

## QCI HEP Pre-Exam Quiz

1. When spraying two part foam the technician's BEST choice for respiratory protection is a:
  - a) Full face respirator with p-100 filters
  - b) Filtering face piece
  - c) Full face or hood supplied air respirator
  - d) Half face respirator with a VOC cartridge
  
2. According to ASHRAE 62.2 - 2013, a full bathroom with a fan moving this amount of air would require no additional ventilation added using the alternative compliance ventilation method, as long as there was an operable window:
  - a) 20 CFM
  - b) 50 CFM
  - c) 15 CFM
  - d) 30 CFM
  
3. According to NFPA 54, what is the minimum required volume for a combustion appliance zone housing a natural draft atmospheric furnace and water heater totaling 120,000 BTUH input?
  - a) 50,000 ft<sup>3</sup>
  - b) 12,000 ft<sup>3</sup>
  - c) 6,000 ft<sup>3</sup>
  - d) 4,200 ft<sup>3</sup>
  
4. An "appropriate energy efficiency measure" can be defined as:
  - a) Whatever your experience tells you will save energy in a given home.
  - b) A measure recommended by the program-approved audit or priority list.
  - c) Attic insulation if there is R-10 or less existing.
  - d) Refrigerator replacement if existing unit is over 7 years old.
  
5. During a final inspection you determine the attic hatch was not installed according to program requirements and looks very sloppy. The client complains. Your BEST course is to:
  - a) Deduct the price of the attic hatch from the contractor's reimbursement. Issue a re-work and re-bid the attic hatch.
  - b) Immediately call the crew leader and have the client explain the problem. Assign a re-work order.
  - c) Contact your supervisor to get a re-work order in process. Inform the client that things will proceed according to program regulations.
  - d) Assure the client the work will be fixed, and contact the crew leader as soon as possible to assign the re-work order.

6. During a final inspection your blower door reading shows you the house needs additional air sealing. To help identify where air sealing efforts should focus, you conduct zone pressure diagnostics, starting with the house to attic. With the house at 50 WRT outside, you measure 45 in the house WRT the attic. This tells you:
  - a) Wall cavities are connecting the basement to the attic. Seal at the top and bottom to achieve target blower door number.
  - b) The ceiling is leaking more to the attic than the attic is to outside, indicating air sealing the ceiling/attic floor will be highly effective.
  - c) Dropped soffits were not addressed, and are connecting the attic with the living space. Air sealing those is a high priority.
  - d) The ceiling is acting as a suitable air barrier. You will test other zones to locate major air leaks.
  
7. During an in-progress inspection you find an installer standing on the client's dryer to access the attic hatch. As the quality control inspector, your best response is to:
  - a) Order the installer to climb down and provide your phone number to the client to call you if any more situations like this occur.
  - b) Loudly berate the installer so the client can hear that you are against such practices.
  - c) Say nothing to the installer, but call the installer's supervisor and report the incident.
  - d) Assist the installer in moving the dryer and positioning a ladder for safe access, and, during a break, raising the issue of professional conduct and respect for client
  
8. During an in-progress inspection you find that the auditor mis-identified the building envelope and the installers are not insulating a wall between the conditioned and unconditioned space, a living-room and enclosed porch. They are also not insulating the walls of the enclosed but unconditioned porch. They will complete wall insulation this afternoon, according to their schedule. Your best response is to:
  - a) Assume the auditor had a good reason of omitting this wall from the insulation measure and not mention it again.
  - b) Say nothing at the moment, but write up the error in your report, knowing that the crew will return and finish the job appropriately.
  - c) Contact your supervisor to get a verbal okay, follow the procedure for change orders, and then inform the crew of the added area to be installed. It is up to them to complete today or return later.
  - d) Contact the energy auditor and make him/her start the process for a change order. Leave the crew undisturbed.
  
9. During an in-progress inspection, which of the following BEST describes your scope of evaluation?

- a) Worker professionalism and safety; Cleanliness of home; Distance to nearest public restroom
  - b) Client satisfaction with in-progress work; Worker professionalism and safety; Workmanship of installed measures
  - c) Workmanship of installed measures; Crew's system of tools and materials accounting; Number of residents present during work
  - d) Cleanliness of home; Client satisfaction with in-progress work; Workmanship of crews
10. The amount of water vapor contained in a given volume of air compared to the total amount of water vapor it is capable of containing is called:
- a) Relative humidity
  - b) Dew point
  - c) Condensation
  - d) Wet bulb
11. During the final inspection, which of the following is NOT a necessary part of the quality control inspector's job?
- a) Convene a meeting with client, auditor and crew leader to discuss job outcomes and get client sign-off.
  - b) Question the client about satisfaction with the entire process and include in the report.
  - c) Verify the work was installed according to the work order through visual/sensory and diagnostic evaluations.
  - d) Acquire client satisfaction sign-off and retain form in client file.
12. During the final-inspection client interview, aside from conducting relevant client-education, your primary purpose is to:
- a) Provide material for companies and products that may meet future client needs.
  - b) Evaluate client satisfaction.
  - c) Verify client program eligibility.
  - d) Acquire signed waiver from client, in the case of future problems.
13. Once you have set up worst-case draft conditions, which appliance do you fire first to conduct worst-case CAZ depressurization tests? The appliance with the:
- a) Longest flue distance from chimney
  - b) Highest BTU capacity
  - c) Smallest diameter flue pipe
  - d) Lowest BTU capacity
14. Testing individual return and supply ducts with a pressure pan helps determine what?
- a) Location of leakage areas in the ductwork
  - b) Overall leakage from ducts to the home

- c) Whether the ducts are blocked or constrained
  - d) Effective R-value for insulated ducts
15. The audit for a home you are inspecting indicates the unfloored attic was previously uninsulated, and the work order specified insulating to R-30, which adheres to your program requirements. During final inspection you discover that about 1/2 of the attic had existing R-13 batt insulation, which the installers left in place and blew over with another R-30 of cellulose. You conduct blower door and IR testing to determine the insulation is effective where blown over the batts. You will:
- a) Deduct the cost of the cellulose that brought the R-value higher than R-30 for half the attic from the contractor reimbursement.
  - b) Make a note of the discrepancy in the client file, and include in your report the inaccuracies in the initial audit.
  - c) Contact the crew leader to request cost-effectiveness justification for the cellulose which effectively brought half of the attic above R-30.
  - d) Create a change order, have the crew return, remove the fiberglass batts and rake the cellulose smooth before signing off on the job.
16. The program you are working for requires you maintain EPA's Lead Renovation, Repair and Painting (RRP) Certified Renovator certification. What is the bare minimum you must do to acquire and maintain the certification?
- a) Take the 8-hour course, written and hands-on tests, and acquire 35 Continuing Education Units (CEUs) every 5 years.
  - b) Challenge and pass the exam, and acquire 35 Continuing Education Units (CEUs) every 3 years.
  - c) Take the 8-hour course, written and hands-on tests, then take a refresher course every 5 years.
  - d) Take the 8-hour course, written and hands-on tests, and then acquire 35 Continuing Education Units (CEUs) and take a refresher course every 5 years.
17. The temperature difference between the evaporator and the compressor inlet on a cooling unit is called:
- a) Supercooling
  - b) Subcooling
  - c) Superheat
  - d) Expansion ratio
18. Which of the following is NOT typically a critical component of the client file?
- a) Copy of client driver's license
  - b) Verification of client eligibility for the program
  - c) Client satisfaction and sign-off form
  - d) Work scope and/or job order documents

19. Which of the following pieces of information regarding the exterior of a home should be collected during an inspection in order to analyze the home's energy consumption?
- a) Proper closure of garage door
  - b) Standing water around the crawlspace
  - c) Presence of gutters
  - d) Number of windows
20. While reviewing the required paperwork for a recently completed project you notice that a new exterior door was on the work order but not noted in the contractor invoices or your final inspection report. Your BEST course of action is to:
- a) Call the client to schedule another final inspection to verify the door wasn't replaced and move forward accordingly.
  - b) Call the client to determine if the door replacement is desired and move forward accordingly.
  - c) Call the responsible contractor to determine why the door was not replaced and move forward accordingly from there.
  - d) Sign off on the paperwork, including a note about the door.
21. You are at a job where no work was done in the attic. Existing insulation levels were adequate, and no additional venting was needed. During your final inspection you:
- a) Since no work was conducted in the attic, mark "N/A" on the final inspection form and move on to the next item.
  - b) Ask the homeowner to verify the pre-retrofit insulation characteristics noted in the audit form. Have them sign-off and include this form in the client file.
  - c) Confirm with the crew leader that no work was done in the attic. Contact the auditor to verify the pre-audit numbers and sign off on the job after all other work is inspected.
  - d) Access the attic and verify the pre-retrofit insulation levels as noted in the audit form and spot-check ventilation and high-temperature flues running through the attic.
22. You are closing out a project in which there have been a number of re-works, but everything was ultimately completed as required. Which of the following BEST describes what you should include in your job file?
- a) All official documentation, including client sign-off sheet, and any handwritten or other notes you kept to track the anomalies.
  - b) The original work order, change orders and contractor invoices.
  - c) Original audit, work order and client sign-off sheet.
  - d) All official documentation, the original audit, change orders and the client sign-off sheet.

23. You are final inspecting a job that included replacing an unsafe gas water heater with a new, natural draft water heater. What is the required slope for the vent connector from the water heater to the main chimney?
- 1" per horizontal foot.
  - 1/2" per horizontal foot.
  - 4" per horizontal foot.
  - 1/4" per horizontal foot.
24. You are inspecting for a program that requires measures be installed in the order of cost-effectiveness to be eligible for contractor reimbursement. The initial audit shows the home was eligible for complete wall dense-pack insulation installation according to program requirements. Lower down the priority list, windows are listed as cost-effective, though not as effective as the wall insulation. At final inspection you see that all the windows have been replaced, but the walls were not insulated. The client explains during the client interview that the contractors said all the program funds had been used up installing windows and they could do no more. You:
- Explain to the client that the program reimbursement requirements have not been met, and she will have to pay for the windows.
  - Reimburse the contractor for the windows, and issue a re-work for the higher-priority measures to be installed within a given time-frame.
  - Contact your direct supervisor and have this contractor removed from the roster. Provide the client with contact information for insulation contractors in the area.
  - Contact the crew leader and instruct them to install wall insulation and other higher-priority measures before being reimbursed for the windows.
25. You are traveling near an in-progress job and decide to drop by for a spot check. Which of the following would it NOT be appropriate to request from workers on site?
- Safety Data Sheets for materials being used on the job site
  - Worker credentials
  - Program eligibility of homeowner
  - Work order and any change orders

## Quiz Key

1	C
2	D
3	C
4	B
5	D
6	D
7	D
8	C
9	B
10	A
11	A
12	B
13	D
14	A
15	B
16	C
17	C
18	A
19	D
20	C
21	D
22	A
23	D
24	D
25	C