



CAMERON GREAT LAKES, INC.

MOLECULAR FILTRATION SPECIALISTS



The Challenge

Maintaining a high quality of air is difficult for all building operators, however museums pose an even more challenging situation.

Museum operators are faced with the dual challenge of a healthy environment for employees and patrons, and a quality environment for the protection of valuable, irreplaceable collections.

Knowing how to provide a proper environment means understanding what problems and potential pollution sources you are up against. One must not only watch for internally generated pollutant sources, including the patrons, but must be careful of external pollutant sources. These internal pollutants include biofluents, volatile organic compounds and formaldehyde contaminants from building materials and furnishings. In new construction, the levels of contaminants generated from new furnishing or construction materials often are at elevated levels and care must be taken to keep them at a minimal level. Often times to control internal pollutants, more outside air is introduced to the space. While this might be an acceptable control measure for some buildings, for your museum it could introduce more potentially harmful contaminants that will ultimately damage your collections. In urban areas, outdoor peak levels of ozone, sulfur dioxide, nitrogen dioxide, and hydrocarbons are often 40% to 100% above allowable limits. These contaminants are often responsible for the slow degradation of valuable artifacts.

A Guide to Museum Air Quality

The Solution

To ensure that the indoor environment in museums is acceptable for both occupants and collections, molecular filtration is your best option. When selecting a molecular filtration system there are numerous options available in both types of adsorbent/chemisorbent media along with the hardware that holds the media. The best selection for your particular application will depend upon a variety of factors.

When looking into a molecular filtration system, items to be taken into consideration include physical space, ease of maintenance, types of contaminants present and concentration, temperature and humidity and the amount of air to be treated. You generally have two choices of media, a standard activated carbon or a blend of carbon and potassium permanganate. The standard activated carbon system will remove ozone, nitrogen dioxide and your higher molecular weight volatile organic compounds. These systems have been successfully used over the years and give you the benefit of regeneration. However, in instances where higher levels of formaldehyde and sulfur dioxide are suspected, your choice would be the blend of carbon and potassium permanganate. The potassium permanganate product readily reacts with the formaldehyde, sulfur dioxide, and other lower molecular weight contaminants to remove them from the air stream giving you added measure of protection. The ideal option is one pass of carbon and a pass of permanganate, this allows full use of both media beds, and eliminates changing a filter when only one media may be spent.

Your molecular filtration specialist at Cameron Great Lakes can assist you in the proper selection of both hardware and media that will be most efficient both in performance and economics.

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