

**THIS QUICK TUTORIAL
WILL GUIDE YOU
THROUGH THE STEPS
ON PROPER BURNER
ADJUSTMENTS FOR
FLAME RETENTION
BURNERS**

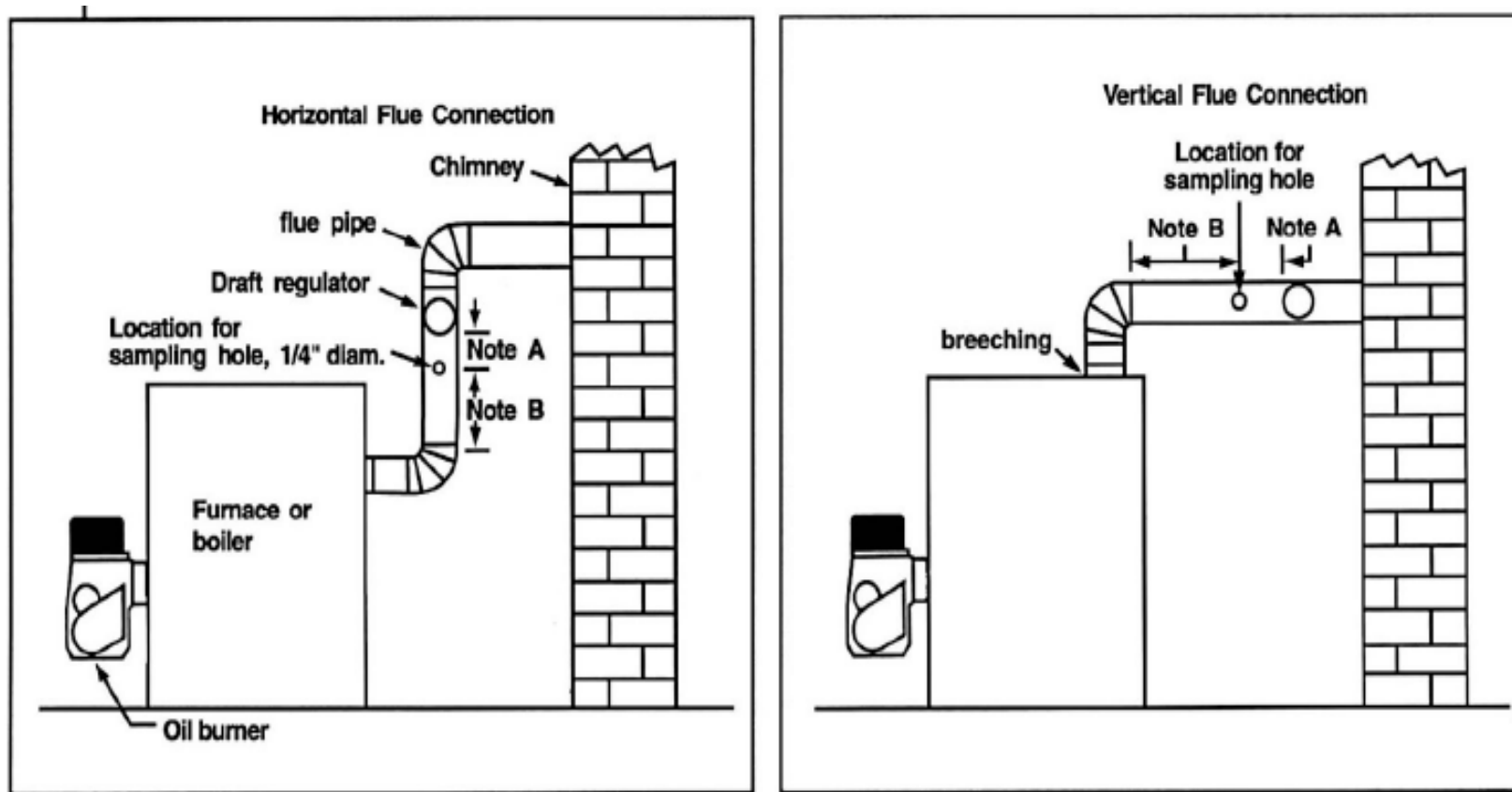


FIGURE 60 Desirable location for 1/4" flue pipe sampling hole for typical chimney connections
A. Locate hole at least one flue pipe diameter on the furnace or boiler side of the draft control.
B. Ideally, hole should be at least 2 flue pipe diameters from breeching or elbow.

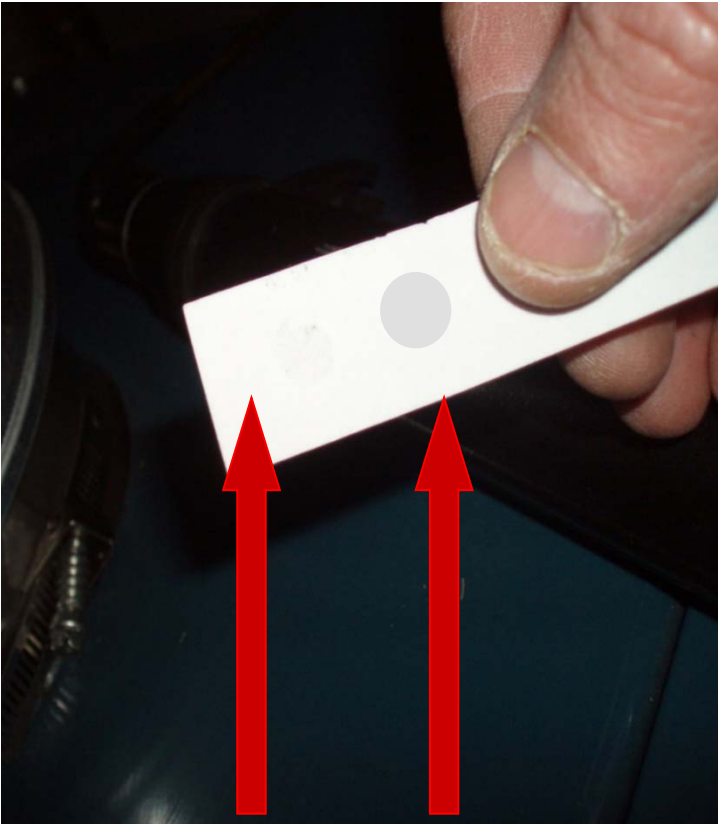
MAKE SURE THE SAMPLE HOLE IS IN THE RIGHT LOCATION



SET THE BURNER AIR CONTROLS TO OBTAIN A TRACE OF SMOKE AT STEADY STATE OPERATION



**AT STEADY STATE, BEGIN BY PULLING 10 STROKES
WITH THE HAND HELD SMOKE PUMP TESTER**



YES NO



**VERIFY YOU HAVE A TRUE TRACE OF SMOKE AND
ADJUST THE AIR ACCORDINGLY IF NEEDED**



MEASURE THE CO2 AT A TRACE OF SMOKE



NOW INCREASE THE AIR SETTING UNTIL THE CO₂ IS REDUCED BY 1 TO 2 PERCENTAGE POINTS



CO₂	12.5%
O₂	4.0 %
STACK	440
AMB	70
CO	3 PPM

BEFORE

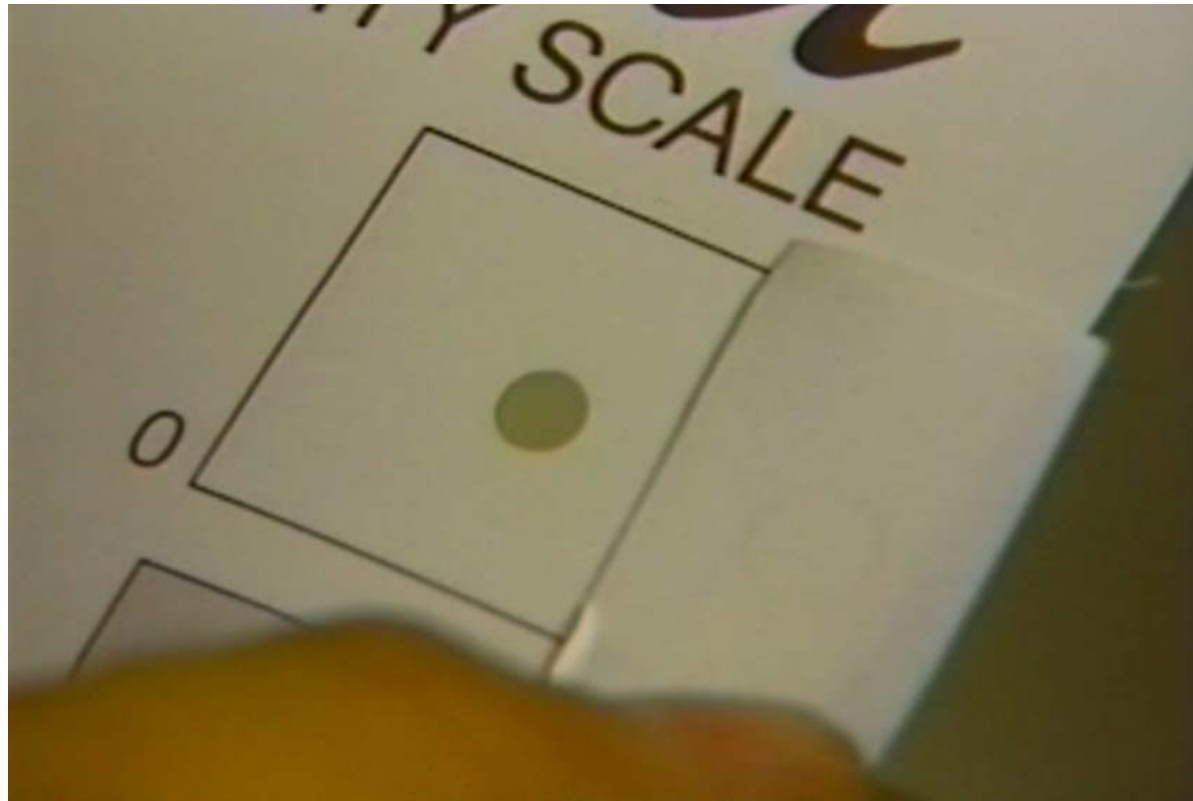
TRACE POINT

CO₂	11.5%
O₂	5.2 %
STACK	470
AMB	71
CO	0 PPM

AFTER

ADJUSTED POINT

**RETEST AND VERIFY THE CO₂ WAS REDUCED BY
1 OR 2 PERCENTAGE POINTS**



MAKE A SMOKE TEST, IT SHOULD BE ZERO

**YOU HAVE NOW BUILT IN A MARGIN TO ACCOMMODATE
VARIABLES THAT COULD BE ENCOUNTERED DURING THE
HEATING SEASON.**

SOME TROUBLESHOOTING TIPS IF A TRACE OF SMOKE CANNOT BE OBTAINED

PARTICALLY PLUGGED NOZZLE

NOT ENOUGH AIR PROVIDED TO THE BURNER

TOO MUCH AIR PROVIDED TO THE BURNER

OIL PRESSURE TOO LOW

PLUGGED HEAT EXCHANGER

WRONG NOZZLE FOR APPLICATION

VACUUM TOO HIGH (PLUGGED FILTER OR OIL LINE RESTRICTION)

COLD OIL (LARGER DROPLETS)

POOR QUALITY OIL(WATER BACTERIA SLUDGE)

Z DIMENSION INCORRECT

CARBON ON THE RETENTION HEAD

AIR IN THE OIL SUPPLY LINE

