

# APPT 128: RESIDENTIAL GAS INSTALLATIONS; SERVICE WORK & BACKFLOW

## Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2023
Units:	2.5
Hours:	18 lecture, 36 laboratory per quarter (54 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Residential Plumbing Apprenticeship Program.
Advisory:	Current employment in the pipe trades industry; not open to students with credit in APRT 183.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	None
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

## Student Learning Outcomes

- A student will be able to identify when cave-in protection is required.
- A student will be able to describe the hazards of working in excavations.
- A student will be able to demonstrate joining methods for polyethylene pipe.

## Description

Introduction to safe practices for working in excavations and confined spaces. Provides instructions and hands-on practice in underground polyethylene gas installations and residential service work.

## Course Objectives

The student will be able to:

- a. Describe safe work practices and procedures for working in excavations and confined spaces
- b. Demonstrate proficiency in the joining of polyethylene gas piping and fittings
- c. Demonstrate proficiency in performing common residential plumbing repairs
- d. Identify characteristics of good public and customer relations

## Course Content

- a. Safe work practices and procedures for working in excavations and confined spaces
  - i. Describe dangers of excavations and trenches
  - ii. Identify when cave-in protection is required
  - iii. Describe role of supervisor during excavations

- iv. Describe trench protection methods
- v. Define characteristics of confined space
- vi. Describe dangers of confined space
- vii. Describe OSHA regulations regarding confined space
- viii. Identify test instruments for confined space situation
- ix. Discuss precautions before entering confined space
- x. Identify physical hazards of confined space entry
- xi. Describe safety sequence before entering
- xii. Describe use of respirators
- b. Joining of polyethylene gas piping and fittings
  - i. Explain the evolution of polyethylene piping
  - ii. Understand and apply related codes
  - iii. Recognize various fittings and specialty tools
  - iv. Connect polyethylene pipe
- c. Perform residential service work
  - i. Discuss the problem solving process
  - ii. Identify common problems, causes, and remedies for sanitary sewers and drains
  - iii. Clear obstruction from a lavatory drain, water closet drain, and main drain line
  - iv. Identify common problems, causes, and remedies for hot and cold water supply system
  - v. Repair/replace various faucets, shower valves, flush valves, water closets, and sinks
  - vi. Demonstrate knowledge of pump theory of operation
  - vii. Identify final installation procedure for pumps
  - viii. Install a pump and controls according to manufacturer's specifications
- d. Identify characteristics of good public and customer relations
  - i. Identify good customer service strategies
  - ii. Create business philosophy
  - iii. Identify three general human relations factors
  - iv. Identify job performance requirements
  - v. Describe communication methods of translating human relations skills into money
  - vi. Describe role and methods of salesmanship
  - vii. Describe systems approach to service work
  - viii. Identify documentation required of service workers

## Lab Content

- a. Join polyethylene pipe using fusion tool
- b. Clear obstruction from a lavatory, water closet drain, and main drain line using snake
- c. Repair kitchen and lavatory faucets

## Special Facilities and/or Equipment

Laboratory with plumbing/piping equipment and tools.

## Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

Results of written exercises, short quizzes, and end of session and end of module assessment  
Class participation

Maintenance of a student's workbook with questions drawn from text

## Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Lecture  
Lab assignments  
Group discussions  
Demonstrations

## Representative Text(s) and Other Materials

American Technical Publishers. Plumbing Service, Maintenance, and Repair. 2017.

International Pipe Trades Joint Training Committee. Pumps. 2015.

OSHA. Smart Mark Excavation and Trenching Safety Training Module. 2012.

OSHA. Smart Mark Confined Space PowerPoint and Training Module. 2012.

These are the standard textbooks/workbooks used for this course. Although they are older than 5 years, they are the most current books used when teaching this course.

## Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- a. Readings from assigned textbook, chapter 8
  - i. Plumbing Appliances
- b. Writing assignments given in the laboratory
  - i. Quizzes on assembly and repair techniques
  - ii. List and describe function of components of a flushometer valve

## Discipline(s)

Plumbing