Air Handler Filter Housings Leakage

By: Ben Klawitter, Filtration Systems, Inc.

The average Air Handler when brand new leaks air at the filter housing at the rate of 20% while housings made by specialty companies (Camfil, Flanders, and P&G being the three largest in the United States) are less than 5% and can be as low as less than 1%

Even the best gasket on the door does not compensate for bad design and poor or nonexistent welds. Years ago it was common for an AHU manufacturer to outsource the filter housing, they are relatively inexpensive and the quality that could be obtained by having a specialty company manufacture that part was welcomed in the industry. However, when shipping costs surged – especially for larger oversized housings – the AHU manufacturers decided to take the process in-house, which has led to an inconsistent leakage rate of AHU housings.

Even as little as a 5% leakage rate can affect how well your air is filtered as it goes through your AHU. In some cases an end-user is required to have a certain MERV for their air filter, like a LEED certified building, hospital, or starting in 2013 new schools in the State of Minnesota, and if the AHU leaks too much that MERV will drop even though you are using filters that are in compliance with the standard.

Specialty manufacturers of filter housings commonly test their housings for leakage prior to allowing them to be in service. This quality control measure is a requirement of some regulatory agencies like ISO and NQ-1A. It is possible to pressure test a housing made by these companies because they are a modular piece made to be fitted to the AHU; in contrast a housing made by an AHU manufacturer is usually an in-line filter bank fabricated in place making it impossible to test. The process of manufacturing this way causes an inefficient seal of the filter area to the housing and the access doors.

As a facility manager and buyer of air handling equipment there are a few things that you can do to make sure that you do not get stuck with a poor quality housing. The first thing is when you are planning a renovation or new construction project that will require the purchase of a new air handler you can meet with someone that is a manufacturer's representative for one of the housing manufacturers listed above to learn what options you have for what MERV you want to accomplish with the system. The State of Minnesota will require MERV-11 in new school buildings starting in 2013 and LEED requires MERV-13. The next step is to get involved with your design engineering firm to make sure that they specify the housing so when the job goes to bid you don't have contractors just supplying whatever their AHU manufacturer would

install. That specification can usually be provided to you or your design engineer by the specialty housing manufacturer you have chosen.

Lastly, you must follow the process closely as contractors and AHU equipment manufacturers often ignore parts of a specification. This is not an indictment of these people because specifications have gotten so filled with excess definitions and requirements it can be difficult to figure out what pertains to your job and what does not.

In the end you have to decide if it is worth your time to ensure that your new air handlers provide the level of air filtration they are supposed to provide, or if that is not a big enough concern to spend your time on.

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