Course Name	Graywater & POWTS
Credit Hours	4 Hours
Instructor(s)	Randy Drake
Fee	$40.00

Course Description

This class provides two hours of content on topics central to the plumbing trades. It covers two related topics, both of which are experiencing rapid changes – POWTS (Private Onsite Water Treatment Systems) and systems that reuse graywater.

Learning Objectives

At the completion of the course, students will be able to:
- Apply the most up-to-date approaches to graywater systems.
- Know what to look for and how to handle private onsite water treatment systems
- Be more knowledgeable on the resources available and current best practices for both graywater systems and POWTS.

Equipment Requirements

You must have an active, working internet connection to access this course online, as well as a platform to access the internet, such as a computer, tablet, or phone. All popular web browsers are supported, including Google Chrome, Mozilla Firefox, Safari, and Opera. No specialized software, speaker, microphone, or web camera is required.

Schedule and Location

This course is available online at any time at www.TradesmanCE.com. Upon enrolling in the course, students will have access for 365 days or until the agency-issued course expiration date, whichever comes first. After the access expiration date, the student may re-activate their course if the course approval has not expired. If they do not re-activate, the course will be removed from the student's account and any progress in the course will be lost. Before the access expiration date, the student may sign in and out of the course as many times as needed to complete the course.

Student Support

Both general and technical support is available to the student before, during, and after taking the course online. Students have access to general customer support via phone, chat, and email.

Students have access to the course instructor via email. All questions, concerns, and comments received will be responded to within one business day.

Participation/Interactivity Verification

Timed Logs - Per our company's record retention policy, each student's every log-in, log-out, and lesson/assessment completion time is tracked and retained as part of the student record.

Review Questions - After each section of text, students must answer a review question. Students cannot progress in the course until the question between sections has been answered correctly.

Global Timer - Students will not get credit until they spend a minimum of 200 active minutes total in the course.

Identity Verification

Unique Username/Password - Each student that wants to complete a training course with us must create and account by registering a unique personal email address and password. The student must enter this unique identifier every time they take a break from the course.

Assessment Details

Review Questions - The licensee must complete all multiple-choice questions between sections correctly to get credit for the course. If their first response is incorrect, students will have to try again until they choose the correct answer.

Graywater & POWTS Timed Outline

Section	Title	Questions	Minutes
1	Introduction to Class on Graywater & Private Onsite Wastewater Treatment Systems	1	3.7
2	Principles of Graywater		1.2
	a. Introduction		3.6
	1. Solutions		4.2
	2. Reasons to Use Graywater		3.0
	b. What is Graywater?		3.4
	c. Basic Rules		5.3
	d. Economics		3.2
	e. Health Concerns		6.3
	f. Graywater to Potable Water Treatment		5.6
	g. Laws and Rules	1	4.5
3	Design & Installation of Graywater Systems		3.4
	a. Graywater Supply		2.9
	1. Sample Procedure for Estimating Graywater Discharge		1.7
	2. Commercial Graywater Supply		1.2
	b. Matching Demand and Supply		3.3
	c. Irrigation Systems		0.8
	1. Water Source		2.5
	2. Soil Type		6.2
	3. Vegetation to be Watered		2.0
	4. Location & Clearances Required		1.6
	5. Laundry to Landscape	1	8.3
4	Best Practices and Codes for Graywater Systems		0.1
	a. Best Sources		2.1
	b. Recommended Installation Elements		6.0
	c. Recommended Maintenance Protocols		2.5
	d. Codes	1	23.7
5	Private Onsite Wastewater Treatment Systems (Video)	1	4.2
6	Private Onsite Wastewater Treatment Systems (POWTS)		0.1
	a. History & Development of Private On-Site Water Treatment Systems POWTS		11.5
	b. Principles		3.8
	c. Basic Design		6.7
	1. Flow Velocity		2.0
	2. Gravity or Pump-Based Collection and Distribution		4.2
	3. Sizing - Estimating Wastewater Flow		6.5
	a. Estimating for Commercial Facilities		1.4
	b. Estimating Contaminant Loads		0.7
	d. Disposal Field		2.3
	e. Role of the Septic Tank		4.7
	1. Sludge and Scum		2.8
	2. A Note on Garbage Disposals	1	4.1
7	POWTS Design and Installation		0.4
	a. Septic Tanks		0.0
	1. Location Compartments and Capacity		4.0
	2. Tank Material and Backfill		1.5
	3. Access and Tank Inlet and Outlet		3.7
	4. Cleaning Septic Tanks		1.7

	5. Chemical Additives		2.0
	6. Laws and Regulations		5.9
	b. Soil Absorption Systems		4.7
	1. Percolation Tests		2.6
	2. Site Preparation and Construction		1.9
	3. Seepage Pits		1.7
	c. Alternative POWTS		1.6
	d. Utah Regulations		2.1
	1. R317-4-7. Construction and Installation		6.5
	2. Construction and Installation Part 2		5.5
	3. R317-4-8. Final Inspections	1	5.2
8	End of the Class	1	0.9
	Totals:	**8**	**219.2**
	Student Minimum Time Required:		**200**