

AmericanAirFilter® case study Healthcare

Odor Control Solutions for Nursing Home Facilities

Introduction

A 120 bed nursing home had a long history of managing odor problems associated with the care of its patients. After several attempts to fix the problem, the facility settled on several costly deodorizer systems that only masked the odors.

The use of deodorizers (also known as “air fresheners”) is not recommended to control odors due to their direct contribution to the indoor air contaminant load via the chemicals used to create the deodorizer. There are over 400 chemical ingredients (predominately volatile organic compounds) used in air fresheners sold in the U.S.¹ When deodorizers are used, these chemicals are dispersed into the indoor environment contributing to the indoor contaminant load. These chemicals could impact the health of the building occupants and visitors. This is especially true for elderly patients who may be more sensitive to respiratory irritants.

Realizing its patients quality of life was being compromised, the nursing home gave AAF the opportunity to provide a viable filtration solution to its odor predicament.



Several wall mounted aerosol deodorizers (left), and passive and aerosolized deodorizers placed within the roof top package units (right) were used in the facility. The facility spent approximately \$1,100 annually on deodorizers in an attempt to “control” malodors.

AAF Study on Odor Control

A study was conducted to subjectively assess the benefits of using gas-phase filtration within the roof-top package units serving the common areas of the 120 bed nursing home.

According to the 2007 ASHRAE Handbook - HVAC Applications, gas-phase filters such as activated carbon or potassium permanganate-impregnated activated alumina filters are effective in removing most of the malodors in recirculating air systems. AAF offers a complete line of gas-phase filtration products for the removal of odors and other gaseous contaminants for optimum indoor air quality.



In the “Guide to Choosing a Nursing Home”, prepared by the Centers for Medicare and Medicaid Services, the presence of unpleasant odors is considered a criterion for evaluating the quality of the facility.

AAF Recommends AmAir®/C Filter Solution

In lieu of the standard two inch pleated particulate filters that existed at the facility, AAF’s AmAir®/C with SAAFWeb™ technology combination air filters were used to gauge the benefits of using AAF’s gas-phase filter technology for the removal of particulates and airborne chemicals. The benefits of using AAF’s AmAir/C filters included:

- ◆ **Easy Installation** - Simple filter replacement with no change in HVAC maintenance requirements.
- ◆ **Reduced Maintenance** - No need to purchase and maintain deodorizer systems (resulting in reduced maintenance costs to offset increased costs of improved air filtration).
- ◆ **Healthier Indoor Environment** - Improved indoor air quality within the facility due to the removal of deodorizer systems which can be a significant source of indoor chemical exposures.



Photo of inadequate existing filtration (particulate only) within a typical roof-top package unit serving the facility. Insert shows dust-loaded competitor filter used.

¹ As reported by the Fragrance Materials Association of the U.S. (FMA) in response to a freedom of information request by the U.S. EPA and Sierra Club in March 2009.

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Odor Assessment

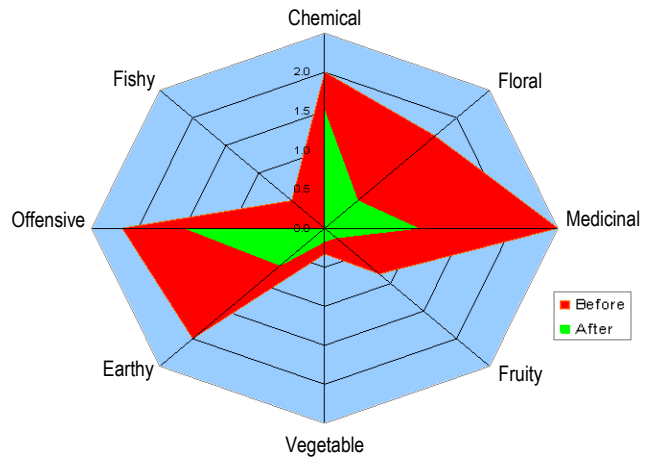
To confirm the benefits of the AmAir/C filters, a subjective odor assessment was conducted by an odor panel comprised of six individuals. The individuals were asked to complete a survey upon entering the facility before and after the AmAir/C filters were installed. An odor assessment protocol was followed to ensure the panelists were appropriate to serve on such a panel and to ensure consistent observations and reporting.



AAF's AmAir®/C filter is a combination filter with a particulate removal efficiency of *MERV 7* and the ability to remove gaseous contaminants (such as body odors) using patented SAAFWeb™ technology with activated carbon.

The summary charts below clearly show the panelists' observed benefits of using AAF's AmAir/C filters over a deodorizer program. Improvements were noted in all the survey's descriptors after the AmAir/C filters were installed.

Odor Descriptors



AAF AmAir/C Filters Successfully Reduce Odors

The results of the before and after odor assessment were very positive as the average general odor observations of the panelists indicate (Figure 1).

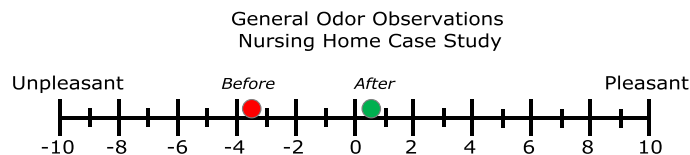
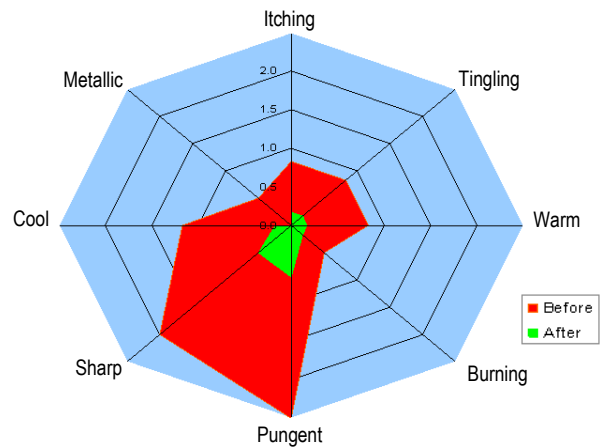


Figure 1

In addition, the radar charts on the right, represent the average of the panelists' responses to the descriptors in the odor survey. A higher number in the chart equates to a "stronger" observation by the panelists for each of the respective descriptors. As shown in the charts, improvements were observed in all sixteen of the Odor Descriptors and Sensation Descriptors after the AmAir/C filters were installed. As an added benefit, the employees who worked in the facility generally reported an improvement in the perception of the air quality within the building after the AmAir/C filters were installed.

Sensation Descriptors



AmAir® is a registered trademark of AAF-McQuay Inc. in the U.S.