



## Preparing & Installing Vapor Distribution System Components



# 4.2 Performance-Based Skill Assessment Evaluation Packet

- Task 4.2.1 Preparing DOT Cylinders for Transportation & Installation.
- Task 4.2.2 Preparing ASME Tanks for Transportation & Installation.
- Task 4.2.6 Performing Trenching, Digging & Backfilling Operations.
- Task 4.2.7 Installing DOT/ICC Exchange or Stationary Cylinders
- Task 4.2.8 Installing Aboveground ASME Tanks
- Task 4.2.9 Installing Underground ASME Tanks
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- Task 4.2.12 Installing Buried Distribution Lines Using PE Tubing & Fittings.
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- Task 4.2.23 Placing Gas Appliances Into Operation.
- Task 4.2.22 Performing Gas Distribution System Leak Checks.
- Task 4.2.24 Communicating Consumer Propane Information to the Customer.

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Employee's Name (Please Print)

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Date of Skills Evaluation

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Skills Evaluator Name (Please Print)

**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.**

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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

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## 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 is a performance guide 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 19 and page 20) is photocopied for the company's personnel training record files. **The original of Section IV, pages 19 and 20, 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 19.
- Remove Section IV (pages 19 and 20) 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:

**I 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

- This Evaluation Packet and the photocopy of Section IV (pages 19 and 20) should be retained in the Company's employee training files.

## II. Task Information

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**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 and a Mastery Score on the Certification Area Examination.

**Prerequisites:** Successful completion of CETP Certification Area 4.2, "Preparing & Installing Vapor Distribution System Components"

**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 "Preparing & Installing Vapor Distribution System Components" 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.

#### Task 4.2.1 Preparing DOT Cylinders for Transportation

The employee is qualified to perform Task 4.2.1a at the following level:

Satisfactory       Not Applicable\*

\*Not applicable means that this person's job description does not require the person to perform this task, or the company does not install DOT cylinder installations.

#### Preparing DOT Cylinders for Transportation. 4.2.1a

*Performance Guide:* The employee being evaluated for certification:

1. Identified the DOT cylinder(s) to use for:
  - A stationary cylinder installation
  - A manifold stationary cylinder installation
  - An exchange cylinder installation
2. Inspected each cylinder identified in step 1 above, and determined each was:
  - In good condition for continued propane service;
  - Marked with a current requalification date;
  - Provided required valve protection for transportation;
  - Marked with the required DOT (CGA 7) shipping label.
3. Inspected the delivery vehicle lift gate or other lifting equipment (including slings, if used) to determine proper operating and safe lifting condition.
4. Used suitable cylinder dollies to move & load the cylinders onto a cylinder delivery vehicle.
5. Properly secured the cylinders for transportation.
6. Verified that the vehicle was properly placarded with placards visible from the front, back and both sides of the vehicle.
7. Prepared the required shipping papers.

#### Task 4.2.2 Preparing ASME Tanks for Transportation and Installation

The employee is qualified to perform Task 4.2.2a at the following level:

Satisfactory       Not Applicable \*

#### Preparing ASME Tanks for Transportation & Installation. 4.2.2a

*Performance Guide:* The employee being evaluated for certification:

1. Identified the ASME tank to be used for a stationary installation
2. Verified that there was no more than 5% liquid LP-gas in the tank, or that the tank capacity was 125 or less water gallons.

Checklist continues on next page.

\*Not applicable means that this person's job description does not require the person to perform this task, or the company does not install ASME tank installations.

3. Inspected the tank to assure that the tank was:
  - Fitted with a legible manufacturer's data plate
  - Designed to store the LP-gas to be supplied (proper minimum working pressure)
  - In good condition and working order for continued propane service
  - Properly protected by a light reflective coating, if an aboveground tank, or a corrosion protective coating, if an underground tank.
  - If an underground tank, which utilizes a manufacturer installed electrode and lead wire for connection to an anode, or equipped with a suitable metal structure (not a head or the shell) for installing an electrode and lead wire at the installation location if a heat process would be used.
  - Properly placarded or labeled for transportation (each side of the tank if smaller than 1,000 gallons water capacity; each side and each end if 1,000 gallons or more).
4. Inspected the delivery truck crane or tank-setting trailer lifting equipment (including slings) to determine proper operating and safe lifting condition.
5. Loaded the tank onto the tank delivery vehicle.
6. Properly secured the tank for transportation.
7. Verified that the vehicle was properly placarded with placards visible from the front, back and both sides of the vehicle.
8. Prepared the required shipping papers, or verified that the permanent shipping paper was current and proper.

**Task 4.2.6**  
**Performing Trenching, Digging and Backfilling Operations**

The employee is qualified to perform Task 4.2.6a at the following level:

|                          |                          |
|--------------------------|--------------------------|
| <u>Satisfactory</u>      | <u>Not Applicable*</u>   |
| <input type="checkbox"/> | <input type="checkbox"/> |

\*Not applicable means that this person's job description does not require the person to perform this task, or the company does not install buried distribution piping and/or underground tanks.

**Performing Trenching, Digging and Backfilling Operations. 4.2.6a**

*Performance Guide:* The employee being evaluated for certification:

1. Verified the location of all underground utilities, structures, and systems.
2. Determined the location of all planned trenching or excavation activities and that those operations would probably not damage buried utilities, structures, and systems; or identified special measures to apply to avoid damage.
3. Conducted trenching and digging operations with due regard to the type of soil(s) found, their moisture content, and the depth and slope of the excavations and ditches formed.
4. Applied any trenching and shoring protection measures for personnel that were indicated by the factors listed in step 3.
5. Operated powered trenching and digging equipment so as to avoid damage to structures; upset, undermining or other damage to equipment; or injury to personnel.
6. If any excavation had to be left open and unattended, applied warning measures and structures to prevent accidental entry or injury to others while the excavation(s) were left open and unattended.
7. After distribution lines were installed, properly marked, inspected and pressure tested, properly backfilled the trench with clean and not damaging materials.
8. If an underground tank was installed, and after assuring that defects in the tank coating were cleaned and re-coated, properly backfilled the excavated pit with clean materials not damaging to the tank coating or the buried distribution line, and provided proper grading to conduct ground water away from the top of the tank dome.
9. If PE tubing was used to connect the 1<sup>st</sup>-stage regulator to the 2<sup>nd</sup>-stage regulator or building service entrance, ensured that the trench and backfilling supported the PE tubing and separated it from the buried locator wire or tracer tape.

**Task 4.2.7**  
**Installing DOT/ICC Exchange or Stationary Cylinders**

The employee is qualified to perform Task 4.2.7a at the following level:

Satisfactory      Not Applicable\*

\*Not applicable means that this person's job description does not require the person to perform this task, or the company does not install DOT/ICC cylinders.

**Installing DOT/ICC Exchange or Stationary Cylinders 4.2.7a**

*Performance Guide:* At a new or existing residential or commercial installation the employee being evaluated for certification:

1. Verified the installed location of the cylinder or manifold cylinders met the distance separation requirements of NFPA 58 with regard to:
  - Important building(s)
  - Property lines that could be built upon
  - Any exterior source of ignition, openings into direct vent appliances, or mechanical ventilation air intakes
2. If a new customer installation, properly installed solid masonry foundations adequate to support the cylinder(s) and verified they were stable and provided adequate drainage to prevent accumulation of ground water around the cylinder foot ring(s).
3. Installed any other securing device(s) as needed to assure the stability of the cylinder(s).
4. If a manifold cylinder installation, properly installed and secured the fittings and piping required for the manifold installation, ensuring that the piping and fittings had the required working pressure for the applicable vapor pressure service.
5. Verified that any piping or connections installed were adequately supported and that connections provided adequate flexibility without undue stress placed on piping or cylinder connections or valve(s).
6. If a new customer installation, properly pressure tested any new or modified piping and documented the pressure test on prescribed company forms.
7. Verified that any installed regulator was the proper type for the installation, was properly protected, and that the vent(s) pointed down or was otherwise protected from the entrance of rain, snow, sleet or other contaminants.
8. Used a carpenter's level or other suitable means to verify that the foundations and installed cylinders were level and plumb.

**Task 4.2.8**  
**Installing Aboveground ASME Tanks**  
**Task 4.2.11**  
**Installing Manifold ASME Tanks**

The employee is qualified to perform Task 4.2.8/4.2.11a at the following level:

Satisfactory      Not Applicable\*

\*Not applicable means that this person's job description does not require the person to perform this task, or the company does not install aboveground ASME tanks.

**Installing Aboveground ASME Tanks 4.2.8/4.2.11a**

*Performance Guide:* At a new or existing residential or commercial installation the employee being evaluated for certification:

1. Verified the installed location of the aboveground ASME tank(s) met the distance separation requirements of NFPA 58 with regard to:
  - Important building(s)
  - Property lines that could be built upon
  - Any exterior source of ignition, openings into direct vent appliances, or mechanical ventilation air intakes
2. If a new customer installation, properly installed solid masonry foundations adequate to support the tanks(s) and verified they were stable and provided adequate distance between the ground and the bottom of the tank shell to provide corrosion protection to the tank and to permit field maintenance of the tank protective coating as needed.
3. If a manifold tank installation, properly installed and secured the fittings and piping required for the manifold installation, ensuring that the piping and fittings had the required working pressure for the applicable vapor pressure service.

Checklist continues on next page.

4. Verified that any piping or connections installed were supported as needed and that connections provided adequate flexibility without undue stress placed on piping or tank connections or valve(s).
5. If a new customer installation, properly pressure tested any new or modified piping and documented the pressure test on prescribed company forms.
6. Verified that any installed regulator was the proper type for the installation, was properly protected, and that the vent(s) pointed downward or was otherwise protected from the entrance of rain, snow, sleet or other contaminants.
7. Used a carpenter's level or other suitable means to verify that the foundations and installed tank(s) were level and plumb.

**Task 4.2.9**  
**Installing Underground ASME Tanks**  
**Task 4.2.11**  
**Installing Manifold ASME Tanks**

**The employee is qualified to perform Task 4.2.9/4.2.11b at the following level:**

| <u>Satisfactory</u>      | <u>Not Applicable*</u>   | <b>Installing Underground ASME Tanks 4.2.9/4.2.11b</b>  |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <p><i>Performance Guide:</i> At a new or existing residential or commercial installation the employee being evaluated for certification:</p> <ol style="list-style-type: none"> <li>1. Verified the installed location of the underground ASME tank(s) met the distance separation requirements of NFPA 58 with regard to:               <ul style="list-style-type: none"> <li>• Important building(s)</li> <li>• Property lines that could be built upon</li> <li>• Any exterior source of ignition, openings into direct vent appliances, or mechanical ventilation air intakes</li> </ul> </li> <li>2. Excavated a hole of proper depth, length and width to accommodate the buried or mounded underground tank installation, ensuring that if personnel were required to enter the open excavation during the installation operation they were provided protection against cave-in as needed.</li> <li>3. At the proper depth, provided a leveled support pad for the tank(s) of sand or other clean, compacted material free of rock or other materials that could damage the tank coating and ensured the top of the pad was the required height for proper burial or mounding finish grade.</li> <li>4. Prior to placing the tank in the excavation:               <ul style="list-style-type: none"> <li>• Inspected the tank protective coating, repairing any scratched or abated area as needed</li> <li>• If a sacrificial anode was required, verified that the tank was equipped with a suitable electrode and lead wire connection.</li> </ul> </li> <li>5. If a manifold tank installation, properly installed and secured the fittings and piping required for the manifold installation, ensuring that the piping and fittings had the required working pressure for the applicable vapor pressure service, and that the regulator and its connections were accessible and protected inside a tank dome or burial vault.</li> <li>6. Verified that any piping or connections installed were supported as needed and that connections provided adequate flexibility without undue stress placed on piping or tank connections or valve(s).</li> <li>7. Properly pressure tested any new or modified piping and documented the pressure test on prescribed company forms.</li> <li>8. Verified that any installed regulator was the proper type for the installation, was properly protected with a u-type pipe-away adapter of proper diameter, and that the vent termination pointed downward and was located at a point above the anticipated ground water level.</li> <li>9. Used a carpenter's level or other suitable means to verify the installed tank(s) were level and plumb.</li> </ol> |

\*Not applicable means that this person's job description does not require the person to perform this task, or the company does not install underground ASME tanks.

Checklist continues on next page.

10. If the installation was in a high-water table location, provided appropriate anchoring devices that would not cause damage to the tank coating or create an electrical connection from tank to soil.
11. Properly backfilled the excavation, providing suitable cover to protect the tank and grading downward away from the dome top to prevailing ground elevation.
12. Verified that the tank was properly filled with propane to prevent "floating" of the tank.

**Task 4.2.12**  
**Installing Buried Distribution Lines Using PE Tubing and Fittings**

The employee is qualified to perform Task 4.2.12a at the following level:

|                          |                          |
|--------------------------|--------------------------|
| <u>Satisfactory</u>      | <u>Not Applicable*</u>   |
| <input type="checkbox"/> | <input type="checkbox"/> |

\*Not applicable means that this person's job description does not require the person to perform this task, or that the company does not use, install or repair PE tubing or piping.

**Installing Buried Distribution Lines Using PE Tubing and Fittings. 4.2.12a**

- Task performed at an installation site
- Task simulated at a bulk plant or other suitable location

*Performance Guide:* The employee being evaluated for certification:

1. Using sizing tables from NFPA 58, selected the proper diameter PE tubing, anodeless riser and field-assembled service head adapter to connect:
  - If at an installation site—the regulator installed at the supply container(s) and the service entrance if an integral 2-stage regulator, or the service regulator if a 2<sup>nd</sup>-stage or 2 PSI regulator, making sure that the tubing and fittings were proper to supply the system total Btuh demand for the length and service pressure required.
  - If the task was simulated—a 1<sup>st</sup>-stage regulator installed at the supply container and a 2<sup>nd</sup>-stage regulator installed at the building service entrance—
    - For a total system demand of 449,000 Btuh
    - Buried line length of 40 feet
    - Buried line operating pressure of 10 psig
2. Demonstrated and explained how to determine the overall length of PE tubing required and correctly place it into the excavated trench.
3. Using the PE manufacturer's recommended cutting tool, cut the PE tubing to the length—
  - If at an installation site—required to connect the anodeless riser and the field-assembled service head adapter, allowing sufficient length for expansion and contraction of the PE tubing.
  - If the task was simulated—required to connect the anodeless riser and the field-assembled service head adapter, allowing sufficient length to cut the final assembly so that the components are useable in an actual installation by the use of mechanical fittings at a later time.
4. Chamfered the tubing ends and marked the ends for proper mechanical fitting or service head adapter insertion, using manufacturer recommended tools.
5. Assembled the PE tubing and anodeless riser and service head adapter piping assembly using mechanical fittings.
6. Installed a pipe cap at one end of the assembly and a test pressure gauge fitting at the opposite end of the assembly—then pressure tested the piping assembly as required by NFPA codes at 1½ times the operating pressure of the piping assembly.
7. Recorded the pressure test, including start and end times and pressure on a company-designated form.
8. Demonstrated and explained how to protect the PE tubing during trench backfilling, and how to position the locating wire or tracer tape above the PE tubing.

|   |
|---|
| <p style="text-align: center;"><b>Task 4.2.15</b><br/><b>Installing Vapor Pressure Regulators</b></p> |
|---|

The employee is qualified to perform Task 4.2.15a at the following level:

Satisfactory

**Installing Vapor Pressure Regulators. 4.2.15a**

- Task performed at an installation site
- Task simulated at a bulk plant or other suitable location

*Performance Guide:* The employee being evaluated for certification:

1. Demonstrated and explained how to install a 1<sup>st</sup>-stage regulator on an above-ground tank, providing protection for the regulator vent.
2. Demonstrated and explained how to install a 1<sup>st</sup>-stage regulator on an underground tank, providing protection for the regulator vent.
3. Demonstrated and explained how to install an integral 2-stage regulator on an aboveground tank, providing protection to the regulator vent.
4. Demonstrated and explained how to install a 1<sup>st</sup>-stage regulator serving manifold aboveground tanks, providing protection for the regulator vent.
5. Demonstrated and explained how to install a 1<sup>st</sup>-stage regulator serving manifold underground tanks, providing protection for the regulator vent and the spring case.
6. Demonstrated and explained how to install an automatic changeover regulator on a 2-cylinder exchange cylinder installation, providing protection for the regulator vent.
7. Demonstrated and explained how to install an automatic changeover regulator on a multi-cylinder manifold exchange cylinder installation, providing protection for the regulator vent.
8. Demonstrated and explained how to install an integral 2-stage regulator on a manifold stationary cylinder installation, providing protection for the regulator vent.
9. Demonstrated and explained how to install a 2<sup>nd</sup>-stage regulator at a building service entrance, providing protection for the regulator vent.
10. Demonstrated and explained how to provide protection against falling snow, ice or other heavy loads where a 2<sup>nd</sup>-stage regulator installed at a building service entrance is not adequately protected by the roof profile.
11. Demonstrated and explained how to provide protection against damage where a 2<sup>nd</sup>-stage regulator installed at a building service entrance is potentially subject to vehicles, maintenance equipment, or other mechanical factors.

The employee is qualified to perform Task 4.2.15b at the following level:

Satisfactory

**Performing Regulator Flow Pressure Tests 4.2.15b**

*Performance Guide:* At a residential customer installation, the employee being evaluated for certification:

1. Installed a test fitting in the appropriate test tap of the 2<sup>nd</sup>-stage regulator, or of an appliance shutoff and connected a manometer to the fitting, checking for leakage at the connections.
2. After verifying that there were no leaks present, made an initial pressure reading to verify that the regulator flow pressure was properly set to supply gas to the appliances in accordance with appliance manufacturers' rating plates, with at least one or more appliance burners operating.
3. After adjusting the regulator output pressure as needed and appropriate, placed all gas appliances into operation, and verified that the measured flow pressure did not fall below the highest appliance manufacturer minimum input specification for any connected gas appliance. Properly documented the test readings on company form(s).

Checklist continues on next page.

4. If the measured regulator flow pressure did not meet the operating standard given in step 3, the employee determined the corrective measure(s) needed, considering:
  - Converting an existing single-stage system to a 2-stage system
  - Increasing accessible pipe or tubing diameters
  - Installing a higher capacity regulator
  - Converting an integral 2-stage system to a separate 1<sup>st</sup> and 2<sup>nd</sup>-stage regulator system
  - Installing additional 2<sup>nd</sup>-stage regulator(s)
  - Converting the system to a 2-psi system

**The employee is qualified to perform Task 4.2.15c at the following level:**

**Satisfactory**



**Performing Regulator Lock-up Tests 4.2.15c**

*Performance Guide:* At a residential customer installation, the employee being evaluated for certification:

1. Installed a test fitting in the appropriate test tap of the 2<sup>nd</sup>-stage regulator, or a line test adapter if an existing single-stage regulator was tested and connected a manometer to the fitting, checking for leakage at the connections.
2. Read the regulator outlet flow pressure with one or more appliances operating.
3. Verified that the appliance shutoffs were closed and then opened the service valve to begin the test.
4. Verified that the pressure measured did not exceed flow pressure by more than 30%, and that the pressure measured was stable and did not creep upward while observed for 1 minute.
5. Verified that no propane vented from the regulator vent.
6. Properly documented the test readings and conditions found on company form(s).
7. If the regulator did not lock-up properly, determined the corrective action(s) to take according to company standard operating procedures.

Skills 4.2.17a and 4.2.19a require the candidate for certification to refer to the piping diagram illustrated in Figure 1 on the following page to make up and pressure test a similar piping assembly. The candidate will be required to cut a steel pipe to a specified center-to-center make-up length, thread the pipe, properly assemble the piping section and record a pressure test of the assembly.

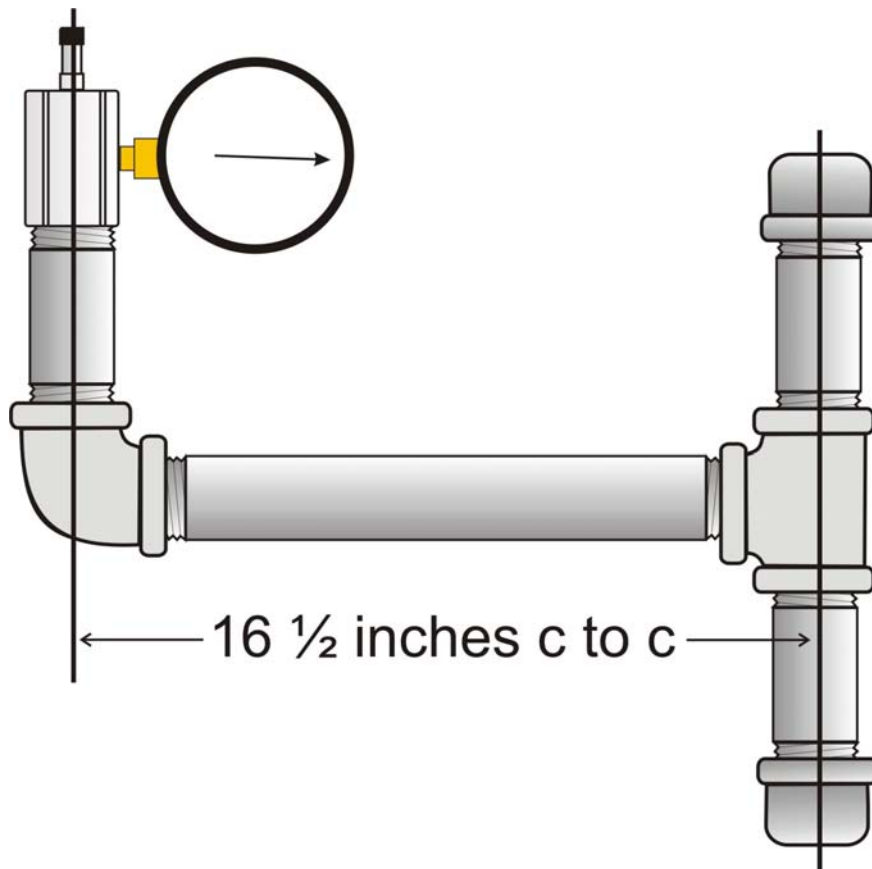


Figure 1. Shop-Assembled Piping Section

Note: The employee may use  $\frac{1}{2}$ ,  $\frac{3}{4}$ , or 1 inch pre-cut and threaded pipe nipples for the two risers and sediment trap, but must cut and thread the horizontal pipe section to make it conform to the dimension given. See detailed requirements in the following skills evaluation sections.

**Directions for simulating the following tasks:** Given an illustration of a piping section (Figure 1), cut a steel pipe section to the length required to make up the piping section as drawn with the measured center-to-center dimension as given in the illustration (Figure 1) of the made-up assembly correct to within  $\pm \frac{1}{4}$  inch. Properly prepare and thread a steel pipe section.

**Tasks 4.2.17**  
**Cutting, Threading & Assembling Steel Pipe**  
**Task 4.2.19**  
**Pressure Testing Piping**

The employee is qualified to perform Tasks 4.2.17a and 4.2.19a at the following level:

**Satisfactory**

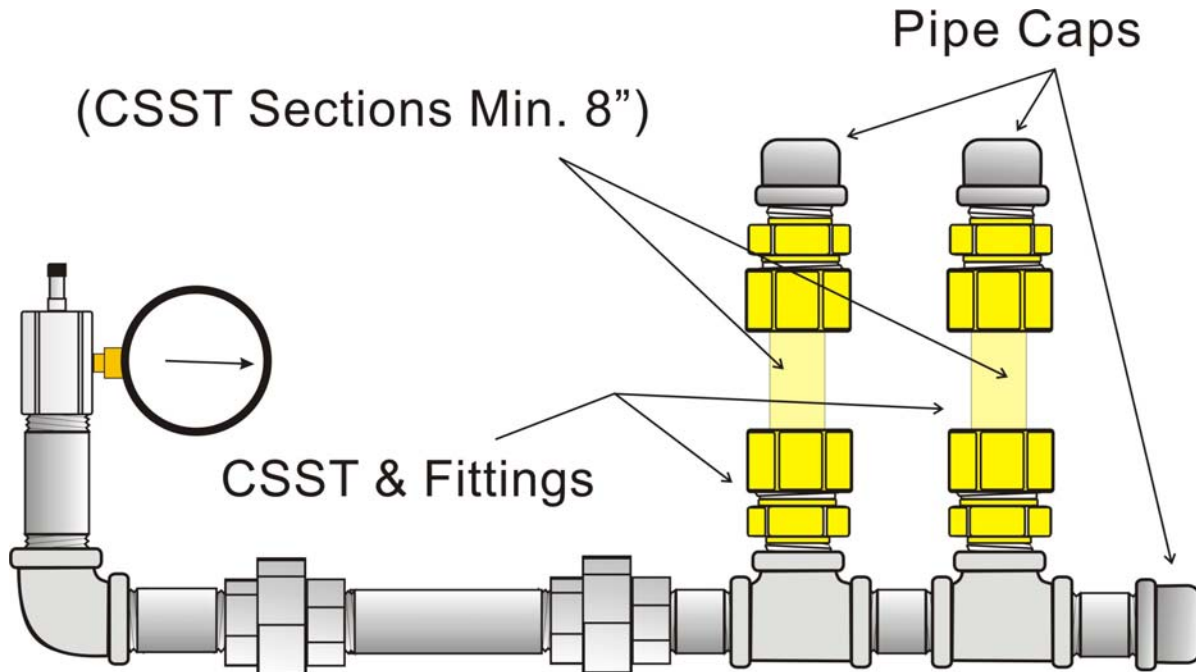


**Cut a Steel Pipe to a Specified Length, Thread the Pipe Ends for Hand-Assembly, and Pressure Test the Assembly 4.2.17a/4.2.19a**

*Performance Guide:* Referring to the piping assembly diagram (Figure 1), the person being evaluated for certification:

1. Measured and cut a steel pipe length for the horizontal run of the illustrated piping assembly.
2. Reamed the pipe end(s) and properly prepared them for threading.
3. Hand-engaged the 90° elbow and tee on the threaded ends to assure proper thread cuts and fitting mating. Using the appropriate die and cutting lubricant, threaded the pipe end(s).
4. Cleaned, inspected and dressed the pipe threads of both ends for assembly.
5. Cut the required minimum number of complete threads (10), which were uniform and without defect.
6. Applied thread-sealing compound or tape to the threads of the pipe nipples and cut pipe section, **not** including the 2 leading threads.
7. Secured the cut pipe section and hand-engaged the 90° elbow and tee.
8. Using the appropriate pipe wrench—tightened the elbows and pipe to the correct position without over-tightening.
9. Hand-engaged the pipe nipples in the elbow and tee, then tightened the pipe nipples to the correct position without over-tightening.
10. Hand-engaged the pipe caps and pressure test fitting on the pipe nipples, and wrench-tightened the pipe caps & test fitting to the correct position without over-tightening.
11. Inspected the piping assembly for proper alignment and measured it to assure that the center-to-center dimension was 16½ inches plus or minus ½ inch.
12. Pressure tested the assembly according to NFPA 54 requirements for residential ½-pound systems (not less than 3 psig air or inert gas pressure for 10 minutes) and verified the system was leak-free.
13. Recorded the piping pressure test on the appropriate company form.

Skill 4.2.18a requires the employee to refer to the following piping diagram to make up a similar CSST manifold piping assembly.



## Steel Pipe Fitting CSST Manifold

Figure 2. Shop-Assembled CSST Manifold Piping Assembly

Note: The employee may use  $\frac{1}{2}$ ,  $\frac{3}{4}$ , or 1 inch pre-cut and threaded pipe nipples and fittings. CSST must be cut to length by the employee and assembled using the CSST manufacturer's recommended fittings.

**Directions for simulating the following tasks:** Make up the illustrated CSST manifold piping section and successfully pressure test it according to NFPA 54 requirements for  $\frac{1}{2}$ - pound systems.

**Task 4.2.18  
Assemble CSST Piping  
Task 4.2.19  
Pressure Test Piping**

The employee is qualified to perform Tasks 4.2.18a/4.2.19b at the following level:

**Satisfactory**

**Assemble CSST Piping and Pressure Test the Assembly. 4.2.18a/4.2.19b**

*Performance Guide:* Referring to the piping assembly diagram (Figure 2), the person being evaluated for certification:

1. Cut the CSST sections as specified by the manufacturer to a minimum length of 8 inches.
2. Applied thread-sealing compound or tape to the threads of the pipe nipples and the pipe thread ends of the CSST transition fittings, **not** including the 2 leading threads.
3. Hand-engaged the first manifold tee on the pipe nipples, then, using the appropriate pipe wrench, tightened the tee and pipe nipples without over-tightening.
4. Hand-engaged the second manifold tee to the pipe nipples, then wrench tightened the pipe nipples to the correct position without over-tightening.
5. Completed the assembly of the other pipe nipples and fitting and tightened all components to the correct position without over-tightening.
6. Inspected the piping assembly for proper alignment.
7. Using a back-up wrench as necessary, and following CSST manufacturer instructions, connected and properly tightened the CSST sections to the pipe manifold and caps.
8. Pressure tested the assembly according to NFPA 54 requirements for residential ½-pound systems (not less than 3 psig air or inert gas pressure for 10 minutes) and verified the system was leak-free.
9. Recorded the piping pressure test on the appropriate company form.

**Task 4.2.21  
Purging Gas Distribution Lines  
Task 4.2.23  
Placing Gas Appliances Into Operation**

The employee is qualified to perform Tasks 4.2.21a and 4.2.23a at the following level:

**Satisfactory**

**Purging Gas Distribution Lines and Placing Gas Appliances Into Operation. 4.2.21a/4.2.23a**

*Performance Guide:* At a residential installation, the person being evaluated for certification:

1. After checking each gas appliance for proper venting and ventilation and ensuring that the controls were in the off position, found a suitable location for purging the piping system (at the farthest appliance from the supply container if appropriate).
2. Using methods to control ignition sources, such as a combustible gas indicator (CGI), purged air and gas/air mixtures from the piping until the gas/air mixture approached but was less than the lower flammability limit, and stopped purging and sealed the piping opening.
3. After allowing time for proper ventilation, placed the gas appliance into operation according to manufacturer's instructions.

Checklist continues on next page.

4. Cycled the appliance through 3 main burner cycles, verifying proper burner operation.
5. Placed each remaining gas appliance into operation according to manufacturer's instructions, and cycled each appliance through 3 main burner cycles, verifying proper burner operation.

|   |
|---|
| <b>Task 4.2.22</b><br><b>Performing Gas Distribution Leak Checks.</b> |
|---|

The employee is qualified to perform Task 4.2.22a at the following level:

**Satisfactory**



**Performing Gas Distribution Leak Checks. 4.2.22a**

*Performance Guide:* At a residential installation, the person being evaluated for certification:

1. Shut off the gas at the supply container(s) service valve(s).
2. Located and shut off each appliance shut off.
3. Inspected for the presence of gas piping openings that were not sealed with a cap or plug.
4. Installed a manometer or other pressure measuring device at an appropriate test point downstream of the final pressure service regulator.
5. Briefly opened the service valve to pressurize the piping system, then closed the service valve.
6. Vented sufficient gas from the system to obtain a pressure reading of 9 inches water column, plus or minus ( $\pm$ )  $\frac{1}{2}$  inch water column.
7. Recorded the pressure reading and time on the prescribed company form.
8. Observed the pressure measuring device for at least 3 minutes, and determined that the pressure reading did not increase or decrease. The employee recorded the ending time and resulting pressure on the company form.
9. If the pressure decreased, used suitable lead detection equipment or a solution to locate the leak; if the pressure increased, rechecked the service valve for closure. The employee then repeated the leak check, making a separate set of time and pressure records.
10. If the pressure again decreased or increased, the employee followed company procedures for correcting the problem and applied any required warning tags and methods to make the system safe or prevent its use in an unsafe condition.

|  |
|--|
| <p style="text-align: center;"><b>Task 4.2.24</b><br/><b>Communicating Consumer Propane Information to the Customer.</b></p> |
|--|

The employee is qualified to perform Task 4.2.24a at the following level:

**Satisfactory**



**Communicating Consumer Propane Information to the Customer. 4.2.24a**

*Performance Guide:* At a residential installation, the person being evaluated for certification:

1. Showed the customer how to turn off the gas at the container service valve(s) in the event of a gas leak or other safety-critical situation.
2. Vented a small amount of propane from the container's fixed maximum liquid level gauge and had the customer say if he or she could detect the smell of propane odorant and asked the customer to describe the smell.
3. Pointed out the container's relief valve and instructed the customer to be sure that no one is allowed to place any body part directly over or in line with the relief valve discharge, and to call the company if the relief valve vents propane vapor.
4. Instructed the customer that the tank dome should be closed (but never locked) at all times except for when the company is servicing the tank.
5. Inside the house, located and pointed out the location of each gas appliance shutoff valve, and explained to the customer the importance of shutting off the gas at appliances in the event of a gas leak or interruption of gas service.
6. Explained to the customer that propane vapor is heavier than air and may collect near the floor or underground and in low areas in the event of a leak.
7. Explained to the customer that propane leak detectors and carbon monoxide detectors with alarms designed for consumers are available at hardware stores and home improvement centers, and their use is recommended. Also explained that they should be installed according to manufacturers' instructions.
8. Pointed out the company's emergency phone number and instructed the customer to call if unusual odors are smelled, an appliance malfunctions, or other safety-critical situations are detected.
9. Documented delivery of these safety messages, product warnings, and the company's consumer information to the customer, and had the customer acknowledge receipt with his or her signature and the date.



## IV. CETP Performance Evaluation / Employer Record

**THIS PAGE MUST BE RETURNED AS SOON AS POSSIBLE, BUT NO LATER THAN 12 MONTHS AFTER TAKING THE CERTIFICATION TEST, TO THE FOLLOWING ADDRESS:**

**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**

**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 \_\_\_\_\_

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**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:

| <b>Without<br/>Direct<br/>Supervision</b> | <b>Not<br/>Applicable</b> |   |
|---|---------------------------|---|
| <input type="checkbox"/>                  | <input type="checkbox"/>  | Preparing DOT Cylinders for Transportation. 4.2.1a  |
| <input type="checkbox"/>                  | <input type="checkbox"/>  | Preparing ASME Tanks for Transportation. 4.2.2a   |
| <input type="checkbox"/>                  | <input type="checkbox"/>  | Performing Trenching, Digging & Backfilling Operations. 4.2.6a                            |
| <input type="checkbox"/>                  | <input type="checkbox"/>  | Installing DOT/ICC Exchange or Stationary Cylinders 4.2.7a                                |
| <input type="checkbox"/>                  | <input type="checkbox"/>  | Installing Aboveground ASME Tanks/Installing Manifold ASME Tanks 4.2.8a/4.2.11a           |
| <input type="checkbox"/>                  | <input type="checkbox"/>  | Installing Underground ASME Tanks/Installing Manifold ASME Tanks 4.2.9a/4.2.11a           |
| <input type="checkbox"/>                  | <input type="checkbox"/>  | Installing Buried Distribution Lines Using PE Tubing & Fittings. 4.2.12a                  |
| <input type="checkbox"/>                  |                           | Installing Vapor Pressure Regulators. 4.2.15a   |
| <input type="checkbox"/>                  |                           | Performing Regulator Flow Pressure Tests 4.2.15b  |
| <input type="checkbox"/>                  |                           | Performing Regulator Lock-up Tests 4.2.15c  |
| <input type="checkbox"/>                  |                           | Cutting, Threading & Assembling Steel Pipe, and Pressure Testing Piping. 4.2.17a/4.2.19a  |
| <input type="checkbox"/>                  |                           | Assemble CSST Piping & Pressure Test Piping. 4.2.18a/4.2.19a                              |
| <input type="checkbox"/>                  |                           | Purging Gas Distribution Lines and Placing Gas Appliances Into Operation. 4.2.21a/4.2.23a |
| <input type="checkbox"/>                  |                           | Performing Gas Distribution System Leak Checks. 4.2.22a                                   |
| <input type="checkbox"/>                  |                           | Communicating Consumer Propane Information to the Customer. 4.2.24a                       |

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After completion of Section IV, "Employer Record," remove pages 19 and 20 from the packet and photocopy. Retain photocopy for your files. Mail original to:

On-line Test Candidates:

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