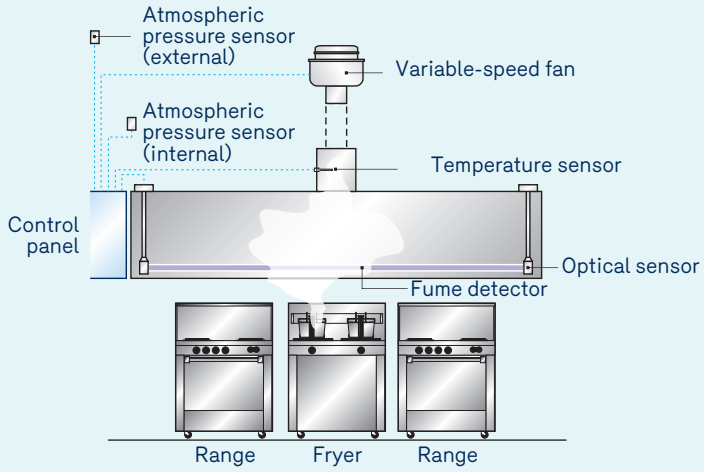
Variable speed hoods

Concept

Hoods are used to remove contaminated air from an installation. Removing these contaminated products and vapours means that make-up air is required in order to maintain indoor air pressure. The fresh air brought in to replace the vented air has to be warmed in winter. Generally, hoods are designed to vent air at a constant rate, that is, they operate at just one speed, that of full production. Since full production may, in some cases, occur only several hours day, large quantities of air are being vented needlessly. This entails costs and high energy losses.

The control system of a variable-speed hood has a special feature: it vents only the quantity of air necessary to remove contaminants and thus saves on heating fresh air. A variable speed fan is required to modify a traditional hood. Coupled with electronic readers and sensors, the fan can adjust the flow of air to be vented based on the parameters chosen (concentration of solid particles, dust, fumes, temperature, air flow pressure, etc.)



Advantages

- Energy savings can attain 50%, depending on the application*.
- Improves comfort for building occupants, particularly in restaurants where a hood's high exhaust rate reduces indoor pressure, resulting in doors that are difficult to open and cold air currents around the perimeter.
- A cleaner atmosphere at all times for occupants. Variable-speed hoods start up automatically on the slightest detection and the speed increases when there is a heavy production of contaminants.
- Remote control and management integrated in IT system. Hood operation can be monitored and improved, as needed.

Applications

- Restaurants
- Hotels
- Industries
- Schools and universities
- Supermarkets
- Laboratories

Energy Efficiency Financial Assistance**

Receive a fixed amount of $3,350, plus a variable amount of $0.45 per CFM (cubic feet/minute) based on the venting system. Énergir's financial assistance may not exceed 50% of the actual cost of purchasing a variable speed system.

List of manufacturers

There are two ways of making the modifications required to install a variable-speed hood: modify the present installation or replace the equipment.

Here is a non-exhaustive list of firms that specialize in the analysis, project design and installation of variable speed hoods.

- Airex
- Energinox
- Noveo Technologies Inc.
- ProVent HCE

Selection criteria

- The building's vocation.
- Heating, ventilation and air-conditioning (HVAC) needs.
- Ability to handle equipment controls.
- Desired range of air flow rate vented by ventilator.

Installation standards

- A make-up air unit added to a variable-speed hood must comply with the CAN/CSA-B149.1 code in force.
- National Building Code (NBC)
- Québec Electrical Code (QEC)

* Savings vary depending on the different parameters.

** Parameters specific to the assistance. Payment of the financial assistance may not be interpreted as a guarantee to the customer as to the quality of the variable speed hood, the control system or the venting system, or as any other approval of their compliance, performance or safety; such responsibility is incumbent on the manufacturer, seller and installer of the products. Applications for processes are not eligible for this assistance.

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