

Is ventilation duct cleaning useful? A review of the scientific evidence

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Abstract Ventilation duct cleaning (DC) is widely advocated to provide good indoor air quality (IAQ), health benefits, cost savings, and enhance ventilation system performance. The aim of the present review is to evaluate the scientific evidence as shown in the literature. There is evidence that under normal operating conditions, ventilation ducts can be contaminated with dusts and serve as reservoirs for microorganisms to proliferate. While controlled experiments noted that contaminants resuspension can elevate exposure levels indoors, no field studies have correlated poor IAQ with duct contamination. Despite high efficiencies of contaminant removal within the ducts during cleaning, reductions for different indoor air pollutants vary widely, where, post-cleaning air pollutant concentrations can be higher than pre-cleaning levels. Further, there are health concerns in the use of biocides, sealants and encapsulants. There is inadequate evidence to show that DC can improve airflow in ducts and reduce energy consumption. Although epidemiological studies indicate suggestive evidence that improperly maintained ducts are associated with higher risks of symptoms among building occupants, this review finds insufficient evidence that DC can alleviate occupant's symptoms. In summary, the need for duct cleanliness has to be properly balanced by the probable generation of indoor pollution resulting from DC and subsequent potential health risks.

Practical Implications

Existing evidence is insufficient to draw solid conclusions regarding positive impact of duct cleaning on IAQ, health benefits, cost savings and HVAC performance. Maintaining duct cleanliness has to be properly balanced by the probable generation of indoor pollution and potential health risks.