

VENTING DIAGRAMS

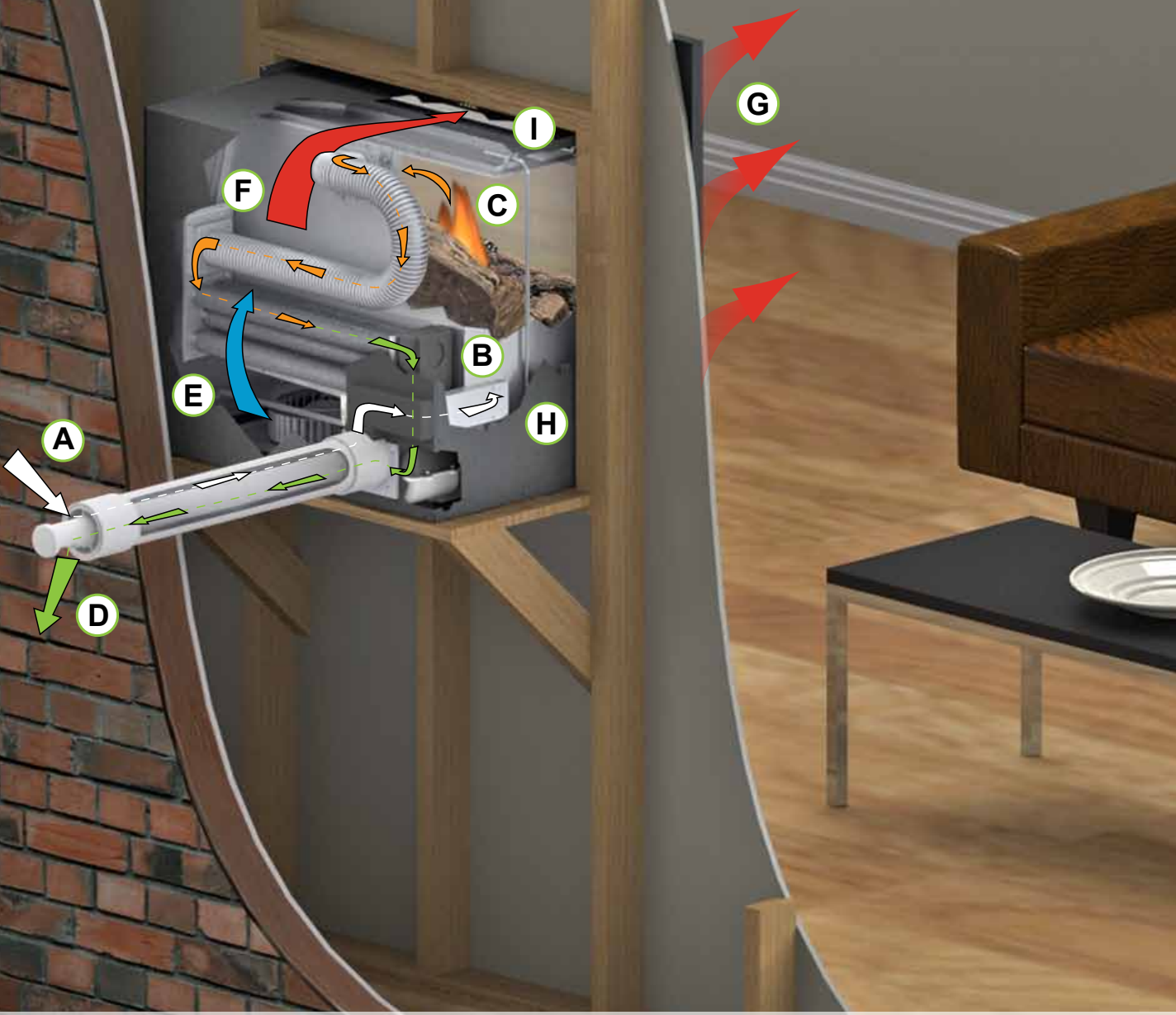


EMPIRE

COMFORT SYSTEMS

SINCE 1932

CO-AXIAL DIRECT VENT DIAGRAM



Creating the Heat

- (A) The power vent blower draws in outdoor air (White Arrow) via the PVC intake pipe.
- (B) Inside the fireplace the three-stage burner, below the log set, mixes the air and gas (LP or Natural) and burns it to produce heat.
- (C) The power vent blower extracts the hot combustion gases (up to 900° Fahrenheit) out of the combustion chamber and through the heat exchanger (Orange Arrow)
- (D) The combustion gases exit the heat exchanger (now cooled to less than 130°) and are forced outdoors through the PVC vent pipe (Green Arrow)

Circulating the Warmth

- (E) The circulation blower draws in room air (Blue Arrow) via louvers beneath the fireplace...

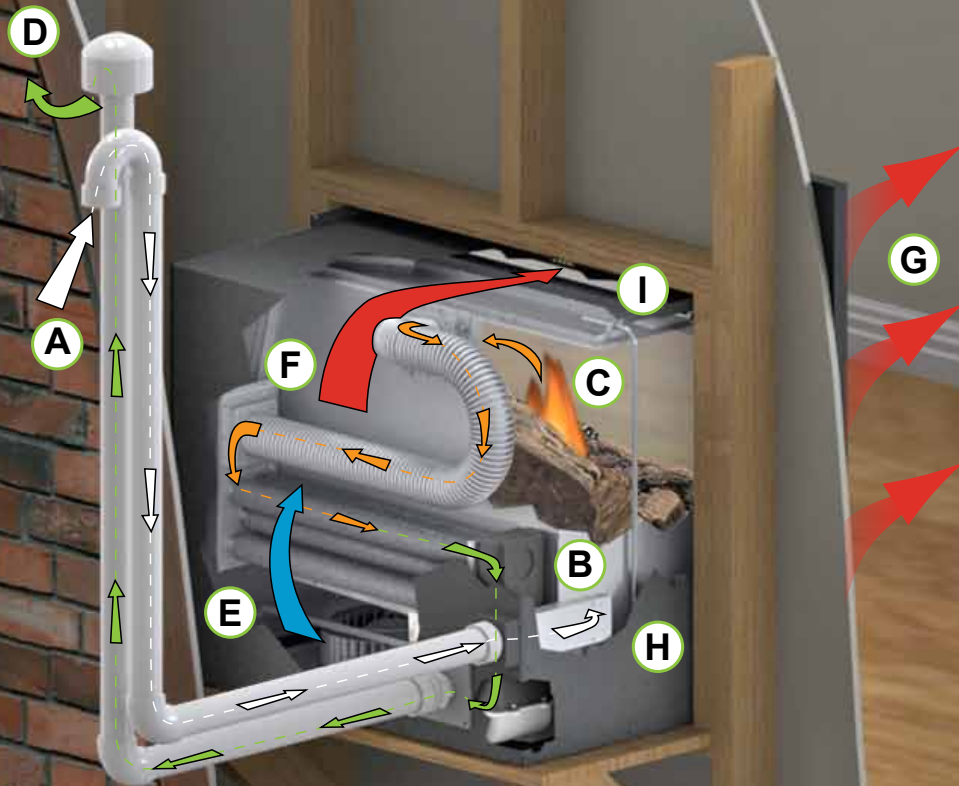
- (F) ...and forces it across the heat exchanger fins. This transfers more that 90% of the heat inside the tubes to the room air.
- (G) The blower forces this warm air out through louvers above the fireplace to warm the home (Red Arrow)

Adding the Humidity

- (H) Droplets of moisture are a by product of the Mantis' super-efficient heat exchanger, are captured in a holding tank (not visible)
- (I) Once the Mantis reaches operating temperature, a pump cycles on to send any collected water onto a stainless steel tray above the combustion chamber, where heat and airflow circulate the water vapor. This added humidity helps alleviate the static shocks, wood furnite damage, and even sore throats caused by dry winter air.



CO-LINEAR DIRECT VENT DIAGRAM



Creating the Heat

- (A) The power vent blower draws in outdoor air (White Arrow) via the PVC intake pipe.
- (B) Inside the fireplace the three-stage burner, below the log set, mixes the air and gas (LP or Natural) and burns it to produce heat.
- (C) The power vent blower extracts the hot combustion gases (up to 900° Fahrenheit) out of the combustion chamber and through the heat exchanger (Orange Arrow)
- (D) The combustion gases exit the heat exchanger (now cooled to less than 130°) and are forced outdoors through the PVC vent pipe (Green Arrow)

Circulating the Warmth

- (E) The circulation blower draws in room air (Blue Arrow) via louvers beneath the fireplace...

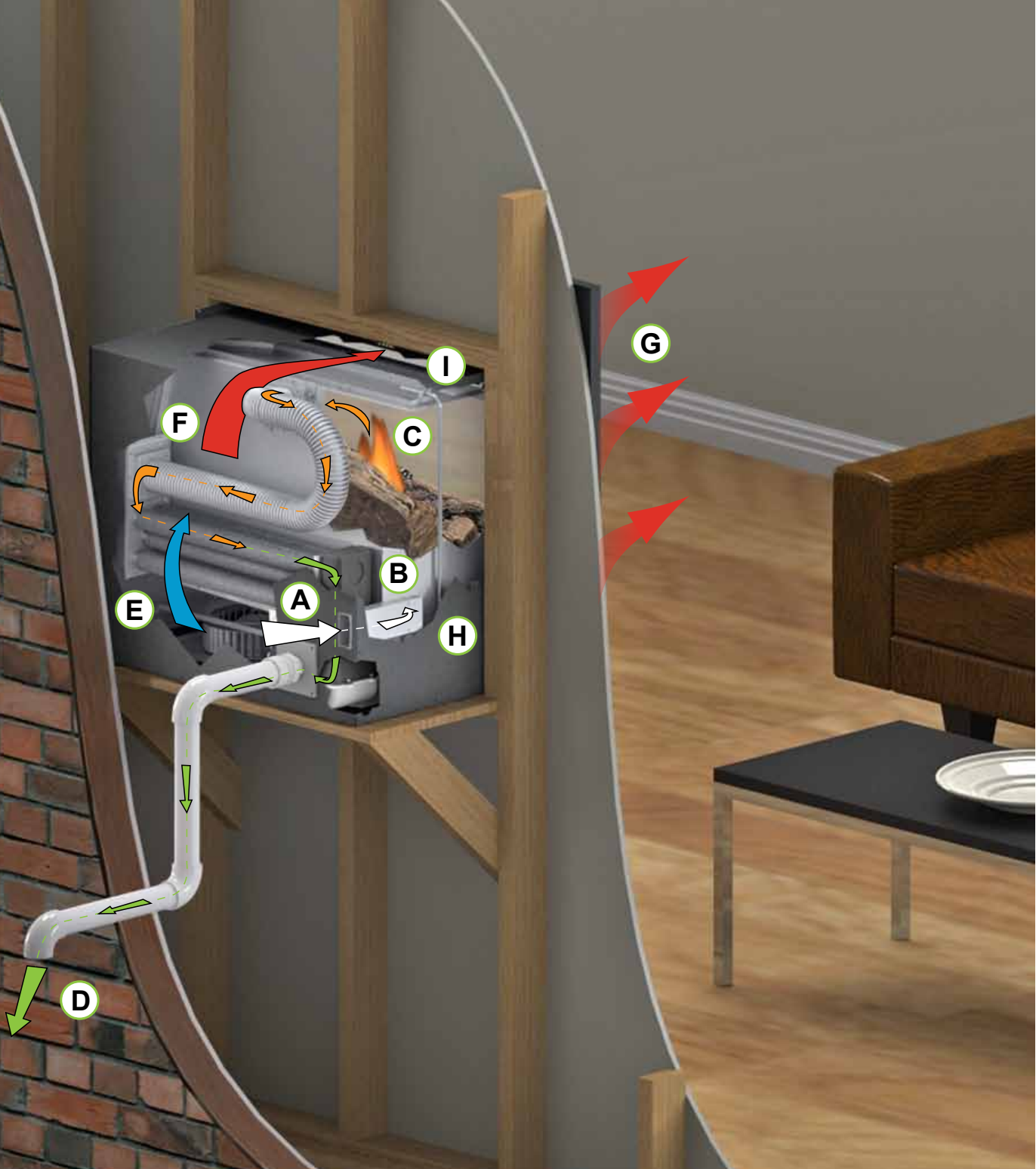
- (F) ...and forces it across the heat exchanger fins. This transfers more that 90% of the heat inside the tubes to the room air.

- (G) The blower forces this warm air out through louvers above the fireplace to warm the home (Red Arrow)

Adding the Humidity

- (H) Droplets of moisture are a by product of the Mantis' super-efficient heat exchanger, are captured in a holding tank (not visible)
- (I) Once the Mantis reaches operating temperature, a pump cycles on to send any collected water onto a stainless steel tray above the combustion chamber, where heat and airflow circulate the water vapor. This added humidity helps alleviate the static shocks, wood furnite damage, and even sore throats caused by dry winter air.

SINGLE FLUE DIRECT VENT DIAGRAM



Creating the Heat

- (A) The power vent blower draws in air (White Arrow) from the back of the fireplace.
- (B) Inside the fireplace the three-stage burner, below the log set, mixes the air and gas (LP or Natural) and burns it to produce heat.
- (C) The power vent blower extracts the hot combustion gases (up to 900° Fahrenheit) out of the combustion chamber and through the heat exchanger (Orange Arrow)
- (D) The combustion gases exit the heat exchanger (now cooled to less than 130°) and are forced outdoors through the PVC vent pipe (Green Arrow)

Circulating the Warmth

- (E) The circulation blower draws in room air (Blue Arrow) via louvers beneath the fireplace...

- (F) ...and forces it across the heat exchanger fins. This transfers more that 90% of the heat inside the tubes to the room air.

- (G) The blower forces this warm air out through louvers above the fireplace to warm the home (Red Arrow)

Adding the Humidity

- (H) Droplets of moisture a by product of the Mantis' super-efficient heat exchanger, are captured in a holding tank (not visible)
- (I) Once the Mantis reaches operating temperature, a pump cycles on to send any collected water onto a stainless steel tray above the combustion chamber, where heat and airflow circulate the water vapor. This added humidity helps alleviate the static shocks, wood furnite damage, and even sore throats caused by dry winter air.