



# AmericanAirFilter®

## case study

### Healthcare

## Hospital Filtration Survey Results in Improved Air Quality Upgrade with MEGAcel™ I Filters

### *Customer Profile*

- 595 Bed Hospital System
- 3 Separate Campuses
- One of the Nation's Top Cardiovascular Hospitals

### *Current Filtration Situation*

A long time AmericanAirFilter® customer had been utilizing AAF® products at two of its three hospital campuses for several years. The third campus came on board with AAF in 2009. Final filters used in the hospitals consisted of DriPak® bags, VariCel® I, and VariCel M-Pak filters, as well as limited HEPA filters employed in a new surgical suite.

Expressing the need to improve Indoor Air Quality (IAQ) in critical areas, the hospital relied on AAF's years of quality service to demonstrate the advantages of upgrading its final filters. With the understanding that hospital related infections can cause significant economic consequences to any healthcare facility, AAF was prepared to offer practical solutions for the hospital system.

### *Technical Situation*

The hospital system had a variety of air handling units (AHUs) ranging from two to 30 years of service. An AAF sales representative performed an Air Filtration System Survey revealing the need for improvements, particularly in the older AHUs.

### *The AAF Solution*

To help the hospital system make the best decision for its needs, AAF presented a good, better, and best solution for consideration:

#### **Good:**

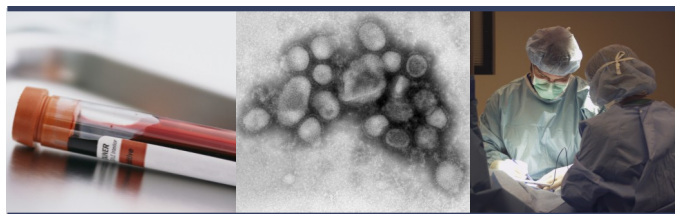
Continue using MERV 14 VariCel M-Pak filters and upgrade where applicable. Upgrade filter racks where needed and inspect/replace gasketing and latches to ensure bypass is kept to a minimum. This solution offered the least cost with slightly better IAQ levels than before.

#### **Better:**

Upgrade all final filters and filter racks to MERV 15 VariCel VXL filters. When compared to the VariCel M-Pak filters, this option demonstrated an energy cost savings, and improves the efficiency rating of all final filters one level. Additionally, this option provided a longer filter life cycle and improved airflow.

#### **Best:**

Upgrade final filters to AAF's MEGAcel™ I HEPA filter with Helior™ media. Traditional HEPA filters provide a much higher airflow resistance and would not typically be used without a costly upgrade to the AHUs. The MEGAcel I filter, however, provided the hospital with an option that was untraditional—HEPA filtration with the lowest possible resistance! This option gave the hospital optimal IAQ levels and energy savings as an added benefit.



National costs for Healthcare-associated Infections (HAI) range from \$28.4 to \$45.0 billion each year. HAIs account for an estimated 1.7 million infections and 99,000 associated deaths each year. Possible infection control interventions could save from a low of \$5.7 to a high of \$31.5 billion according to a Center for Disease Control (CDC) study.<sup>1</sup>

## Upgrade Benefits

AAF worked with the hospital system to provide options that would not just satisfy its IAQ needs, but also satisfy its budgetary requirements. Ultimately, the hospital system decided to upgrade all three campuses to AAF's MEGAcel I HEPA filters for the critical areas of the hospitals (ER, Surgery, ECU, etc.). MEGAcel I HEPA filters meet the demanding airflow and efficiency requirements of critical applications in which airborne contaminants must be carefully controlled.

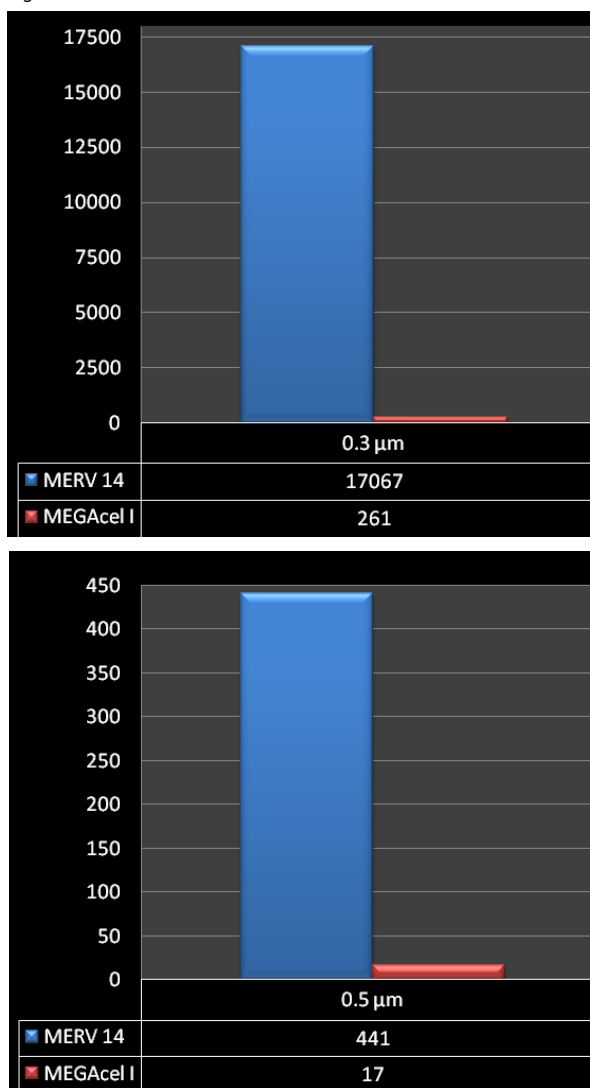
Once the MEGAcel I filters were installed, a particle count test was conducted in the AHU system. This test measured the amount of particulates in the system upstream and downstream from the newly installed MEGAcel I filters compared to the MERV 14 filter particle count results. The results verified the dramatic improvement to the hospital's air quality (Figure 1).

The hospital system also decided to upgrade patient care and non-critical areas to AAF's VariCel VXL filters. PerfectPleat® HC M8 filters were utilized as prefilters. The hospital system now has substantial validation that it is providing the best Air Quality achievable for its patients and staff.

DriPak® is a registered trademark of AAF-McQuay Inc. in the U.S., Brazil, and Venezuela. PerfectPleat® is registered trademark of AAF-McQuay Inc. in the U.S. and Canada.

## Particle Count by Particle Size—Downstream Reading MERV 14 vs. MEGAcel I Filters

Figure 1



Exposure to submicron particulate matter poses health risks to humans. An individual virus particle ranges in size from 0.005 to 0.1 micron; however, viruses generally only survive in the air as part of larger particles (0.3 micron or larger), for example, attached to proplet nuclei. Because of the particle collection mechanisms of HEPA filters, particles larger and smaller than a filter's most penetrating size are collected with greater efficiency.

<sup>1</sup> "The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention". Author R. Douglas Scott II, Economist Division of Healthcare Quality Promotion National Center for Preparedness, Detection, and Control of Infectious Diseases Coordinating Center for Infectious Diseases Centers for Disease Control and Prevention, March 2009.