

# Negative Air & Freeze Prevention

Models: 520HN, 520PN, 330PN



# BOSCH



## WARNING

**LP & NG are extremely flammable. Take extra precautions when performing any work to the heater.**

### Negative Air

Negative air pressure in a structure occurs when air consumed by fuel burning appliances or exhaust systems in that structure exceeds the amount of air available.

Here is a list of items that consume air within a typical household:

- Stove exhaust fans
- Furnaces
- Water heaters
- Fireplaces/ Woodstoves
- Bath fans
- Dryers

All of these items must be taken into account when making provisions for a proper amount of fresh air from the outside.

If the building is new construction, air infiltration from the outside will be limited and provisions for extra air supply should be made. If the building is older construction, air may infiltrate into the house through unplanned sources such as window frames, door jams, sill plates or idle chimney flues. These sources still may not be providing the adequate amount of air and additional sources of fresh air should be considered.

### Why Negative Air Is Bad

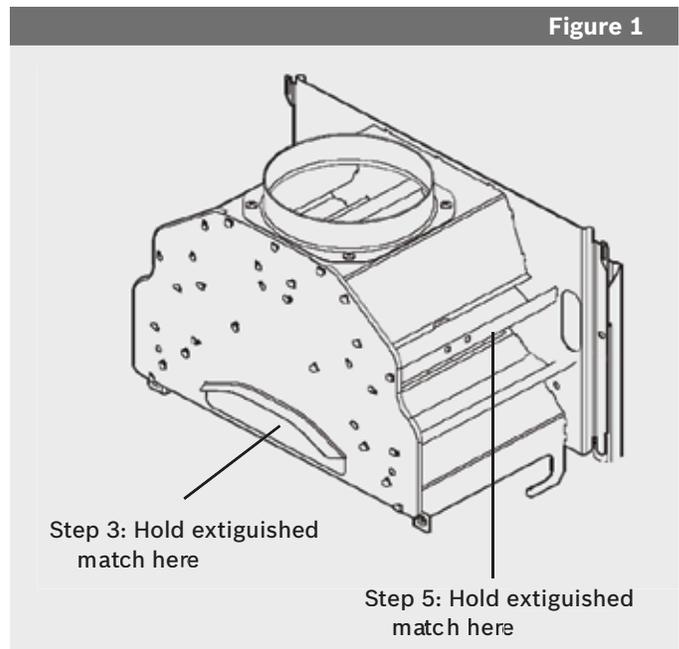
Cold air from the outside is drawn through the water heater's flue pipe because other fuel burning appliances or exhaust systems in the structure require more air than the dwelling can supply. When the required amount of air for the fuel burning appliances or exhaust systems in the structure is not being supplied to them, they find the flue pipe on the water heater an acceptable means of supplying themselves. Thus, freezing cold air is pulled down the water heater's flue, drawn over the copper heat exchanger, potentially freezing it and the water valve below. Because, when idle, the water heater

holds only cold water, freezing can happen quickly possibly causing leaks or ruptures in the heat exchanger and/ or the water valve. The water heater does not pull air through its flue pipe – if you were to remove the heater, the air would continue to come down your flue pipe. You must have the air balanced in the structure to correct this problem. Consultation with a heating, ventilating and air conditioning (HVAC) specialist is recommended.]

### Checking For Negative Air

1. Close all doors and windows in the building.
2. Operate all fuel burning appliances and exhaust systems in the building at full capacity with the exception of the tankless water heater. Allow time for these items to utilize the air in the structure. Up to one hour may be necessary.
3. Remove the cover from the tankless unit and hold a recently extinguished match, candle, or any other visible smoke source in front of the triangular opening on the draft diverter (fig. 1).

Figure 1



4. The smoke should be sucked quickly into the opening and up the exhaust vent. If the smoke is blown back, a negative air situation exists and must be corrected. See the combustion air section in the manual for specifications.
5. Now run the heater for 10 minutes, then hold a smoke source at the top right side of the draft diverter (fig. 1). The smoke should be drawn in the louvers on the side. If this is not the case, the unit is not drafting properly and flue gases are being exhausted into the space in which the heater is installed. This is not safe and must be corrected. Reference the venting section in the manual to ensure venting is in accordance with the manufacturer's specifications.

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