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## Multinational Corporate Bank

A New York City based multinational investment bank and financial services company turned to HealthWay for a long term HVAC-based air quality solution that could improve indoor air quality and reduce operating costs associated with air filtration.

# CASE— STUDY



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Before: Pre-existing AHU with MERV 15 Filters

## The Challenge - Retrofit an Air Handling Unit to Improve Indoor Air Quality (IAQ) and Reduce Pressure Drop

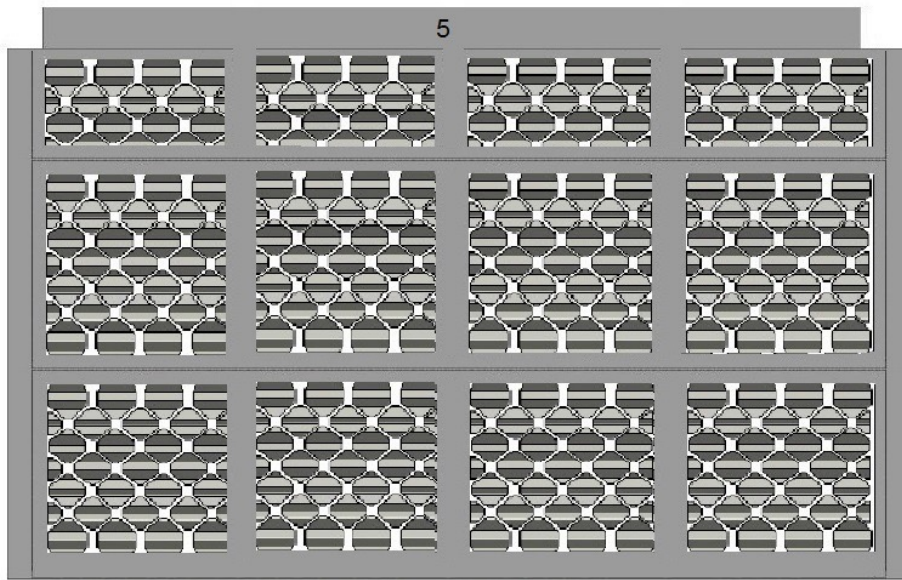
Between outdoor pollution caused by city emissions and indoor viruses and bacteria, there was a fair amount of concern. The client was focused on a few major outcomes - enhance workplace safety for employees and visitors by improving indoor air quality, find a solution that could limit energy usage and allow them to reduce their carbon footprint. Finally, they wanted to reduce operating cost and choose a solution that could be applied across their portfolio.

The client employed dozens of AHUs throughout a high-rise building in New York City. Each AHU was outfitted with a similar style MERV 15 filter array. The current mechanisms supplied filtered air to occupants throughout the building. As conventional wisdom in air filtration goes, better IAQ incurs higher pressure drop, and the challenge for us to **retrofit with alternatives that significantly improved the air quality with lower pressure drop.**

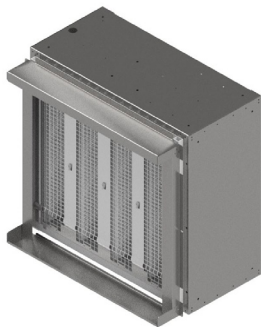
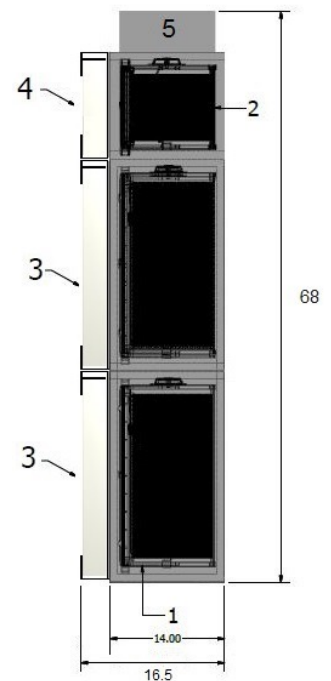
“With the HealthWay 2000IL, organizations no longer have to choose between a real IAQ solution or reducing energy costs. They get both right out of the box.”

— Alexander Frechette,  
VP of Engineering





HealthWay 2000/1000IL Modular Array Retrofit Design



## HealthWay 2000IL Module

The HealthWay® 2000IL is a scalable, modular, energy-efficient air purification solution that can be front or side-loaded to fit nearly any HVAC application.

### Technical Specs

- **Filter Efficiency:** 98% at .3 Micron\*
- **Cubic Feet Per Minute:** 2000 CFM
- **Power (Max):** 18 Watts
- **Pressure Drop:** .27"

### Materials and Dimensions

- **Unit Finish:** Unfinished Steel
- **Weight:** 48 lbs.
- **Dimensions:** 25" H x 25" W x 15" D
- **Construction:** 18-Gauge Galvanized Steel

\*Based on 3rd party lab testing data

## The Solution - HealthWay 2000 In-Line Modular Scalable Air Purification System Utilizing DFS Technology

After a complete review of the AHU, and a site survey by technicians - we proposed an inline array using our HealthWay 2000IL and 1000IL modules. This final solution included 6 of our 2000IL modules and 4 of our 1000IL modules. Here are a few notes about the installation:

- The units were shipped in two separate containers and assembled on-site. The two separate arrays were shipped on locking casters to ensure easy movement and installation.
- The main-filters contain our DFS technology which inhibits microbial growth, increases filter efficiency and has a low pressure drop.
- The pre-filters (not featured here) are easily installed within our picture-frame design system. Each is rated at MERV-8 and capture larger particulates and keep the system clean.
- Filter changes require no tools and can be completed safely in minutes.





After: HealthWay 2000/1000IL Modular Array Retrofit | Installed Array



After: HealthWay 2000/1000IL Modular Array Retrofit | Filter Lights and Pre-Filters

# Results - Summary of Outcomes after Implementation

Independent party Kistler, a Stark Tech Company, provided HealthWay and client pre and post in-situation testing to showcase performance of the HealthWay 2000IL compared to pre-existing MERV-15 filters.

	% REMOVED FROM AIRSTREAM		
	0.1 micron	0.3 micron	1.0 micron
HealthWay DFS	97.77%	95.90%	94.36%
MERV-15 Filter	58.89%	56.88%	85.02%

% Removed from Airstream | 3rd Party Field Test Data

## Improvements in Efficiency Across the Board - Energy, Particle and Pressure Drop

Kistler performed testing on the entire system which included gaskets, frames, housing and other components that make up the solution. The airstream test was performed by introducing a challenge aerosol downstream from the filters and monitored particle filtration using a calibrated probe and precision device capable of measuring down to 0.1 micron.

The installation of the HealthWay 2000IL/1000IL solution together with the Carrier AHU was inspected and verified to be clean - the inspection report concluded that gasketed seams were tight and optimal. There were many useful takeaways from the testing conducted by Kistler.

- Test results showed a 97.77% removal of the 0.1 micron particle size (the relative size of viruses like SARS).
- The differential pressure noted between test scenarios was pretty drastic. HealthWay 2000IL/1000IL solution yielded a 0.32" whereas the comparable MERV-15 test scenario yielded a .75" pressure drop.
- Based on the differential pressure difference, Kistler calculated potential energy savings to be approximately 57% over the course of 1 year.

	ENERGY SAVINGS		
	Pressure Drop	Energy Cost	% Savings
HealthWay DFS	0.32"	\$925	57%
MERV-15 Filter	0.75"	\$2162	N/A

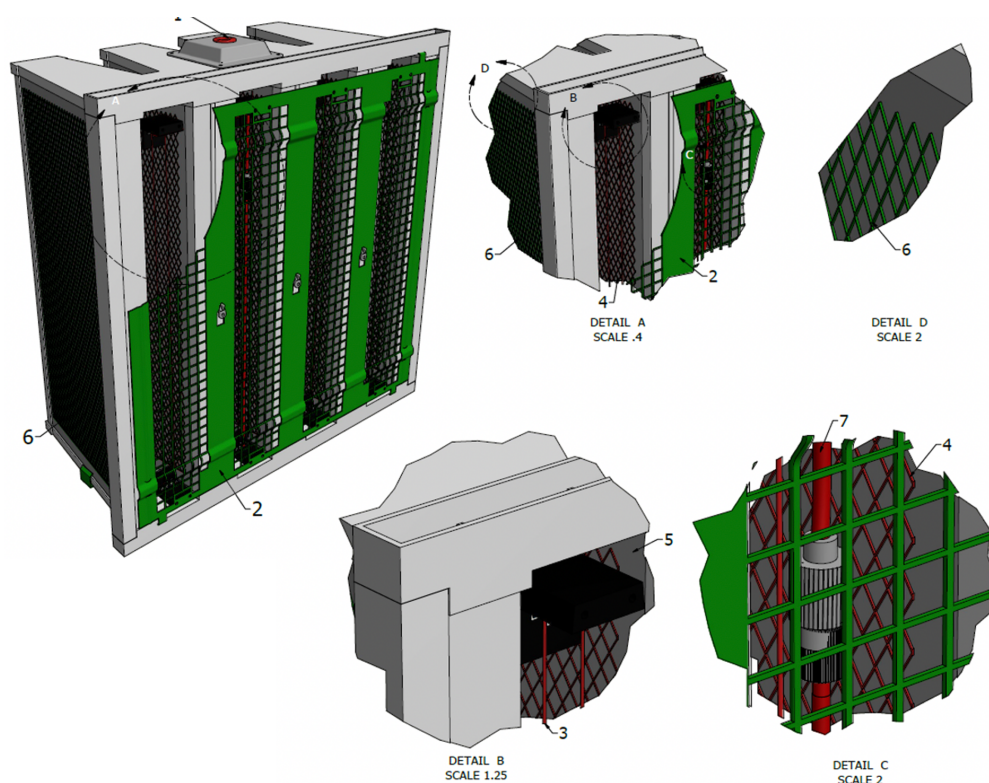
Energy Savings and Pressure Drop

It is known to IAQ experts that there are differences between field test data and lab test data, attributed to sealing and retrofitting an existing AHU/duct. For example, MERV15 in a lab test would provide greater than 85-94% removal of 0.3 to 1 micron particulates, and in the field data only 56% to 85 % removal is measured. It is important to note that the field performance of HW unit has an overall >94% removal over the 0.1 to 1 micron range.



# About HealthWay® Disinfecting Filtration System (DFS)

DFS technology utilizes a proprietary deep pleated 100% sealed filter to provide safe electrically enhanced filtration, with an ultra-low pressure drop, high efficiency of particulate removal and dust holding capacity over the life of the filter.



**DFS technology, also referred to as Electrically Enhanced Filtration (EEF) uses two mechanisms to maintain the high air cleaning performance in an air purification system:**

DFS creates a highly energized state in the main filter that aggregates or clusters ultrafine particles to make them larger, allowing the main filter to effectively capture ultrafine particles. The high energy field is controlled, and self-contained between the entry ground control grid before the main filter and a rear control grid affixed to the rear of the main filter.

The controlled, isolated high energy field generated by the DFS continually creates high energy exposure through the pleats and fibers of the main filter creating a microbiostasis ("prevention of organism growth") in the main filter, preventing live organisms from escaping back into the air.

- 01. High Energy Contact (red)
- 02. Front Ground Control Grid (green) - Detail A
- 03. High Energy Wire (red) - Detail B
- 04. High Energy Transfer Grid (Red) - Detail A, C
- 05. Filter Media - Detail B
- 06. Rear Ground Control Grid (Green) - Detail A, D
- 07. Insulation High Energy Wire (Red) - Detail C



# About HealthWay® Family of Brands



Located in Upstate NY, we're a team of experts and industry leaders reimagining the world as a better, safer place. From homes to commercial buildings, we proudly design and engineer scalable, efficient air cleaning solutions for any environment. We're at the forefront of the indoor air quality industry and we continue to develop revolutionary solutions that make a real impact.

Every single day and in everything we do – we are reimagining the world as a better, safer place through innovative air purification solutions. We are committed to being a leader in indoor environmental solutions, to never stop seeking new and improved ways to maximize efficiency, respect our environment, and ensure our indoor air is as pure as it can possibly be.



View complete lineup of solutions at [www.healthway.com](http://www.healthway.com)

# HEALTHY

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