



COURSE 962912

Weatherization Guide - Chapter 5

Exam Material

Uscontractorlicense LLC

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Summary Of This Course

WEATHERIZATION GUIDE - CHAPTER 5

Approved by the

Wisconsin Department of Safety and Professional Services Safety and Buildings Division

Course Identification Number 962912

Educational Credit Hours: 6 Hours

Course Provider:

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Chapter 5 of the Weatherization Guide emphasizes protecting both occupants and weatherization professionals by identifying and controlling health and safety hazards before, during, and after weatherization work. The chapter covers the proper use of personal protective equipment (PPE), Safety Data Sheets (SDS), confined-space procedures, and source pollutant control. Major topics include carbon monoxide testing and alarm installation, smoke alarms, moisture management, foundation moisture control, lead-safe work practices, asbestos awareness, and electrical safety. It also provides detailed procedures for inspecting gas piping, monitoring ambient carbon monoxide, performing combustion appliance safety testing, measuring draft, and evaluating depressurization in combustion appliance zones. Guidance is included for make-up air systems, water heater replacement, and selecting, sizing, installing, and maintaining mechanical ventilation systems in accordance with ASHRAE 62.2. The chapter concludes with best practices for dryer venting and radon mitigation measures, including proper sump sealing techniques.

This Course is approved for the following electrical Registrations/Certifications or Licenses:

Dwelling Contractor Qualifier	6 Hours of Continuing Education	
Commercial Building Inspector	6 Hours of Continuing Education	

This course is a distance learning or e-learning course, which allows the attendee to complete the course on their time schedule.

Course Outline

This course is a distance learning or e-learning course, which allows the attendee to complete the course on their time schedule.

Chapter 5 Health and Safety

5.1 Personal Protective Equipment

5.2 Safety Data Sheet (SDS)

5.3 Confined Spaces

5.4 Source Pollutant Control

5.4.1 Carbon Monoxide (CO)

5.4.2 Carbon Monoxide (CO) Alarms

5.4.3 Smoke Alarms

5.4.4 Moisture Problems

5.4.5 Foundation Moisture Control

5.5 Lead Paint and Lead-Safe Work

5.6 Asbestos

5.7 Electrical Safety

5.8 Combustion Appliance and Fuel Distribution Safety

5.8.1 Gas Piping Inspection

5.8.2 Ambient CO Monitoring

5.8.3 Combustion Appliance Safety Inspection

5.9 Measuring Natural Draft

5.10 Depressurization Guidance

5.10.1 Make-Up Air Systems

5.11 Water Heater Replacement

5.12 Mechanical Ventilation

5.12.1 Choosing Ventilation Systems

5.12.2 Sizing Ventilation Systems

5.12.3 Local Exhaust Fans

5.12.4 Whole-Building Exhaust-Only Ventilation

5.12.5 Exhaust Fan Ducting

5.12.6 Supply Ventilation Systems

5.12.7 Balanced Ventilation Systems

5.12.8 Heat-Recovery Ventilators

5.12.9 Heat-Recovery Ventilator (HRV) and Energy-Recovery Ventilator (ERV) Installation

5.12.10 Ventilation Control Strategies

5.13 Dryer Venting

5.14 Priorities for Existing Homes

5.14.1 Installation Best Practices

5.15 Radon

5.15.1 Sumps

5.15.2 Sump Pumps

5.15.3 Sump covers for submersible pumps

5.15.4 Sump covers for pedestal pumps

5.15.5 Floor Drains

180 questions related to the reference materials are used to test the attendee on their comprehension of the materials. A 70% score will need to be attained in order to pass this course.

Answer Sheet(s)

1 bubble style answer sheets are included. When you are finished with the exam, you may return the answer sheets for grading to:

By Mail: Uscontractorlicense LLC
PO Box 268
Platteville, Wisconsin 53818

By Email: michael@uscontractorlicense.com

By Fax: 608-571-0096

Once we get the answer sheets back, we will grade them, enter your hours into the attendance portal and email or mail you back your certificate of completion(s). You will be responsible for renewing your license with the DSPS at www.license.wi.gov website.

Any questions, please contact us at 608.348.6688

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Chapter 5 Weatherization Guide

Questions 1 thru 5 can be found in Section 5.1 - Personal Protective Equipment

1. Who is responsible for providing weatherization workers with the proper personal protective equipment (PPE)?

- A. The customer
- B. The employer
- C. The equipment manufacturer
- D. OSHA

2. Which of the following is an example of personal protective equipment (PPE)?

- A. Flashlight
- B. Extension cord
- C. Disposable coverall garments
- D. Blower door

3. Respirators used by weatherization workers should be:

- A. Homemade
- B. NIOSH approved with annual fit testing
- C. Used only during winter
- D. Shared among workers

4. Which PPE protects workers from loud noise exposure?

- A. Eye protection
- B. Hearing protection
- C. Knee pads
- D. Disposable gloves

5. Which PPE is specifically intended to prevent injuries while working at heights?

- A. Hard hat
- B. Safety glasses
- C. Fall protection
- D. Leather gloves

Questions 6 thru 9 can be found in Section 5.2 - Safety Data Sheet (SDS)

6. A Safety Data Sheet (SDS) provides information about:

- A. Utility bills
- B. Material safety and specifications
- C. Customer income
- D. Building permits

7. Which topic is included on an SDS?

- A. Property taxes
- B. Firefighting measures
- C. Utility rebate amounts
- D. Building value

8. Which SDS section provides information on accidental spills?

- A. Product Identification
- B. Accidental Release
- C. Toxicological Effects
- D. Regulatory Information

9. Whenever possible, weatherization materials should be selected to:

- A. Cost the least
- B. Be the easiest to install
- C. Present less long-term health risk
- D. Match the siding color

Questions 10 thru 12 can be found in Section 5.3 - Confined Spaces

10. According to OSHA, a confined space is one that:

- A. Is occupied continuously
- B. Has unrestricted exits
- C. Is large enough to enter but has limited entry or exit
- D. Is located outdoors

11. Work performed in confined spaces shall comply with:

- A. EPA regulations
- B. OSHA 29 CFR Part 1926 Subpart AA
- C. NEC Article 250
- D. NFPA 70

12. A sign at a crawl space entry should include:

- A. Customer income
- B. Installer contact information
- C. Blower door reading
- D. Insulation R-value

Questions 13 thru 15 can be found in Section 5.4 - Source Pollutant Control

13. The best way to control pollutants is:

- A. Increase ventilation only
- B. Remove pollutants at the source
- C. Install more insulation
- D. Close windows

14. Whole-building mechanical ventilation primarily helps:

- A. Increase heating costs
- B. Remove and dilute indoor pollutants
- C. Reduce electrical service size
- D. Increase blower door readings

15. Customers should receive education about:

- A. Mortgage financing
- B. Corrective actions to minimize pollutants
- C. Building permits
- D. Property taxes

Questions 16 thru 22 can be found in Section 5.4.1 - Carbon Monoxide (CO)

16. EPA's suggested maximum eight-hour exposure limit for carbon monoxide is:

- A. 5 ppm
- B. 9 ppm
- C. 25 ppm
- D. 35 ppm

17. Elevated room-air CO is commonly associated with:

- A. Properly operating appliances
- B. Malfunctioning combustion appliances
- C. LED lighting
- D. Cellulose insulation

18. Which of the following can produce carbon monoxide?

- A. Electric water heater
- B. Charcoal grill
- C. LED television
- D. Solar panel

19. Carbon monoxide meters should normally be zeroed:

- A. In the basement
- B. In outside air
- C. Near the furnace
- D. Inside the combustion appliance zone

20. CO testing equipment typically requires recalibration:

- A. Every month
- B. Every six months
- C. Every five years
- D. Only when damaged

21. Overfiring of an appliance means:

- A. Too little combustion fuel
- B. Too much combustion fuel supplied
- C. Too much ventilation
- D. Excess insulation

22. Which condition can contribute to elevated CO production?

- A. Adequate combustion air
- B. Backdrafting
- C. Proper burner alignment
- D. Proper draft

Questions 23 thru 27 can be found in Section 5.4.2 - Carbon Monoxide (CO) Alarms

23. Carbon monoxide alarms should be installed according to:

- A. Customer preference
- B. Manufacturer's instructions
- C. Local utility recommendations only
- D. Insurance company requirements

24. CO alarm batteries must be:

- A. Replaceable AA batteries
- B. Rechargeable
- C. Internal, non-replaceable, with a 10-year warranty
- D. 9-volt batteries

25. CO alarms should NOT be installed:

- A. On every habitable level
- B. Outside sleeping rooms
- C. Within 5 feet of a combustion appliance
- D. According to NFPA 72

26. CO alarms should not be connected to:

- A. Dedicated circuits
- B. GFCI circuits
- C. Permanent wiring
- D. Approved wiring methods

27. If manufacturer instructions conflict with general installation guidance:

- A. Follow the Field Guide only
- B. Follow the local inspector
- C. Follow the stricter specification
- D. Ignore the manufacturer's instructions

Questions 28 thru 30 can be found in Section 5.4.3 - Smoke Alarms

28. Smoke alarm batteries must be:

- A. Replaceable every year
- B. Sealed, non-replaceable, with a 10-year warranty
- C. Rechargeable
- D. Optional

29. Smoke alarms should be installed on:

- A. The first floor only
- B. Every floor, including the basement
- C. The second floor only
- D. Every other level

30. Smoke alarms should not be installed:

- A. Near sleeping areas
- B. On switched circuits
- C. On ceilings
- D. According to manufacturer's instructions

Questions 31 thru 45 can be found in Section 5.4.4 - Moisture Problems

31. Water and water vapor damage building materials by:

- A. Increasing insulation value
- B. Promoting mold and rot
- C. Improving wood strength
- D. Reducing humidity

32. Moisture reduces the thermal resistance of:

- A. Concrete only
- B. Insulation and other building materials
- C. Windows only
- D. Roofing nails

33. The most common source of moisture is:

- A. Air conditioning
- B. Leaky roofs and damp foundations
- C. Ceiling fans
- D. Electric furnaces

34. The first priority in solving moisture problems is to:

- A. Install more insulation
- B. Identify and reduce sources of bulk moisture
- C. Replace windows
- D. Install a dehumidifier

35. Local exhaust fans should primarily remove:

- A. Heat only
- B. Moisture and pollutants at their source
- C. Dust from attics
- D. Outdoor air

36. Recommended indoor relative humidity is:

- A. 10–20%
- B. 20–30%
- C. 30–50%
- D. 60–80%

37. Ground moisture may contribute up to approximately:

- A. 10 pints/day
- B. 25 pints/day
- C. 50 pints/day
- D. 105 pints/day

38. Dryers venting indoors may contribute approximately:

- A. 1–2 pints per load
- B. 2–3 pints per load
- C. 4–6 pints per load
- D. 10–12 pints per load

39. Air above what relative humidity is likely to cause condensation during cold weather?

- A. 20%
- B. 35%
- C. 50%
- D. 75%

40. Persistent window condensation usually indicates:

- A. Proper ventilation
- B. Excess indoor moisture requiring corrective action
- C. Low humidity
- D. Excess attic insulation

41. Which of the following is a symptom of excessive indoor moisture?

- A. Increased insulation value
- B. Persistent condensation on windows
- C. Lower humidity
- D. Dry wood flooring

42. Rot and wood decay indicate:

- A. Normal aging
- B. Advanced moisture damage
- C. Excess insulation
- D. Fire damage

43. Peeling or blistering paint may indicate:

- A. Excessive sunlight
- B. Moisture moving through the wall
- C. Low humidity
- D. Poor paint quality only

44. Corrosion and rust on metal surfaces are signs of:

- A. Excess heat
- B. Moisture problems
- C. Termite damage
- D. Improper wiring

45. White crystalline deposits on masonry are known as:

- A. Oxidation
- B. Mold
- C. Efflorescence
- D. Scaling

Questions 46 thru 54 can be found in Section 5.4.5 - Foundation Moisture Control

46. Moisture entering through foundations can significantly affect:

- A. Property taxes
- B. Indoor air quality
- C. Electrical demand only
- D. Window warranty

47. Moisture and pollutants commonly move upward through a home because of:

- A. Solar gain
- B. Stack effect
- C. Wind washing
- D. Radiation

48. Before installing a ground vapor retarder, technicians should first:

- A. Install insulation
- B. Repair plumbing leaks
- C. Paint the walls
- D. Install a sump pump

49. Ground vapor retarders should completely cover the soil using:

- A. Roofing felt
- B. 6-mil plastic or cross-laminated polyethylene
- C. Tar paper
- D. Fiberglass insulation

50. Vapor retarder seams must overlap a minimum of:

- A. 2 inches
- B. 6 inches
- C. 12 inches
- D. 18 inches

51. The ground vapor retarder should extend at least how far up the foundation wall?

- A. 2 inches
- B. 4 inches
- C. 6 inches
- D. 12 inches

52. Seams and penetrations in the vapor retarder should be:

- A. Left loose
- B. Stapled only
- C. Sealed airtight with adhesive
- D. Covered with insulation

53. Ground vapor retarders are generally intended for use in:

- A. Finished basements
- B. Crawl spaces
- C. Living rooms
- D. Garages

54. Open concrete block cores should be capped to reduce:

- A. Electrical hazards
- B. Moisture and pollutant entry
- C. Termite damage
- D. Heat loss only

Questions 55 thru 66 can be found in Section 5.5 - Lead Paint and Lead-Safe Work

55. Lead dust is especially harmful because it damages the:

- A. Digestive system
- B. Neurological system
- C. Cardiovascular system
- D. Immune system

56. Children are particularly vulnerable to lead because of:

- A. Higher body temperature
- B. Rapid brain development and hand-to-mouth behavior
- C. Faster breathing only
- D. Poor eyesight

57. Homes built before what year should generally be assumed to contain lead paint unless testing proves otherwise?

- A. 1965
- B. 1970
- C. 1978
- D. 1985

58. Lead-safe work practices emphasize:

- A. Faster installation
- B. Dust prevention and housekeeping
- C. Painting techniques
- D. Lower blower door readings

59. All weatherization field workers must be:

- A. Electricians
- B. Lead-safe work trained
- C. Licensed plumbers
- D. Structural engineers

60. Lead Safe Renovator requirements apply whenever:

- A. Any insulation is installed
- B. Windows are replaced or demolished in pre-1978 housing
- C. Smoke alarms are installed
- D. Crawlspace are entered

61. Which activity may disturb lead paint?

- A. Removing siding for insulation
- B. Changing a furnace filter
- C. Testing a smoke alarm
- D. Replacing batteries

62. Before lead-producing work begins, the work area should be:

- A. Carpeted
- B. Tented with plastic from floor to ceiling
- C. Opened to the rest of the home
- D. Left uncovered

63. Furniture in the work area should be protected with:

- A. Blankets
- B. Disposable plastic sheeting
- C. Cardboard
- D. Newspaper

64. A HEPA vacuum should be used:

- A. Only after work is complete
- B. During drilling and cleanup
- C. Only outdoors
- D. Only on carpets

65. Workers should avoid using:

- A. HEPA vacuums
- B. The customer's cleaning tools for lead cleanup
- C. Disposable plastic
- D. Respirators

66. Boot covers help prevent:

- A. Cold feet
- B. Tracking lead dust throughout the home
- C. Electrical shock
- D. Water leaks

Questions 67 thru 70 can be found in Section 5.6 - Asbestos

67. Which disease is a non-cancer lung disease caused by asbestos exposure?

- A. Asthma
- B. Asbestosis
- C. COPD
- D. Pneumonia

68. Mesothelioma affects the:

- A. Kidneys
- B. Thin lining of the lungs, chest, abdomen, or heart
- C. Liver
- D. Brain

69. Building materials should generally be presumed to contain asbestos unless:

- A. They are painted
- B. Proven otherwise through certified inspection and laboratory analysis
- C. They are in a basement
- D. The homeowner says they do not

70. Which insulation must always be presumed to contain asbestos?

- A. Fiberglass batts
- B. Cellulose
- C. Vermiculite
- D. Mineral wool

Questions 71 thru 77 can be found in Section 5.7 - Electrical Safety

71. Attics should contain:

- A. Exposed wiring
- B. No exposed wiring
- C. Extension cords
- D. Temporary wiring

72. All electrical splices should be enclosed within:

- A. Flexible conduit
- B. Junction boxes
- C. Electrical tape
- D. Plastic bags

73. Junction boxes hidden by insulation should be identified with:

- A. Paint
- B. Flags
- C. Tape only
- D. Markers on drywall

74. Live knob-and-tube wiring should:

- A. Be insulated over
- B. Be eliminated whenever feasible
- C. Be painted
- D. Be buried in cellulose

75. Barricade materials around knob-and-tube wiring must remain at least:

- A. 1 inch away
- B. 2 inches away
- C. 3 inches away
- D. 6 inches away

76. Maximum overcurrent protection for 14-gauge wire is:

- A. 10 amps
- B. 15 amps
- C. 20 amps
- D. 30 amps

77. Maximum overcurrent protection for 12-gauge wire is:

- A. 15 amps
- B. 20 amps
- C. 25 amps
- D. 30 amps

Questions 78 thru 87 can be found in Section 5.8.1 - Gas Piping Inspection

78. Combustible gas detectors are primarily used to locate:

- A. Water leaks
- B. Electrical faults
- C. Natural gas and LPG leaks
- D. Air leaks

79. A combustible gas detector should be capable of:

- A. Measuring blower door pressure only
- B. Displaying percent of the Lower Explosive Limit (LEL)
- C. Measuring insulation depth
- D. Measuring humidity only

80. Upon entering a building, auditors and inspectors shall sample ambient air with a combustible gas detector:

- A. Only in the basement
- B. At least one location on each occupied floor
- C. Only near the furnace
- D. Only outside the home

81. If ambient air exceeds 10% of the Lower Explosive Limit (LEL) upon entering a building, the auditor or inspector shall:

- A. Continue the inspection with windows open
- B. Evacuate the occupants and notify emergency services or the gas provider from outside the building
- C. Turn off the furnace and continue working
- D. Ignore the reading if no gas odor is present

82. Upon completion of weatherization, inspectors shall:

- A. Measure blower door leakage only
- B. Sample ambient air with a combustible gas detector
- C. Replace the gas meter
- D. Shut off all gas appliances

83. When inspecting natural gas piping, the combustible gas detector should be positioned:

- A. Below the piping
- B. Above the piping
- C. Against the floor
- D. At ceiling level only

84. When inspecting LPG piping, the combustible gas detector should be positioned:

- A. Above the piping
- B. Below the piping
- C. At eye level
- D. At the meter only

85. Confirmed gas leaks should be marked using:

- A. Spray paint
- B. Flagging tape or equivalent
- C. Chalk only
- D. Marker pen

86. Kinked or corroded flexible gas connectors shall be:

- A. Straightened
- B. Wrapped with tape
- C. Replaced
- D. Painted

87. Corrugated Stainless Steel Tubing (CSST) that is improperly bonded shall be bonded according to:

- A. NFPA 72
- B. NEC 250.94 and 250.104
- C. IRC Chapter 11
- D. OSHA 1910

Questions 88 thru 93 can be found in Section 5.8.2 - Ambient CO Monitoring

88. During building assessments, ambient CO monitors shall operate:

- A. Only in the basement
- B. At all times
- C. Only while testing furnaces
- D. Only outdoors

89. Ambient CO measurements shall be conducted in:

- A. Mechanical rooms only
- B. All occupied spaces
- C. Attics only
- D. Crawl spaces only

90. If ambient CO reaches 70 ppm or higher, the auditor shall:

- A. Open windows and continue
- B. Evacuate immediately and call emergency services
- C. Shut off lights
- D. Increase ventilation only

91. Ambient CO between 36–69 ppm requires:

- A. No action
- B. Turn off suspected appliances, ventilate, and notify occupants
- C. Immediate evacuation
- D. Weatherization completion

92. Ambient CO between 9-35 ppm requires technicians to:

- A. Ignore the reading
- B. Notify occupants and recommend opening windows and/or doors
- C. Evacuate immediately
- D. Replace appliances immediately

93. During combustion safety testing, if ambient CO exceeds 35 ppm, technicians shall:

- A. Continue testing
- B. Immediately stop testing and ventilate
- C. Test another appliance
- D. Ignore temporary readings

Questions 94 thru 118 can be found in Section 5.8.3 - Combustion Appliance Safety Inspection

94. Combustion safety inspections require depressurization testing in:

- A. All attics
- B. Every combustion appliance zone (CAZ) with permanent natural-draft appliances
- C. Only crawl spaces
- D. Garages

95. Before combustion testing, combustion appliances inside the CAZ should be placed in:

- A. High fire
- B. Standby mode
- C. Emergency heat
- D. Continuous operation

96. Prior to testing, all wood fires should be:

- A. Burning normally
- B. Fully extinguished with no hot coals
- C. Reduced to embers
- D. Covered with ash

97. During combustion testing, exterior doors and windows should be:

- A. Open
- B. Closed
- C. Locked open
- D. Removed

98. Interior doors to rooms without return air should be:

- A. Removed
- B. Closed
- C. Locked
- D. Open

99. Mechanical ventilation and exhaust equipment should be:

- A. Turned on
- B. Turned off
- C. Left unchanged
- D. Set to maximum

100. The first pressure measurement recorded when determining greatest depressurization achievable (GDA) is:

- A. Appliance draft
- B. Baseline pressure differential
- C. Static pressure
- D. Supply pressure

101. Exhaust appliances are turned on during GDA testing to determine:

- A. Appliance efficiency
- B. Their effect on CAZ pressure
- C. Gas pressure
- D. Electrical load

102. A more negative CAZ pressure after turning on exhaust fans generally indicates:

- A. Increased pressurization
- B. Depressurization caused by exhaust fans
- C. Better insulation
- D. Improved ventilation balance

103. If the air handler causes the CAZ to become more positive, it generally indicates:

- A. Return duct leakage in the CAZ
- B. Supply leakage in the CAZ or return leaks in the attic
- C. Chimney blockage
- D. Furnace failure

104. For water heaters connected to a warm vent, spillage is assessed after:

- A. 30 seconds
- B. 1 minute
- C. 2 minutes
- D. 10 minutes

105. CO measurements on warm vent systems are taken after:

- A. 2 minutes
- B. 3 minutes
- C. 5 minutes
- D. 10 minutes

106. Appliances connected to a cold vent are tested for spillage after:

- A. 1 minute
- B. 2 minutes
- C. 5 minutes
- D. 10 minutes

107. Shared venting systems are tested beginning with the appliance having the:

- A. Highest BTU input
- B. Lowest BTU input
- C. Newest installation
- D. Oldest installation

108. Direct-vent and power-vent appliances require CO measurement after:

- A. 2 minutes
- B. 3 minutes
- C. 5 minutes
- D. 15 minutes

109. If spillage occurs under baseline conditions, technicians should:

- A. Ignore it
- B. Correct the venting system
- C. Increase blower speed
- D. Install insulation

110. If excessive depressurization is caused by the air handler, technicians should evaluate:

- A. Plumbing
- B. Forced-air duct system
- C. Windows
- D. Roofing

111. Excessive exhaust flow causing spillage may require:

- A. Additional insulation
- B. Reduced exhaust flow or make-up air
- C. Window replacement
- D. Larger gas piping

112. If CO exceeds acceptable limits, technicians should:

- A. Increase thermostat settings
- B. Service or replace the appliance
- C. Add insulation
- D. Clean the chimney only

113. The acceptable CO limit for a central furnace is:

- A. 200 ppm air free
- B. 225 ppm as measured
- C. 400 ppm air free
- D. 25 ppm as measured

114. The acceptable CO limit for a water heater is:

- A. 100 ppm air free
- B. 200 ppm air free
- C. 225 ppm as measured
- D. 400 ppm air free

115. The acceptable CO limit for a gas oven/broiler is:

- A. 25 ppm
- B. 200 ppm air free
- C. 225 ppm as measured
- D. 400 ppm air free

116. Unvented room heaters:

- A. Are recommended in weatherized homes
- B. May remain after weatherization
- C. May not remain in completed weatherized buildings
- D. Require no testing

117. Gas ovens should be tested at what temperature?

- A. 350°F
- B. 400°F
- C. 500°F
- D. Self-clean setting

118. Gas ovens should NOT be tested using:

- A. Bake at 500°F
- B. Broil or self-clean settings
- C. A combustion analyzer
- D. The exhaust vent

Questions 119 thru 120 can be found in Section 5.9 – Measuring Natural Draft

119. Measured natural draft in a venting system should always be:

- A. Positive
- B. Zero
- C. Negative with respect to indoors
- D. Equal to outdoor pressure

120. Before measuring natural draft, technicians should inspect the venting system for:

- A. Paint color
- B. Damage, leaks, disconnections, and improper slope
- C. Utility meter size
- D. Roof insulation depth

Questions 121 thru 126 can be found in Section 5.10 – Depressurization Guidance

121. The Greatest Depressurization Achievable (GDA) is determined by comparing measured pressure to the:

- A. Draft reading
- B. Baseline pressure
- C. Gas pressure
- D. Static pressure

122. If GDA exceeds the guideline values, the possibility of _____ increases.

- A. Heat loss
- B. Appliance spillage
- C. Air leakage
- D. Moisture damage

123. When GDA exceeds -5 Pa for wood-fired appliances or fireplaces, consider installing:

- A. More insulation
- B. Make-up or dedicated combustion air
- C. Larger chimneys
- D. New windows

124. The Maximum Depressurization Guideline (MDG) is:

- A. The least restrictive value in the CAZ
- B. The most restrictive value in the CAZ
- C. Always -25 Pa
- D. Always -5 Pa

125. A properly vented stand-alone natural draft water heater has a maximum depressurization guideline of:

- A. -2 Pa
- B. -3 Pa
- C. -5 Pa
- D. -15 Pa

126. A power-vented water heater with sealed-combustion heating equipment has an MDG of:

- A. -5 Pa
- B. -10 Pa
- C. -15 Pa
- D. -25 Pa

Questions 127 thru 130 can be found in Section 5.10.1 - Make-Up Air Systems

127. Make-up air is commonly considered when the combustion appliance zone is:

- A. Properly balanced
- B. Excessively pressurized or depressurized
- C. Too warm
- D. Too dry

128. The recommended make-up air amount is equal to:

- A. 20% of total exhaust airflow
- B. 30% of total exhaust airflow
- C. 40% of total exhaust airflow
- D. 100% of total exhaust airflow

129. Outdoor make-up air intakes should be labeled:

- A. Fresh Air Only
- B. Outdoor Intake
- C. Ventilation Air Intake
- D. Mechanical Air

130. Customers should be instructed to keep the make-up air intake free of:

- A. Snow only
- B. Yard debris and contaminants
- C. Mulch only
- D. Paint

Questions 131 thru 133 can be found in Section 5.11 – Water Heater Replacement

131. Water heaters may be replaced for health and safety reasons if:

- A. They are over five years old
- B. The storage tank actively leaks
- C. They use electricity
- D. They are noisy

132. A water heater producing over 200 ppm air-free CO that cannot be repaired should:

- A. Continue in service
- B. Be replaced
- C. Be painted
- D. Have insulation added

133. Severe flame rollout that cannot be repaired is grounds for:

- A. Cleaning only
- B. Water heater replacement
- C. Additional ventilation
- D. Lower thermostat settings

Questions 134 thru 135 can be found in Section 5.12 – Mechanical Ventilation

134. Mechanical ventilation is required because many weatherized homes become:

- A. Larger
- B. More airtight
- C. Older
- D. Less insulated

135. If a customer refuses required ventilation, they must sign:

- A. A warranty form
- B. Refusal of Ventilation Release of Liability
- C. Blower Door Worksheet
- D. Lead Disclosure

Questions 136 thru 138 can be found in Section 5.12.1 – Choosing Ventilation Systems

136. Ventilation systems should be selected based on:

- A. Color preference
- B. The needs and characteristics of the home
- C. Window manufacturer
- D. Roofing material

137. Very tight homes often require:

- A. No ventilation
- B. Balanced centrally ducted ventilation
- C. Roof vents only
- D. Window fans only

138. Heat Recovery Ventilators (HRVs) help:

- A. Increase humidity only
- B. Recover heat from exhausted air
- C. Eliminate combustion appliances
- D. Increase blower door leakage

Questions 139 thru 140 can be found in Section 5.12.2 – Sizing Ventilation Systems

139. Whole-building ventilation is sized according to:

- A. Furnace size
- B. Home size and number of occupants
- C. Roof area
- D. Window area

140. Ventilation sizing follows which standard?

- A. NEC
- B. NFPA 72
- C. ASHRAE 62.2
- D. OSHA

Questions 141 thru 143 can be found in Section 5.12.3 - Local Exhaust Fans

141. Bathroom exhaust fans should be installed:

- A. Near the exterior wall only
- B. As close to the shower as practical
- C. In the attic
- D. In the hallway

142. Exhaust fans should generally be mounted:

- A. Near the floor
- B. Against the ceiling surface
- C. In closets
- D. In crawl spaces

143. Installing fans in vaulted ceilings is generally avoided because:

- A. They are too quiet
- B. They displace insulation and increase condensation risk
- C. They cost less
- D. They improve airflow too much

Questions 144 thru 145 can be found in Section 5.12.4 - Whole-Building Exhaust-Only Ventilation

144. Wisconsin most commonly uses which whole-building ventilation strategy?

- A. Supply-only
- B. Balanced HRV
- C. Exhaust-only
- D. Natural ventilation only

145. Intermittent whole-building ventilation should operate at least:

- A. Once every hour
- B. Once every two hours
- C. Once every three hours
- D. Once every six hours

Questions 146 thru 150 can be found in Section 5.12.5 - Exhaust Fan Ducting

146. Exhaust fan ducting shall terminate:

- A. In the attic
- B. In the crawl space
- C. Outdoors
- D. In the garage

147. Exhaust ducting located in unheated spaces shall be insulated to at least:

- A. R-4
- B. R-6
- C. R-8
- D. R-13

148. Exhaust duct joints should be:

- A. Left unsealed
- B. Sealed throughout the duct run
- C. Covered with insulation only
- D. Wrapped in cloth

149. Exhaust termination hoods should be located at least _____ from operable openings.

- A. 1 foot
- B. 2 feet
- C. 3 feet
- D. 6 feet

150. Kitchen exhaust terminations shall be constructed of:

- A. Plastic
- B. Aluminum foil
- C. Galvanized steel, stainless steel, or copper
- D. PVC

Questions 151 thru 153 can be found in Section 5.12.5 – Exhaust Fan Ducting

151. Supply ventilation systems introduce:

- A. Exhaust air
- B. Fresh outdoor air into the home
- C. Combustion gases
- D. Crawl space air

152. Return air entering the furnace from continuous outdoor air systems should generally not be below:

- A. 40°F
- B. 50°F
- C. 60°F
- D. 70°F

153. Supply ventilation systems generally:

- A. Depressurize the house
- B. Pressurize the house
- C. Have no pressure effect
- D. Eliminate ventilation needs

Questions 154 thru 160 can be found in 5.12.7 – Balanced Ventilation Systems

154. Balanced ventilation systems move:

- A. More air out than in
- B. More air in than out
- C. Equal amounts of air in and out
- D. No outdoor air

155. Most balanced systems include:

- A. Window fans
- B. Heat Recovery Ventilators (HRVs)
- C. Box fans
- D. Ceiling fans

156. Proper installation and maintenance of balanced ventilation systems are:

- A. Optional
- B. Required for effective operation
- C. Only needed in summer
- D. Required only in multifamily buildings

157. Fully ducted balanced systems provide the designer with:

- A. Less control over airflow
- B. High control over airflow and house pressure
- C. No control over airflow
- D. Lower insulation requirements

158. Dedicated exhaust grilles in balanced systems should be installed:

- A. In attics only
- B. Near pollutant sources such as bathrooms and kitchens
- C. Only in hallways
- D. Only in basements

159. Duct seams in fully ducted balanced systems should be sealed using:

- A. Cloth tape
- B. Mastic, metallic tape, or other UL181-approved material
- C. Rope
- D. Plastic wrap

160. In ducted-exhaust balanced systems, airflow should be balanced so house pressures remain:

- A. Strongly positive
- B. Strongly negative
- C. Close to neutral
- D. Equal to outdoor wind pressure

Question 161 can be found in 5.12.8 – Heat-Recovery Ventilators

161. The core of a Heat-Recovery Ventilator (HRV) is typically made of:

- A. Fiberglass insulation
- B. Flat-plate aluminum or polyethylene air-to-air heat exchanger
- C. Copper tubing only
- D. Stainless steel coils

Questions 162 thru 165 can be found in 5.12.8 – Heat-Recovery Ventilators

162. During HRV/ERV installation, installers should first:

- A. Install filters
- B. Follow the manufacturer's specifications
- C. Operate the system for 24 hours
- D. Balance the ducts before mounting the unit

163. A backdraft damper shall be installed between the HRV/ERV and the:

- A. Furnace
- B. Interior grille
- C. Exterior
- D. Thermostat

164. Ducts installed outside the thermal envelope for an HRV/ERV shall be insulated to a minimum of:

- A. R-4
- B. R-6
- C. R-8
- D. R-13

165. Customers should be instructed to periodically:

- A. Replace the blower motor
- B. Change filters and clean the drain pan according to manufacturer instructions
- C. Remove the backdraft damper
- D. Close all supply registers

Questions 166 thru 169 can be found in 5.12.10 – Humidity Control

166. Ventilation controls should generally be mounted:

- A. On an exterior wall
- B. On a main-floor interior wall, about 48–60 inches above the floor
- C. In the attic
- D. Behind the furnace

167. Ventilation controls should NOT be installed:

- A. On an interior wall
- B. In direct sunlight or drafty locations
- C. Near living areas
- D. At accessible heights

168. De-humidistats are typically adjusted to maintain indoor relative humidity of approximately:

- A. 10-20%
- B. 20-30%
- C. 30-50%
- D. 60-70%

169. Combination controls commonly use override switches in:

- A. Bedrooms
- B. Kitchens and bathrooms
- C. Crawl spaces
- D. Garages

Questions 170 thru 175 can be found in 5.13 - Dryer Venting

170. Clothes dryers should always vent:

- A. Into the attic
- B. Into the garage
- C. Directly to the exterior
- D. Into the crawl space

171. A flexible dryer transition duct may remain in place if it is:

- A. Vinyl
- B. UL 2158A listed, in good condition, and unobstructed
- C. Plastic
- D. Longer than 12 feet

172. The maximum length of a dryer transition duct is:

- A. 4 feet
- B. 6 feet
- C. 8 feet
- D. 10 feet

173. Primary dryer ducting shall be:

- A. Flexible vinyl
- B. Rigid, minimum 30-gauge, with a smooth interior
- C. Corrugated plastic
- D. PVC pipe

174. Mechanical fasteners, screws, or rivets should NOT be used inside dryer ducting because they:

- A. Cause corrosion
- B. Catch lint and create a fire hazard
- C. Reduce airflow by 5%
- D. Increase noise

175. Dryer vent terminations shall:

- A. Include a pest screen
- B. Include a backdraft damper and no pest screen
- C. Vent into the attic
- D. Be left open

Questions 176 thru 180 can be found in 5.14 - Priorities for Existing Homes

5.15.1 - Sumps

5.15.3 - Sump Covers for Submersible Pumps

5.15.4 - Sump covers for pedestal pumps

5.15.5 - Floor Drains

176. When designing ventilation systems for existing homes, one advantage is that:

- A. Existing homes require no testing
- B. The home provides an observable history to evaluate
- C. Existing homes never need mechanical ventilation
- D. Ventilation standards do not apply

177. Sump covers are required, when applicable, primarily to reduce:

- A. Heat loss
- B. Entry of radon into the home
- C. Water pressure
- D. Electrical hazards

178. If a sump cover cannot be installed or is refused, continuous exhaust ventilation shall be set to:

- A. At least 5 CFM
- B. At least 10 CFM
- C. Meet ASHRAE 62.2 but no lower than 15 CFM continuous
- D. Exactly 50 CFM

179. For submersible sump pumps, sump pit covers shall be:

- A. Flexible plastic sheeting
- B. Rigid polycarbonate plastic or another rot-resistant material
- C. Fiberglass insulation
- D. Corrugated cardboard

180. When a pedestal sump pump prevents sealing of the sump, one acceptable solution is to:

- A. Seal around the moving float with spray foam
- B. Replace the pedestal pump with a submersible pump or install a commercially manufactured pedestal pump cover
- C. Remove the float assembly
- D. Leave the sump uncovered

