

A BOUT YOUR HOUSE

CE 29

SHOULD YOU GET YOUR HEATING DUCTS CLEANED?

A hot air furnace heats and distributes air through its ducting system. The ducts are usually made of sheet metal and are most obvious in your basement, where they hang from the floor joists. The return, or cold air, ducts bring air to the furnace, usually collecting it centrally in the house. The return air trunk duct is the big rectangular duct along the basement ceiling that enters the bottom of the furnace. The supply, or warm air, ducting usually exits from the top of the furnace. It starts with a trunk duct on the basement ceiling. The individual supply ducts, in round or smaller rectangular sheet metal, branch off the trunk duct and go to each room, where they terminate in a floor or wall register. Over time, dust and debris will collect in these ducts, particularly in the return air ducts. You may be wondering whether it would be worthwhile to have these ducts cleaned.

Duct cleaning is a major industry. As a homeowner, you may be regularly solicited to have your heating ducts cleaned on a regular basis. Claims are made that duct cleaning will:

- provide you with better indoor air quality (or IAQ),
- reduce the presence of house molds and allergens,
- get rid of house dust,
- result in more airflow and better delivery of warm air; and/or
- reduce energy costs.

If you expect duct cleaning to make these improvements, you may be disappointed. It is difficult to find objective and independent research which substantiates these claims.

What Can Duct Cleaning Do For You?

Duct cleaning can clean your ducts. Thorough, professional duct cleaning will remove dust and debris - pet hair, paper clips, children's toys, and whatever else might collect down there. Ideally, the inside surface will be shiny and bright after cleaning. Duct cleaning may be justifiable to you personally for that very reason: you may not want to have your house air circulated through a duct passage that is not as clean as the rest of the house. However, duct cleaning will not usually change the quality of the air you breathe, nor will it significantly affect airflows or heating costs.

In the 1990s, duct cleaning research conducted by Canada Mortgage and Housing Corporation (CMHC)^{1,2} and the US Environmental Protection Agency (EPA)³, tested house and

¹ "Efficiency of Residential Duct Cleaning", Auger, Donnini, and Nguyen Inc. for CMHC 1994

² "Use of Biocides by Residential Duct Cleaners", Figley Consulting Associates for CMHC, 1994

³ "Should You Have the Air Ducts in Your Home Cleaned?", US EPA, 1997



duct performance before and after cleaning. Researchers observed little or no discernible differences in the concentrations of house airborne particles or in duct airflows due to duct cleaning. This is because ducts are just metal passages. They cannot create dust. Most household dust comes from outdoor dust that has been tracked in or blows through windows or other openings. "Dust" is also created by human skin and hair shedding, pet debris, fibres from carpets, clothes, bedding, hobbies etc. In fact, as you walk around in your house you raise a small cloud of dust particles wherever you go. Dust will be present in one form or another whether you have clean ducts or not.

Householders often expect an efficient furnace filter will remove airborne dust. CMHC has tested the effectiveness of furnace filters in reducing household dust. While some very good filters effectively clean the air in the ducts, they do not create a dust-free environment in your house because of all the dust sources mentioned above. A good filter will help keep your air-conditioning coil, furnace heat exchanger, and supply ducts from accumulating circulated dust. For more information on filters consult the CMHC publication CE 22 "Your Furnace Filter". This can also be read or downloaded from the CMHC website at www.cmhc-schl.gc.ca. Look under Publications, On-line Documents, Home Maintenance for the About Your House series.

When Does Duct Cleaning Make Sense?

There are several situations when duct cleaning could make sense (although there is little research data to support this).

- If you have a problem with water in your ducts, this may result in

mold growth in the duct. In this situation, solve the water problem first, clean and disinfect the ducts where mold growth has occurred, and have the rest of the ducting system cleaned as well. In some cases, it may be necessary or more cost effective to simply replace the affected duct areas.

- If you are moving into a newly constructed house, and have doubts about the diligence of the construction crew, duct cleaning can be useful. Drywall dust, fibreglass pieces, and sawdust have no place in ducts. Duct cleaning will also catch the odd occurrence where lunch bags or soft drink cans have fallen or been swept into ducting. For similar reasons, duct cleaning may be advisable for older houses following major renovations.
- If you are having trouble with furnace airflow, a duct cleaning could reveal significant blockages. Have the ducts cleaned before you embark on more expensive duct replacement or rerouting to solve an airflow problem. Cleaning of furnace and air conditioning components (e.g. furnace fan blower, air conditioning coil, humidifier, furnace heat exchanger, etc.) has been shown to make some difference in duct air flow.
- If you look in the return air registers and see an accumulation of debris in the duct below, you may want to have it removed. CMHC research showed that return air ducts, which are relatively big and have slow moving air, are generally far dirtier than the supply ducts. You should be able to accomplish much of the return air duct cleaning with

a household vacuum cleaner after removing the register grill. For example, households with hairy pets or forgetful young children may find it necessary to inspect their return air ducts more frequently. Do not expect any difference in airflow or house air quality after this cleaning.

How Should Your Ducts Be Cleaned?

There are various duct cleaning procedures available. Reputable duct cleaners will be familiar with different techniques and their effectiveness. Duct cleaners affiliated with heating and air conditioning firms may be able to provide a more thorough system tune-up. Check to see if the duct cleaners are affiliated with trade organizations. They should also be able to offer references from satisfied customers. Some duct cleaners visually inspect the ducts after their work, either through duct access panels that they cut into the sheet metal or by in-duct cameras. This allows some proof of the effectiveness of the cleaning.

Do not accept offers from duct cleaners to spray or "fog" the ducts upon completion of the work, ostensibly to get rid of residual bacteria or mold. There are no products registered under the Pest Control Products Act in Canada for residential duct cleaning. Registered products, if they existed, would have been tested for effectiveness and human safety. A proper duct cleaning job does not require the use of a biocide to clean up missed areas. Based on current research, broadcast spraying of biocides through houses is considered inappropriate if you wish to maintain good indoor air quality.

So... To Clean or Not To Clean?

This choice is up to you. Duct cleaning may possibly improve air quality of houses in cases where serious moisture or blockage problems exist in the ducting. A comprehensive cleaning of all heating and cooling system components (furnace fan blower; furnace heat exchange, air conditioning coil, humidifier, ducts, etc.) may help air movement within the house. However, regular duct cleaning is probably unnecessary for most householders.

Some people will choose to have their ducts cleaned simply because they feel that they cannot do this task easily themselves, and they prefer to have any accumulation of dust and dirt within the house removed regularly. Ensure that any duct cleaning that takes place in your home does not include broadcast spraying of biocides within the duct system.

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