CLAIMS:

What Is Claimed Is:

1. A method of controlling exhaust air flow in an exhaust ventilation system including an exhaust hood, the method comprising:

receiving, at a control module, an exhaust air temperature signal representing a temperature of the exhaust air in a vicinity of the exhaust hood, the exhaust air temperature signal being generated by a temperature sensor;

receiving, at the control module, a radiant temperature signal representing a temperature of a surface of a cooking appliance that generates the exhaust air, the radiant temperature signal being generated by a radiant temperature sensor;

determining in the control module a state of the cooking appliance based on the received exhaust air temperature signal, the mean radiant temperature signal, and a fluctuation in the radiant temperature; and

controlling an exhaust air flow rate in response to the determined appliance state by outputting a control signal from the control module,

wherein the state of the cooking appliance includes a cooking state, an idle state and an off state;

wherein the controlling includes outputting a signal to change the exhaust flow rate between a design exhaust flow rate (Qdesign), an idle exhaust flow rate (Qidle), and an off exhaust flow rate, based on a change in the cooking appliance state;

wherein the control module changes the exhaust flow rate to design exhaust flow rate (Qdesign) when the cooking appliance is determined to be in the cooking state, to the idle exhaust flow rate (Qidle) when the appliance status is determined to be in the idle state, and to the off exhaust flow rate when the appliance is determined to be in the off state;

wherein when the radiant temperature is greater than a predetermined minimum radiant temperature, the cooking appliance is determined to be in the cooking state if a fluctuation in the radiant temperature is determined, the cooking appliance is determined to be in the idle state if no fluctuation in the radiant temperature is determined; and

wherein when the radiant temperature is less than a predetermined minimum radiant temperature, the cooking appliance is determined to be in the cooking state if the exhaust temperature is greater than a predetermined temperature, the cooking appliance is determined to be in the off state if the exhaust temperature is less than the predetermined temperature.

2. The method of claim 1, wherein the changing includes one of changing a speed of an exhaust fan and actuating a balancing damper based on the appliance state.

3. The method of claim 1, wherein the measuring further includes measuring an ambient air temperature in the vicinity of the ventilation system.

4. The method of claim 3, wherein the determining further includes determining a difference between the exhaust air temperature in the vicinity of the exhaust hood and the ambient temperature in the vicinity of the ventilation system.

5. The method of claim 1, wherein the radiant temperature is measured using an infrared sensor.

6. The method of claim 3, wherein the exhaust air temperature and the ambient temperature in the vicinity of the ventilation system is measured using respective temperature sensors.

7. The method of claim 1, further comprising calibrating the exhaust ventilation system before said controlling the exhaust air flow.