

Certified Installer Exam Study Guide

Below are recommendations for using the Online Knowledge Base (wqa.org/kb) to prepare for the Certified Installer (CI) exam. The recommendations are intended as a review for those who have already met WQA's requirements for installer training. The exam candidate should also review the included field competencies.

The suggested reading in the Online Knowledge Base includes but are not limited to:

[Installing Water Treatment Devices](#) section (all articles)
[Understanding Water](#) subsection (both articles within)
[Hydraulic Principles for Water Distribution Systems](#)
[Water Distribution Systems and Pressure Loss Considerations](#)
[Measuring Dynamic \(Actual\) Pressure](#)
[Hydraulic Principles for Water Distribution Systems](#)
[Static vs. Dynamic Pressure](#)

The Knowledge Base articles are meant as background information. The exam candidates completing WQA's training courses are also encouraged to review the elearning activities in the online homework. The questions on the exam are different from those found in the homework, however, competency in answering the questions in the homework activities is a good indicator of preparation.

When reading the Knowledge Base articles and working through the homework, learners should focus on:

1. Plumbing related topics:
 - a. valves
 - b. piping materials & characteristics
 - c. hangers & supports
 - d. pressure loss in distribution systems
 - e. safe waste connections (air gap)
2. Water sources and general water quality problems
3. Water pressure in a distribution system, water demand
4. Distribution system disinfection procedures
5. Effects of common contaminants and water conditions (including turbidity, hardness, iron, manganese, hydrogen sulfide, color, nitrates/sulfates, chlorine, microorganisms, pH)
6. The operation of treatment technologies and their maintenance needs
7. Flow and pressure requirements for treatment equipment (service & backwash)
8. Good installation practices
9. Electrical safety
10. Best practices for equipment installation and related, general, plumbing code regulations
11. Cross-Connections/Backflow prevention



Certified Installer Candidate - Experiential Proficiency Checklist

How to use this checklist:

Below is the list of tasks a WQA Certified Installer is expected to be proficient in accomplishing. Use the 4 steps below to verify proficiency and, where needed, to develop and execute a training plan to ensure proficiency.

1. When determining the certification's candidate's eligibility for the exam, the candidate's employer or colleague holding a WQA CI title should review the checklist below and verify that the candidate is proficient in these tasks.
2. A training plan must be submitted for any tasks not marked "Proficient" with an estimate of how much practice will be needed and how proficiency will be judged
3. WQA recommends that the action plan for each task include the following three steps, as a minimum:
 - a) 3 ride alongs to watch the task be performed and explained, followed by
 - b) 7 supervised instances of the task being performed with the candidate explaining why the task is performed in the specific manner, and
 - c) 7 instances of independent performance of the task, each instance followed by a brief conversation with the supervisor to reflect on what went well, what could be improved, and how any problems were addressed

The hands-on activities in the MEP may be used to facilitate this process

Proficiency Level

<i>Proficient</i>	<i>Needs training</i>	<i>Hasn't done</i>	Task
			Knows local plumbing code regulations related to water treatment installations
			Knows local plumbing code regulations related to materials contacting potable water
			Proficient in leak-free pipe joining, proper pipe supports, and installation of treatment equipment in correct direction of flow
			Avoids excessive use of fittings
			Understands and implements appropriate cross-connection controls, backflow prevention & proper air gap design
			Uses appropriate drain line materials
			Correctly positions and secures drain line
			Knows the requirements in local regulations for draining to sanitary sewer vs. diverting waste
			Correctly identifies cold and hot water lines at an installation site
			Successfully installs water treatment equipment in the proper order
			Follows appropriate, company-established procedures if work order is incorrect
			Installs equipment in such a way as to alleviate any potential hazards from the installation process
			Insures onsite conditions are within equipment manufacturer's operating parameters

			Employs appropriate procedures to protect customer's property while on-site
			Maintains truck inventory appropriately to avoid lost time in having to return to the office to restock
			Correctly uses and maintains tools and test kits, including those requiring periodic calibration and adjustment
			Recognizes problems caused by reducing pipe size from distribution piping to treatment unit and fittings
			Recognizes if available sustained flow rate is sufficient for backwash operation
			Recognizes various water treatment equipment on sight and verifies against the work order
			Successfully completes field tests to verify installed equipment is performing correctly (to spec?)
			Correctly and accurately sets variables when programing equipment controls
			Properly trains customer on use and maintenance of treatment equipment
			Leaves the customer's site better/cleaner than when they found it
			Follows best practices for on-the-job safety
			Follows appropriate sanitary procedures