SUPPLEMENT:

How to Install Ducted Range Hood Systems

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- Plan for room above the stove (32 inches or less), the width of the hood, and the routing of the exhaust duct run when designing kitchen cabinet layout. Route the ducting through the roof or outer wall, not into the attic space, in order to avoid moisture problems. For cold climates, route the ducting downwards and outwards to prevent continuous convection and condensation.

- Locate the hood on a wall between cabinets to improve pollutant removal. In comparison, island and peninsula installations have lower effectiveness, and corner installations have higher effectiveness (Sjaastad & Svendsen 2010). Consider adding horizontal spacers on the sides of wall-mount hoods. If gaps exist between the range hood and adjoining cabinets or walls, consider adding horizontal spacers to help funnel airflow towards the hood.

- If the system is not installed immediately upon arrival, then cover and seal all openings in range hoods, ductwork, and adaptor joints until installation. This will avoid build-up of dust, debris, and other contaminants in the system.

- Use 8-inch round smooth metal ducts (NOT FLEX DUCT). Smooth ductwork has less air resistance and is less likely to collect dirt and grease than flex duct, which has ribbing. In many installations, rectangular ducts may be needed; they come in various configurations.

- Minimize bends in the duct layout, and avoid 90 degree. Two 45-degree fittings are less restrictive than one 90-degree fitting.

- Mechanically fasten all duct joints. Draw bands, external clamps, or rivets are preferable to sheet metal screws. Seal all duct and adaptor joints from exhaust fan to roof cap with metal tape (NOT DUCT TAPE) or mastic.

- Avoid reductions in the cross-section area at the vent cap and duct transitions or adaptors.

- Use an 8-inch diameter roof cap for sloping roofs – it has screen mesh built into it and it has equivalent surface area for the roof vent. Where deep snow is usually expected, a wall vent well above record snow depths may be a more practical approach.

- For exhaust vents on exterior walls, keep birds and rodents out by inserting a corrosion-proof, cleanable screen (e.g., copper or stainless steel mesh) in the vent opening.

- Insulate any ductwork above the ceiling insulation, at insulation levels that meet current building energy standards in your area, to avoid condensation inside the ducting in cold weather. For ducting that exits through an exterior wall, insulate the outside of the duct and completely air-seal the gap between the duct and the wall.

- For an in-duct or in-line fan, mount it at least 4 feet away from the range hood. Use a vibration-dampening bracket and a fan made of metal (not plastic).

- Locate exhaust vent terminations at least 3 feet from any operable or inoperable openings in building, and at least 10 feet from air intakes unless the exhaust is at least 3 feet above the intake (International Mechanical Code 2018).

- Inspect and test the entire fan, duct, and control system before contractors close up the wall or install attic insulation. It is difficult to reach and fix equipment in the attic. Make sure the backdraft damper in the hood fully opens upwards or outwards, and that the knockout panel has been removed.

Finally, test the airflow rate of the installed hood. Many installed hoods do not perform nearly as well as rated or designed (Singer et al. 2010; Delp & Singer 2012). Building performance contractors and energy auditors can test using devices such as flow hoods or blower doors. If you can't test the flow, feel the airflows at the hood and at the roof or wall vent at all fan speeds, before the vent cap is put on. Make sure the airflow is noticeable, stronger at higher fan speeds, and moving away from house. (See also pressure testing recommendations for homes in SUPPLEMENT: Caveats and Cautions.)