



Heating Field Guide

Health and Safety

Identified existing moisture-related problems
 Appropriate identification of foundation/basement moisture issues
 Appropriate identification of living space moisture issues
 Identified existing any indoor air contaminant sources
 Identified existing fire hazards
 Comprehension of interaction of building envelope conditions with duct leakage
 Comprehension of interaction of building envelope conditions with combustion appliance performance

Diagnostic Tests and Inspections

Properly conducted combustion gas leakage testing
 Appropriate speed for testing
 Complete 360 degrees for any unions
 Recommended soapy solution to verify positives

Infiltration Evaluation

Combustion appliances set to pilot or disabled
 Proper set-up of the blower door frame/shroud/fan
 Proper set-up of the manometer
 Proper house set-up for testing
 Correctly measured baseline pressure differential
 Accurate CFM50 measurement
 Measured existing ventilation fan flow
 Discussed ventilation needs in relation to existing fans
 Conducted sample room by room inspection with blower door running
 Recommended air sealing appropriately
 Mentioned: Top plates and penetration through top and bottom floor
 Recommended mechanical ventilation appropriately
 Mentioned need for further pressure differential testing as appropriate

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Combustion Safety Tests

Correctly identified heating / cooling system types
 e.g., Atmospheric, sealed combustion, power vented, etc
 Correctly identified basic heating / cooling system operating components
 e.g., burner, valves, supply, return, etc
 Visual inspection of venting system for problems
 Determined condition accurately
 Identified existing heating/cooling system components safety concerns
 e.g. P&T valve, blow off discharge, fire hazards, exposed wires
 Set up for natural conditions
 Proper manometer setup
 Correctly measured baseline pressure differential
 Correctly setup home in worst case condition
 All exhaust appliances running
 Correct door closures - measured quantitatively or qualitatively
 Air handler operation impact checked
 Correctly measured worst-case CAZ depressurization
 Took into account baseline pressure differential

Calculated minimum draft pressure based on existing weather conditions

Checked for worst case spillage in heating system
method used_e.g., mirror, smoke, etc

Checked for worst case spillage in DHW
method used_e.g., mirror, smoke, etc

Correctly identified time limits for spillage based on BPI Standards – Ask candidate

Correctly determined if the appliance passes the spillage test

What steps should be taken if it does not pass

Performed worst case draft test on heating system
Proper probe placement

Performed worst case draft test on DHW
Proper probe placement

Candidate performed testing under natural conditions (use sections above to assess)
(only necessary if spillage detected under worst case)

Made appropriate recommendations according to BPI standards (using right table)

Compared diagnostic results to appropriate table in the standards

Identified the need for further evaluation when other combustion sources exist
(fireplace, space heater, etc)

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CO Testing

Tested ambient CO outdoors
Properly interpreted measurements

Tested ambient CO indoors
Properly interpreted measurements

Measured heating system flue gas CO during combustion safety testing
- Proper probe placement, before mixing with ambient air, appropriate to venting type

Measured DHW flue gas CO during combustion safety testing
- Proper probe placement, before mixing with ambient air

Appropriate application of BPI action levels based on test results for CO in flue

Correctly identified Action Levels based on worst case CO results – Ask candidate

Monitored ambient CO levels in the CAZ during entire combustion safety tests

Tested for CO in oven

Checked for items, excessive debris inside oven

Oven test sampling location appropriate

Appropriate application of BPI action levels based on test results for CO in oven

Ducted Systems

Duct Blaster set up appropriately
Manometer set-up appropriate

Supply tap appropriate

Return tap appropriate

Accurate measurement

Made Appropriate Duct Sealing Recommendations - Onsite
Demonstrated ability to prioritize repairs

Appropriate materials selected for repairs

Appropriate method selected for repair.

Accurately Measured Heat Rise Delta T

Made Appropriate Heat Rise Correction Recommendations

Performed Appropriate System Balancing Diagnostic Testing

Made Appropriate System Balancing Recommendations - Onsite

Properly conducted Heat Exchanger Inspection

Recommended Replacement of Heat Exchanger as appropriate

Inspected Fan on/off Settings

Made Appropriate Fan Setting Correction Recommendations

Conducted Steady State Efficiency test

Hydronic Systems

- Evaluated basic system controls
- Evaluated basic system safety devices
- Properly Assessed Zone Configuration
- Assessed Conservation Opportunities
- Assessed performance enhancements
- Identified pipe insulation needs
- Accurately assessed distribution problems
- Conducted Steady State Efficiency test

Heat Loss / Load Calculation

- Discussed heat loss calculation / savings estimates and understands implications
- Accurately identified conservation measures that could impact sizing
- Identified distribution system issues relating to these calculations
- Understands relationship between calculations, current usage and proposed savings

Domestic Hot Water

- Properly evaluated safety devices
 - Properly evaluated system efficiency
 - Proper probe placement if measured with analyzer
 - Made appropriate recommendation for system improvement or replacement - Onsite
 - Made appropriate recommendations for conservation measures - Onsite
- Notes: