annual energy savings per school of \$815. The high efficiency FP will further keep coils, ductwork, and registers extremely clean and at peak operating efficiency.



*Parkview and Thorson elementary schools installs the AeroStar® FP MERV 13 high efficiency air filters.*

Students and teachers have enough issues to worry about each day. And thanks to caring and progressive guys like John Koster, Indoor Air Quality won't be one of them.



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