



# MANUFACTURED HOUSING Field Guide

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## Health and Safety

Inspected wiring and correctly identified type, specifying certified electrician if aluminum  
Demonstrated electrical inspection for operation of outlets, lights, polarity and ground  
Inspected plumbing for leaks, specifying repairs  
Demonstrated scaffold set-up  
Demonstrated proper use of personal protective equipment  
Inspected for moisture issues in the interior wall and roof cavities  
Identified source of moisture and specified treatment including mechanical ventilation where sources exist and cannot be removed

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## Belly

Completed thorough inspection of belly including belly board  
Completed thorough inspection of belly including vapor barrier  
Completed thorough inspection of belly including insulation  
Completed thorough inspection of belly including ductwork  
Completed thorough inspection of belly including framing type  
Identified and prioritized belly treatment  
Inspected interior areas where insulation may enter home during belly blow  
Identified proper materials and procedures for treatment dense pack wings, prioritized belly patches over insulation)  
Explained procedures for insulating with both longitudinal and cross-wise framing

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## Sidewalls

Identified construction type, including interior obstructions  
Identified existing insulation  
Identified any issues/obstructions to blowing walls (weak paneling, interior holes, electrical)  
Demonstrated proper procedures for drilling opening and plugging/sealing holes after installation  
Demonstrated proper tubing technique for blowing fiberglass for at least one example (explained procedures for remaining two)  
Demonstrated wall stuffing technique

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## Windows and Doors

Inspected for proper fit, operation, and performance  
Identify appropriate replacement if needed  
Demonstrate procedure to accurately measure for replacement

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## Roof / Ceiling

Demonstrate roof inspection (drill hole visual or photograph, measure cavity and insulation)  
Identify framing type and condition of roof / ceiling  
Identify type, location, and effectiveness of insulation and vapor barrier  
Identify proper materials and procedures for treatment  
Demonstrate or explain procedures for each of the following techniques: top access  
Demonstrate or explain procedures for each of the following techniques: side access  
Demonstrate or explain procedures for each of the following techniques: interior drill and blow  
Inspected for proper terminations of plumbing, flues  
Demonstrate or explain procedures for blocking around large penetrations (flues, swamp coolers)  
Demonstrate proper techniques to seal opening when installation is complete  
Identified strong back and procedure for getting around it

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## Air Sealing / Ventilation

Demonstrate or explain procedure to prepare Manufactured Home for blower door test  
Air seal ceiling for moisture mitigation and seal any large penetrations to prep for insulation  
Prioritized insulation/air sealing measures based on results (<2000 CFM50: insulate before air sealing, 1500 CFM50 cutoff for air sealing)  
Below 800 CFM50 made sure bath fan has at least 75 CFM rated capacity (use pressure pan or pressure drop across door to verify operation)  
Made sure kitchen fan operates if gas range is present

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## Mechanical Systems

Identified venting type of furnace, specified replacement if not sealed combustion  
Identified venting type of DHW, specified replacement if interior closet and not sealed combustion  
Inspected water heater for switchable gas valve  
Inspected water heater closet for connections to other areas  
Identified proper materials and procedures for air sealing DHW closet  
Demonstrate pressure differential test to verify separation of closet from living space  
Demonstrate pressure test to verify DHW is separate from furnace  
Demonstrate CO testing procedures for furnace, water heater and closet area  
Demonstrate pipe insulation for water heaters  
Woodstove? (demonstrate CAZ depressurization test, calculate make-up air, inspect for code violations)

**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)

**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

**Ductwork**

Demonstrate proper inspection techniques (visual, flashlight, mirror)

Demonstrate pressure pan test and properly interpret results

Identify areas for safe treatment

Identify proper materials and procedures for treatment (cleaning prior to mastic, securing to avoid sagging)

Demonstrate room to room pressure test

Identify treatments to relieve pressure imbalances between rooms