

**Just a Thought**  
**By Kevin Delahunt**

Much has been written and discussed recently about PM 2.5 (Particulate matter 2.5 micrometers, or microns, in size and smaller). A micrometer is 1/1,000,000 of a meter; extremely small, invisible to the naked eye, and harmful to your health especially to people with breathing disabilities. If you were in southern Alberta in late August and early September, you were certainly aware of the increase in PM 2.5. That haze and smoke in the air we all witnessed was a concentrated mass of PM 2.5 generated by the forest fires in Washington state and southern British Columbia. Once airborne this particulate mass travelled with the wind currents over hundreds of miles eventually reaching Calgary. On a typical day in downtown Calgary there might be 1,000,000 particles per cubic foot of air (CFM) in the PM2.5 range. Add the smoke from the forest fires and this number can increase 8-10-fold.

The good news is that most commercial office buildings in our downtown core have a 2-stage filtration system of a MERV 8 pre-filter and a MERV 13 final filter. These filters offer a high system removal efficiency on PM 2.5 size particle in the range of 80-90%. While some would suggest that a pre-filter is not necessary, I would contend that this is another instance where a prefilter is extremely valuable and adds to the overall system efficiency. My way of thinking is that any air handler that is subjected to outside air is better served by the inclusion of a pre-filter.

Unfortunately, where there is smoke there is odour. Mechanical filters such as those mentioned above do not remove odour molecules. To do this effectively you would need chemical phase filtration products that tend to be expensive and difficult to add to existing systems. Although odour is an indicator of the air quality it is more of a nuisance than a concern. The PM 2.5, on the other hand, is harmful to health and if I was challenged to remove either the particulate or the odour I would choose the particulate every time.

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