

EVENT CENTERS

THE CAMFIL HI-FLO ES® MERV 13A POCKET FILTER DELIVERED HIGH INDOOR AIR QUALITY WHILE DRAMATICALLY LOWERING MAINTENANCE EXPENSE

COMPANY PROFILE

Music City Center is located in the heart of downtown Nashville, TN. The 2.5 million square foot facility has hosted countless high profile events and is a popular venue for industry exhibitions, art shows and concerts.

THE SITUATION

Three years ago, when the current air filtration contract was near its end, the Director of Engineering, Terry McConnell, set out to ensure he had the best air filter solution for his facility. This decision was pre-COVID and in retrospect, proved to be a very wise course of action. Adam Wiggins, Branch Manager for Camfil in Nashville, responded to the RFQ with a proposal to carefully survey the facility and tap into the technical expertise a global air filtration manufacturer like Camfil has to offer in order to determine the optimal solution.

THE ACTION

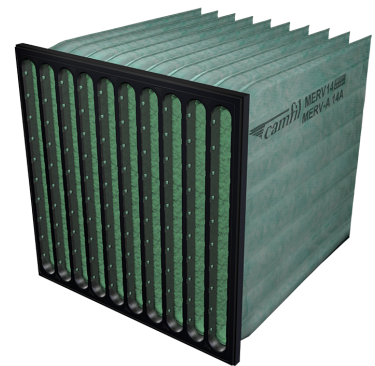
The survey revealed many of the air handling units were configured as two-stage systems with a low efficiency pleat as a prefilter and MERV 13 box style rigid as the final filter. While this is a popular solution, it represents older technology. Camfil's award winning Hi-Flo ES pocket filter was specifically engineered to operate by itself without a prefilter. The higher surface area of a pocket filter with no prefilter, significantly lowers system pressure drop and results in less energy use.

Previously, the pleated prefilters were changed several times per year based around events and the rigid box filters were changed annually. However, the Camfil Hi-Flo ES comes with a one year service-life guarantee and as a single filter solution, lessens the time required to change filters. This frees up the maintenance staff to complete other projects.

The MERV 13 Hi-Flo ES tests as a MERV 13A according to ASHRAE 52.2-2017 with Appendix J. This means the MERV 13 particle capture efficiency is maintained throughout the service life of the filter which is a critical risk mitigation strategy when protecting against COVID or other infectious diseases. A filter not tested to MERV 13A could lose efficiency while in-service and allow particles to pass through the filter and into the spaces occupied by guest in the facility.

THE RESULT

Despite the one year guarantee, virtually all the Hi-Flo ES MERV 13A pocket filters were able to remain in-service for the entire three year length of the contract. The Music City Center achieved a higher indoor air quality with lower maintenance and energy cost each year.

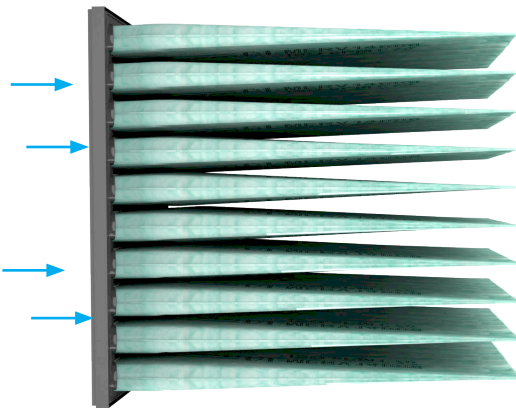


"We wanted to partner with people who are experts in air filtration. Camfil is a global organization who can put our clients minds at ease when it comes to air quality within the facility."

THE PROOF

Air is supplied to the facility primarily through 46 large air handling units with an average of 20 to 25 filter openings each. The total number of air filter openings throughout the facility is 1,048. Each opening consists of two stages of filtration. A two inch pleated MERV 8 panel as a prefilter and a 12" deep rigid box style MERV 13 as a final filter. The combined initial pressure drop of both stages averaged approximately 1.0" w.g. when first installed. The prefilters were changed as close to quarterly as the facility schedule allowed and the final filters were changed annually. The total number of air filters used in a typical year was 5,240.

Camfil was able to customize filter selection and install the most optimum Hi-Flo ES pocket depth (12", 15" or 22") based on the configuration of each unit. Initial pressure drop was recorded and a systematic follow up enacted to monitor increase in pressure drop over time. The Hi-Flo ES pocket filter comes standard with a 12 month service life guarantee and after the first year, none of the filters needed replacing. Pressure drop monitoring continued and at the end of the second year, again, none of the filters needed replacing. Monitoring continued for the third year and only 54 filters needed replacing. 994 filters were able to remain in-service supplying MERV 13A filtered air for three full years.



It's not magic, it's science. More accurately, it's engineering. The Hi-Flo ES pocket filter utilizes aerospace principals to move air through the filter with the least amount of air resistance and turbulence as possible. The carefully constructed tapered shape of the pockets allows the entire surface area of the media to be used for filtering. In addition to lowering resistance, this feature increases the service life which is why a 12-month guarantee can be confidently issued and in this case, virtually every single filter performed for three full years.

The fabric media of the Hi-Flo ES is constructed from micro-glass fibers in a high loft, air laid configuration. This produces a permanent high particle capture efficiency on sub-micron particles. Because this media does not rely on a temporary electrostatic charge that lessens when dirt and humidity buildup, Music City Center guest were protected with MERV-13A filtration level air filters for the entire three years.

The benefits of clean air on the overall experience each visiting guests has during their stay or the increase in employee satisfaction for permanent employees of Music City Center can be difficult to measure. However, the value high performance Camfil Hi-Flo ES pocket filters deliver to the bottom-line operating expenses for such a large facility can be easily calculated.

Contract Term = 3 Years

	Previous	Camfil Solution	Savings
Number of Filters Used	15,720	1,048	14,672
Landfill Space Required	821 yd ³	45 yd ³	779 yd ³
Total Filter Spend	\$375,915	\$87,436	\$288,479
Fan Energy Expense	\$515,882	\$496,994	\$18,888
Annual Maintenance Hours Required to Change Filters	436	87	349