

Book 6 **Performance-Based Skill Assessment Evaluation Packet**

**Task 6.1.1 Identifying Procedures Used to Pressure Test New Propane
Distribution Systems**

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Employee's Name (Please Print)

Date of Skills Evaluation

Skills Evaluator Name (Please Print)

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NOTICE: THE SKILLS EVALUATOR MUST BE THE EMPLOYEE'S SUPERVISOR OR SOME OTHER QUALIFIED PERSON WHO HAS COMPLETED CETP "BASIC PRINCIPLES AND PRACTICES" OR IS FAMILIAR WITH THE SUBJECT MATTER. CETP CERTIFICATION REQUIRES THAT THE EMPLOYEE SEEKING CERTIFICATION CANNOT ACT AS HIS/HER OWN EVALUATOR.

Users of this material should consult the law of their individual jurisdictions for codes, standards and legal requirements applicable to them. This material is not intended to be an exhaustive treatment of the subject, and should not be interpreted as precluding other procedures that would enhance safe LP-gas operations. This training material merely suggests methods the user may find useful in implementing applicable codes, standards, and legal requirements. This publication is not intended nor should it be construed to (1) set forth procedures which are the general custom or practice in the propane industry; (2) to establish the legal standards of care owed by propane distributors to their customers; or (3) to prevent the reader from using different methods to implement applicable codes, standards or legal requirements. This material was designed to be used as a resource only to assist expert and experienced supervisors and managers in training personnel in their organizations and does not replace federal, state, local, or company safety rules. The user of this material is solely responsible for the method of implementation. The Propane Research and Education Council, the National Propane Gas Association, CASTLE Worldwide and Industrial Training Services, Inc. assume no liability for reliance on the contents of this training material.

Issuance of this material is not intended to nor should it be construed as an undertaking to perform services on behalf of any party either for their protection or for the protection of third parties.

I. General Instructions

Instructions for Use

This **Performance-Based Skill Assessment Evaluation Packet** is designed to:

- provide structured on-the-job training for the LP-gas employee under the direction of an experienced and qualified skills evaluator, and
- standardize conditions under which the employee demonstrates his/her performance of tasks that meet the requirements of the NPGA Certified Employee Training Program.

Each task is divided into one or more operations on which the employee's performance is evaluated. Each operation is designated by the following symbol: . Also, under each operation a performance guide may be listed that establishes the standard used by the skills evaluator.

When an operation within a task is successfully performed by the employee according to the criteria listed in the performance guide, a check (✓) is placed in the .

After completing the checklist for those operations required in the employee's job duties, the skills evaluator and employee must sign their respective affidavits. Section IV (page 15 and page 16) is photocopied for the company's personnel training record files. **The original of Section IV, pages 15 and 16, must be forwarded to the appropriate test processing facility to complete certification.**

On-line Test Candidates:
CASTLE Worldwide
900 Perimeter Park Drive, Suite G
Morrisville, NC 27560

Paper test Candidates:
Industrial Training Services, Inc.
310 C.C. Lowry Drive
Murray, KY 42071

Instructions to the Employee

The Performance Based Skill Assessment Evaluation Packet is designed as a training guide to assist you and your evaluator in performing the tasks listed on the front cover. Practice the tasks as many times as needed to become confident and proficient with the documents or equipment. Your skills evaluator will check and observe your performance using the checklist included in each hands-on task assignment.

The employee must adhere to all safety precautions. If a safety precaution is violated, then the demonstration shall be stopped and the skills evaluator must instruct the employee on the proper safety procedures that apply before allowing the employee to continue.

The packet is designed to establish the basic conditions under which the employee demonstrated his/her level of knowledge and proficiency.

Instructions to the Skills Evaluator

Review Section II, "Task Information."

Conduct the training as follows:

- Give a copy of the Performance Based Skill Assessment Evaluation Packet to the employee.
- Review all of the instructions with the employee and answer any questions or concerns about how it will be used.
- Demonstrate and/or talk the employee through each of the steps required to do the task.
- Allow the employee time to ask questions and/or study the steps.
- Observe the employee performing the required steps; correct him/her as needed.
- Allow the employee to practice until he/she is confident.
- Evaluate the employee at his/her request.
- Complete Section III, "Employee Performance Checklist," beginning on page 5.
- Complete **both** pages of Section IV, "Employer Record," which **must be signed and dated by both the Skills Evaluator and employee** on page 15.
- Remove Section IV (pages 15 and 16) from the packet and photocopy. Retain photocopy for your files. **For employee certification this form must be received within 12 months of the Certifying Examination date.** Mail original to:

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Morrisville, NC 27560

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Industrial Training Services, Inc.
310 C.C. Lowry Drive
Murray, KY 42071

- This Evaluation Packet and the photocopy of Section IV (pages 15 and 16) should be retained in the Company's employee training files.

II. Task Information

Certification Standard: The employee's certification is based on satisfactory completion of the operations listed under each task in the Performance Based Skill Assessment Evaluation Packet.

Prerequisites: Successful completion of CETP Book 6 "Appliance Installation."

References: Applicable LP-Gas Codes and company policies.

Evaluation: The skills evaluator must be the employee's supervisor or some other qualified person who has completed CETP "Appliance Installation" or is familiar with the subject matter. CETP certification requires that the employee seeking certification cannot act as his/her own evaluator.

III. Employee Performance Checklist

Print or type all entries except signatures and initials.

Employee Name _____

Social Security No. _____ Date _____

Skill Evaluator (Please Print) _____

I, _____, hereby attest the employee named on
(Skill Evaluator's Signature)

top line of this section has demonstrated the correct performance of the tasks listed below and on following pages.

<p style="text-align: center;">Task 6.1.1 Identifying Procedures used to Pressure Test New Propane Distribution Systems</p>

The employee is qualified to perform Task 6.1.1 at the following level:

Satisfactory

- At the site of a propane distribution system, the student correctly performed a pressure test before appliances and appliance shutoff valves were connected according to company procedures and including the following: (6.1.1.12)

Performance Guide: The person being evaluated for certification:

- a. Made sure the entire line was disconnected from the propane storage container regulator and the ends of all branch lines were either capped or plugged.
- b. Installed a test adapter at any connection in the piping system being pressure tested.
- c. Installed in the piping system a pressure measuring device designed and calibrated to read, record, or indicate a pressure loss caused by leakage during the pressure test period. Also, be sure the pressure measuring device is calibrated to read in increments of not greater than one-tenth pound.
- d. Pressurized the piping system to at least 3 psig. A hand pump may be used. The source of pressure shall be isolated before the pressure test is made.
- e. Ensured the pressure on the piping system being pressure tested remained constant for a minimum time period of 10 minutes.
- f. If the piping system held the test pressure for a minimum of 10 minutes in accordance with company procedures without any drop, the piping system is considered gastight. (If the piping system is not considered gastight, take appropriate action.)
- g. Prepared a record that indicated which portions of the piping system were pressure tested.

Satisfactory

- **The student correctly performed a low pressure test when the appliances and appliance shutoff valves are connected according to company procedures and including the following: (6.1.1.13)**

Performance Guide: The person being evaluated for certification:

- a. Disconnected the line from the storage container regulator and the second-stage regulator.
- b. Plugged or capped the ends of the first-stage line to prevent high pressure gas from damaging the appliance controls.
- c. Installed a pressure measuring device designed and calibrated to read, record, or indicate a pressure loss due to leakage during the pressure test period.
- d. Pressurized the piping system that connects 1st and 2nd stage regulators to at least 15 psig. Then isolated the source of pressure.
- e. Ensured the pressure remained constant for a minimum time period of 10 minutes.
- f. If the line held the test pressure without any drop, the line is considered gastight. (If the line is not considered gastight, take appropriate action.)
- g. Prepared a record indicating the section(s) of pipe tested.

Task 6.1.2 Identifying Procedures used to Pinpoint Propane Leaks

The employee is qualified to perform Task 6.1.2 at the following level:

Satisfactory

- **The student correctly performed a leak check on an existing propane distribution system using a manometer or equivalent device according to company procedures and including the following: (6.1.2.14)**

Performance Guide: The person being evaluated for certification:

- a. Closed the service valve at the propane storage container.
- b. Connected a manometer or equivalent device at a convenient location downstream from an appliance shutoff valve or at the outlet pressure tap of the 2nd stage regulator. **NOTE:** If a suitable test tap was not available in the 2nd stage regulator or an appliance shutoff, installed a special "test" adapter between the appliance shutoff and the inlet to the appliance.

- c. Turned all appliance gas cocks and controls valves equipped with 100% safety shutoff controls, including pilots to the "on" position with pilots extinguished.
- d. SLOWLY opened the service valve at the propane storage container. Left it open for two or three seconds; then closed it.
- e. Released enough gas from the piping system through a range burner valve or other suitable means to drop the system pressure to $9" \pm \frac{1}{2}"$ water column. (This ensures that all regulators in the system are unlocked and that a leak anywhere in the system is communicated to the gauging device.)
- f. Allowed the piping system to remain pressurized for 3 minutes without showing an increase or decrease in the reading on the gauge.
- g. Recorded the test pressure once the piping system is proven to be leak free.
- h. Relighted the pilots.

Task 6.1.3
Identifying Procedures used to Purge Air, Nitrogen, or Carbon Dioxide from a Propane Distribution System

The employee is qualified to perform Task 6.1.3 at the following level:

Satisfactory

- The student correctly purged a propane distribution system according to company procedures and including the following (The following procedures are designed to purge appliances that use a standing pilot.): (6.1.3.4)

Performance Guide: The person being evaluated for certification:

- a. Closed all appliance shutoff valves connected to the system.
- b. Opened the service valve on the propane storage container supplying the system.
- c. Opened the shutoff valve on an appliance which uses a standing pilot for main burner ignition.
- d. Ventilated and removed all sources of ignition from the space surrounding the appliance.
- e. Loosened the fitting connecting the pilot burner tubing to the appliance gas burner.
- f. In accordance with the appliance manufacturer's operating instructions, turned the gas cock on the appliance control valve to the pilot position. Depressed or turned the gas cock accordingly so that gas is allowed to pass through the valve to the pilot burner tubing.
- g. Allowed gas to bleed through the loose fitting for 15 to 30 seconds or less if any indication of a gas/air mixture approaching the LEL is detected.
- h. Turned the gas cock to the "off" position. Then, retightened the fitting on the pilot gas tube.
- i. After allowing sufficient time to ventilate any accumulated combustible gas/air mixture, and in accordance with the manufacturer's operating instructions, attempted to light the pilot burner. If the burner will not remain lighted, too much air, carbon dioxide or nitrogen gas remains in the piping. Repeat the purging procedure until the burner remains lighted.
- j. Lighted the pilot burner(s) on all remaining appliances connected to the piping system.
CAUTION: Purge through a top range burner if possible, using a constant ignition source at the burner.

Task 6.5.2

Identifying Procedures used to Purge Air, Nitrogen, or Carbon Dioxide from a Propane Distribution System

The employee is qualified to perform Task 6.5.2 at the following level:

Satisfactory

- The student correctly placed into service propane utilization equipment according to company policy. (6.5.2.5)

Task 6.3.2

Provide Air for Proper Combustion and Ventilation

The employee is qualified to perform Task 6.3.2 at the following level:

Satisfactory

- The student pointed out the source of combustion air, excess air and dilution air for a specific piece of propane operated equipment. (6.3.2.6)

Satisfactory

- The student calculated the cubic feet of air required for the propane operated equipment installed. (6.3.2.7)

Task 6.2.2
Provide Air for Proper Combustion and Ventilation

The employee is qualified to perform Task 6.2.2 at the following level:

Satisfactory

- The student adjusted the primary air mix on a propane burner and observed the changes in the flame. (6.2.2.7)

Satisfactory

- The student measured the proper pressure at the burner on the appliance using an appropriate measuring device. (6.2.2.8)

Task 6.2.3
Provide Air for Proper Combustion and Ventilation

The employee is qualified to perform Task 6.2.3 at the following level:

Satisfactory

- The student adjusted a propane burner for proper combustion. (6.2.3.7)

Task 6.4.2
Size Category I Appliance Venting Systems

The employee is qualified to perform Task 6.4.2 at the following level:

Satisfactory

- The student used the appropriate vent tables listed in NFPA #54 to size the vent systems illustrated in Figures 1, 2, and 3. (6.4.2.1)

- θ a. Using the appropriate venting table in NFPA 54, the student sized the vent system illustrated in Figure 1 below:

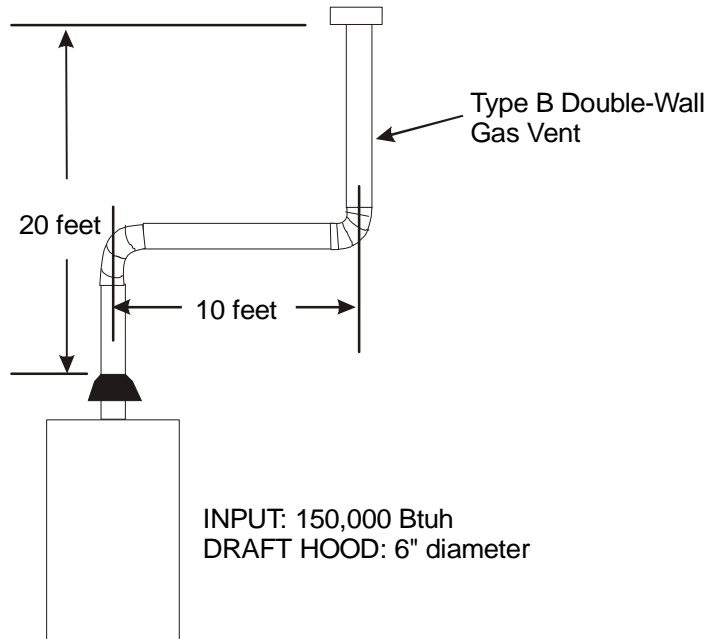


Figure 1. Type B Venting System

Complete the statements below:

Total vent height is ____.

The length of the lateral is ____.

The appliance maximum input is ____.

For the venting dimensions given and the appliance input, the minimum size for the vent according to the venting tables is ____.

The maximum Btuh input for this vent diameter and the dimensions given is ____ thousand Btuh.

Instructors: Review the provisions of NFPA 54, 1999, 10-1.2 to ensure that the student understands the relationship of draft hood size to vent size.

- θ b. Using the appropriate venting table in NFPA 54, the student sized the vent system illustrated in Figure 2 below:

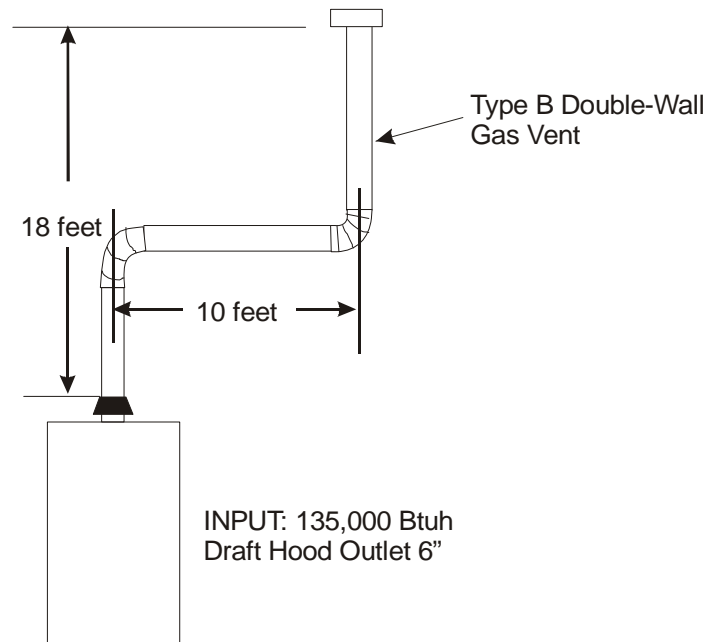


Figure 2. Type B Venting System

Complete the statements below:

1. Total vent height is _____.
2. The length of the lateral is _____.
3. The maximum appliance input is _____.
4. The minimum vent diameter for the table height closest to 18' with a 10' lateral that can accommodate a natural draft appliance with a 135,000 Btuh rating is _____.
5. The difference between the maximum input for a 15' vent and a 20' vent for the diameter entered in #4 is _____ thousand Btuh.
6. The distance 18' is _____ the distance between 15' and 20'. **(60%)**
7. Therefore, the fan maximum input for the minimum vent diameter selected in #4 on an 18' vent height with a 10' lateral is _____ thousand Btuh.

- θ c. Using the appropriate venting tables in NFPA 54, the student sized the vent system illustrated in Figure 3 below:

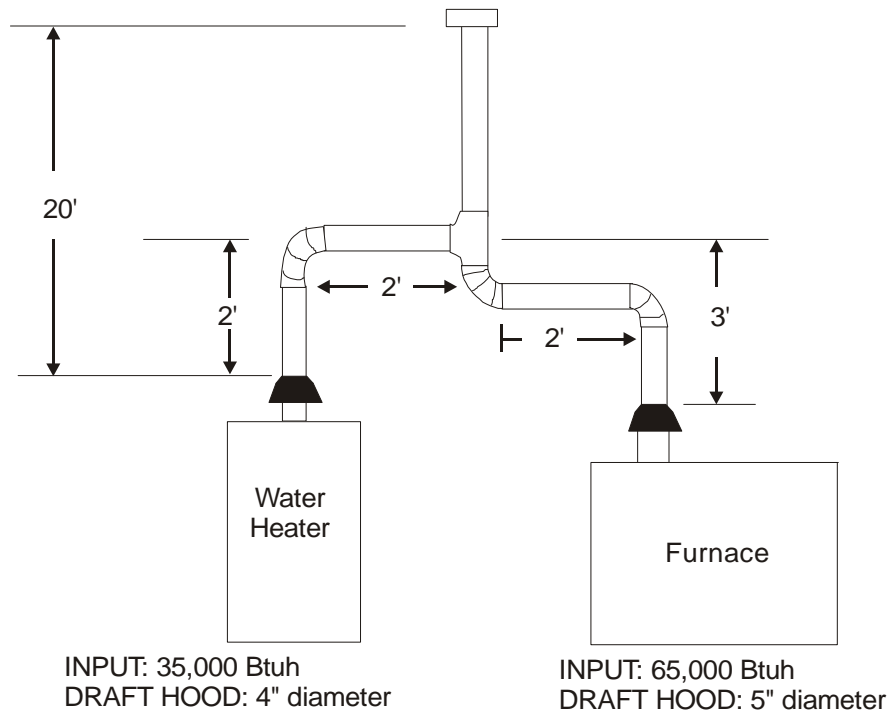


Figure 3. Type B Venting System

Complete the statements below:

1. Total vent height is _____.
2. The length of the laterals are _____.
3. The Btuh input for the water heater is _____.
4. The connector rise for the water heater is _____.
5. The minimum vent size for the water heater connector is _____.
6. The maximum Btuh input for this size and rise connector is _____.
7. The Btuh input for the furnace is _____.
8. The connector rise for the furnace is _____.
9. The minimum vent size for the furnace connector is _____.
10. The maximum Btuh input for this size and rise connector is _____.
11. The total Btuh input for the water heater and furnace is _____.
12. The vent size needed for the common vent is _____.
13. The maximum Btuh input for this size and height for the common vent is _____.

IV. CETP Performance Evaluation / Employer Record

Employee Information: (print or type) Test Group Number (if known): _____

Name _____ Social Security
Number _____

Employer _____

Address _____

City, State: _____ Zip Code _____

Affidavit

I affirm that I am the person who has performed those items checked on this checklist. I acknowledge that the performance checklists used are solely for the purpose of skills assessment for the CETP certification requirements, and are not intended to replace or modify company operating or safety procedures, and may not be appropriate for use in all circumstances. I acknowledge that I am responsible for recognizing hazards and abnormal conditions in my workplace and must exercise care and good judgment, always using appropriate equipment, procedures and tools for the tasks I perform. The Propane Education and Research Council, the National Propane Gas Association, CASTLE Worldwide and Industrial Training Services, Inc. assume no liability for my actions, or for my application of the skills assessment performance guides used in this evaluation checklist.

Employee's Signature _____

Date _____

Skills Evaluator Information: (print or type)

Name _____

Organization/Employer _____

Telephone Number _____

Affidavit

I affirm that I am the person who has administered this checklist, and that I have conducted this employee skills assessment with integrity. I also affirm that the above named employee is the person whose performance I evaluated, and that the above named person performed the checked tasks at the indicated level without assistance from me or any other person.

Skill Evaluator's Signature _____

Date _____

The employee is qualified to perform the listed operations at the following level:

**Without
Direct
Super-vision**

- At the site of a propane distribution system, the student correctly performed a pressure test before appliances and appliance shutoff valves were connected according to company procedures. (6.1.1.12)
- The student correctly performed a low pressure test when the appliances and appliance shutoff valves were connected. (6.1.1.13)
- The student correctly performed a leak check on an existing propane distribution system using a manometer or equivalent device according to company procedures. (6.1.2.14)
- The student correctly purged a propane distribution system according to company procedures and including the following (The following procedures are designed to purge appliances that use a standing pilot.): (6.1.3.4)
- The student correctly placed into service propane utilization equipment according to company policy. (6.5.2.5)
- The student pointed out the source of combustion air, excess air and dilution air for a specific piece of propane operated equipment. (6.3.2.6)
- The student calculated the cubic feet of air required for the propane operated equipment installed. (6.3.2.7)
- The student adjusted the primary air mix on a propane burner and observed the changes in the flame. (6.2.2.7)
- The student measured the proper pressure at the burner on the appliance using an appropriate measuring device. (6.2.2.8)
- The student adjusted a propane burner for proper combustion. (6.2.3.7)
- The student used the appropriate vent tables listed in NFPA #54 to size the vent systems illustrated in Figures 1, 2, and 3. (6.4.2.1))

After completion of Section IV, "Employer Record," remove pages 13 and 14 from the packet and photocopy. Retain photocopy for your files. Mail original to:

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