

## Annex D | Action Levels for Spillage and Carbon Monoxide in Combustion Appliances (Normative)

D.1 Spillage assessment and CO measurement results shall be based on the following criteria:

- CO measured at 5 minutes of main burner operation
- Spillage assessed at 2 minutes of main burner operation for warm vent
- Spillage assessed at 5 minutes of main burner operation for cold vent
- CO level at or below threshold in Section 7.9.5, Table 1 for the appliance being tested is ACCEPTABLE
- CO level exceeding threshold in Section 7.9.5, Table 1 for the appliance being tested is UNACCEPTABLE

TABLE D.1.A ACTION LEVELS FOR SPILLAGE IN COMBUSTION APPLIANCES The following actions shall be taken when spillage occurs under the specific circumstances detailed below.	
TEST RESULT	ACTION REQUIRED
Greatest CAZ depressurization occurs with the air handler on*	Conduct further analysis of the distribution system to determine if leaky ducts are the cause of the spillage
Greatest CAZ depressurization occurs with door to CAZ closed, but is alleviated when door to CAZ is open*	Recommend measures to improve air transfer between the CAZ and the core of the house
The cause of spillage has been traced to excessive exhaust** independent of CAZ door position, air handler, or a problem with the flue†	Verify that sufficient combustion air is available per <i>ANSI Z223.1/NFPA 54</i> for gas-fired appliances and <i>NFPA 31</i> for oil-fired appliances or recommend verification by a qualified professional  and/or  Recommend further evaluation/service by a qualified professional to address the venting/combustion air issues
<p><b>*In the case where both spillage and excessive CO are present, in addition to the specific recommendations above, recommend that the appliance be shut down until it can be serviced by a qualified professional.</b></p> <p><b>** Refers to exhaust caused by mechanical ventilation and/or other means of exfiltration.</b></p> <p><b>†When a recommendation to replace atmospherically-vented combustion equipment inside the pressure boundary is made, and when cost-effective, recommend replacement with direct-vented, or power-vented equipment (or non-combustion equipment, such as a heat pump), which is ENERGY STAR®-labeled.</b></p>	

TABLE D.1 B. ACTION LEVELS FOR CO IN COMBUSTION APPLIANCES

TEST RESULT	ACTION REQUIRED
Unacceptable CO level	Advise the homeowner/occupant that the appliance should be serviced immediately by a qualified professional  Note: If ambient CO levels do not exceed 70 ppm, testing of other appliances and other audit procedures may continue upon discretion of the auditor
Acceptable CO level	No action required