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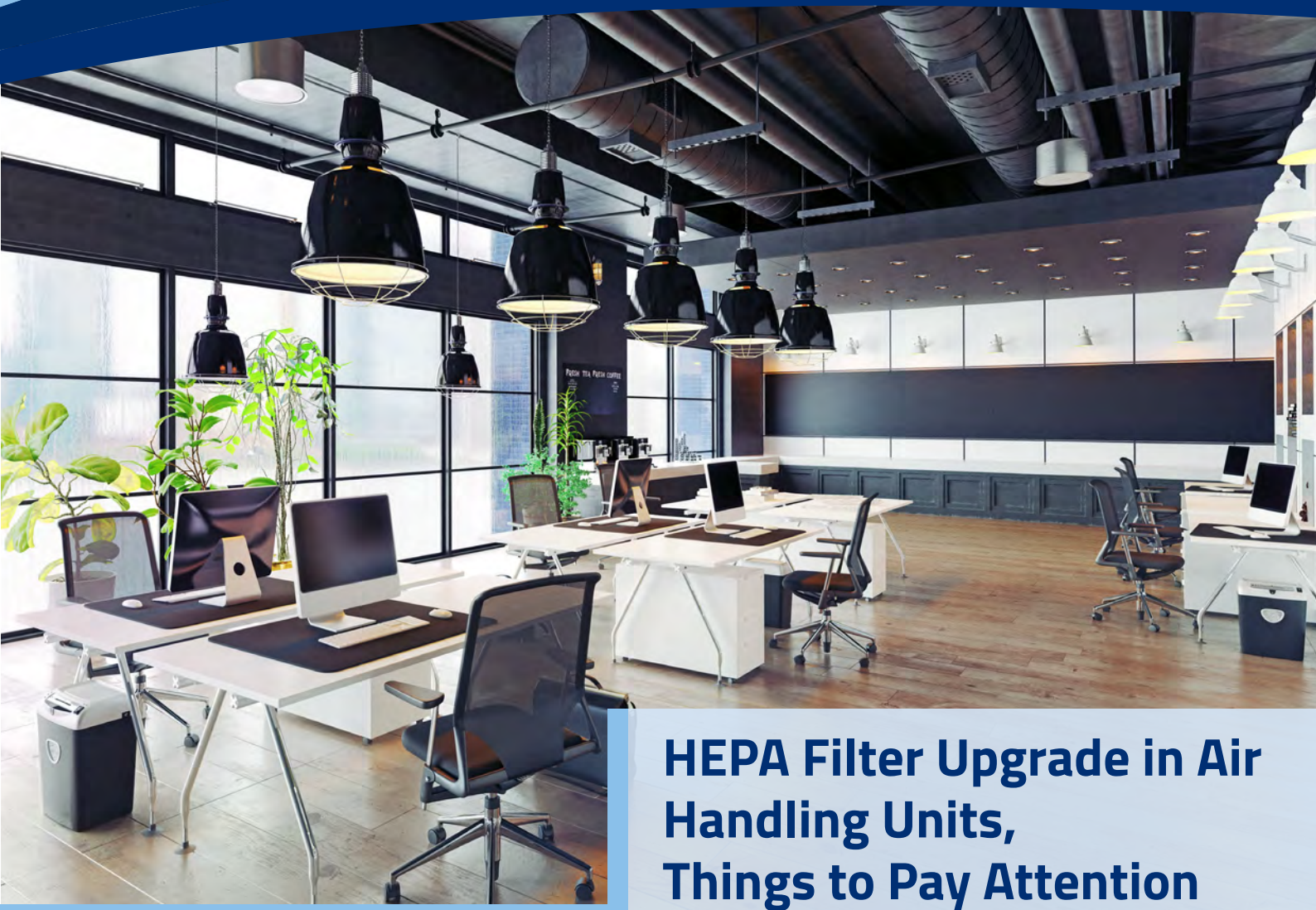

HEPA Filter Upgrade in Air Handling Units, Things to Pay Attention

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HEPA Filter Upgrade in Air Handling Units, Things to Pay Attention

Recently, after the new type of coronavirus epidemic, we are getting questions about installing HEPA filters in air handling units of commercial and public buildings such as offices, schools, shopping centers, sports facilities. The guide published by REHVA (REHVA COVID-19 guidance document, 17 March 2020) contains explanations about this issue. However, those who want to take precautions by using HEPA filters in the air handling unit should consider the following points.

1- It is important to be aware that the air handling units used in comfort applications are not suitable for hygienic application and the filter mounting frames inside unit are not suitable for HEPA filter. It will not be possible to provide 100% sealing between the HEPA Filter and the mounting frame. Leakage from these points will be seen in validation tests, the efficiency expected from the HEPA filter will not be achieved due to leaks.

2- The differential pressure of HEPA filters are very high compared to filters (F7, F9 or PM1) in the last stage of AHU's in comfort applications. In order to operate in the same air flows, it will be necessary to use much more filtration area in HEPA filters compared to standard AHU filters. However, this is not possible with Rigid or V-Compact models.

3- If the HEPA filter will be used without reducing the air flow of the AHU, revision should be made in the filter cell. This revision can be done with changing the mounting frame of AHU or with an additional of filter cabinet.

4- Revision in the filter cell will not be enough alone. Fan capacity and system pressure losses should be checked. Otherwise, it is not possible to operate the AHU at the desired air flows.

Briefly, the full-size V-Compact model F7 class filter has 100Pa initial pressure drop at 3400m³/h air flow while the same model H13 class filter has 250Pa pressure drop at 2500m³/h air flow. For this reason, in order to reach the desired air flow, it is necessary to use the filter model with a high filtration area. In order to use such high capacity filters, it is necessary to use a mounting case suitable for this filter.

Even the fan capacity is enough to overcome the differential pressure of the HEPA filter without changing the filter model, operating the V-Compact model H13 filter at 3400m³/h flow rate will increase the air velocity on filtration media and decrease the efficiency of the filter. Therefore, HEPA efficiency will not be obtained from the filter. Operating the system with HEPA filter at lower air flow rates should be evaluated by the end user.

In this period, users who would like to improve the filtration system and indoor air quality can use F9 class (ePM1 85%) with V-Compact model filters made with glass fiber raw material (pleated) instead of using bag filters (F7, F8, F9 class) made of synthetic fiber raw materials. V-compact filter which has high efficiency and filtration area is suitable for the existing mounting case, it can be replaced with bag filter easily.

FVE-F9-592x592x292 / HV-H13-592x592x292-FC2/P

Suitable Mounting Frame for High Cap. HEPA Filter (HFK) & HHV-H13-G40-592x592/C