



CERTIFIED PLUMBING DESIGN TECHNICIAN™

2021 Bulletin of Information

AN INTERNATIONAL PROGRAM FOR
THE CERTIFICATION OF PLUMBING
DESIGN PROFESSIONALS





The Certified Plumbing Design Technician (CPDT) program is an international certification program for engineers and designers of plumbing systems. Completion of the CPDT Examination confers upon the successful candidate the Certified Plumbing Design Technician designation (CPDT). The certification program provides the profession, the plumbing industry, and the general public with a comprehensive qualification of professional competence for designers of plumbing systems. It sets the standards within the industry and provides formal recognition of outstanding professionals with skills in the design and specification of plumbing systems. The CPDT provides professional recognition of plumbing designers who do not yet have the experience required for the Certified in Plumbing Design (CPD) designation.

The statement and designation Certified Plumbing Design Technician and the acronym CPDT are registered Marks of the American Society of Plumbing Engineers.

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Registration Changes, Refunds, and Cancellations

Changes, additions, and modifications to registration information and data can be done using the account established with the testing company. Candidates will be assessed a cancellation fee of \$20 USD if canceled in less than 72 hours prior to the exam start time.

Table of Contents

2021 CPDT Examination Summary	4
Certified Plumbing Design Technician Program	4
Who is Eligible?	4
CPDT Examination	5
CPDT Examination Registration	5
CPDT Examination Fees	5
Remote Proctoring	5
Examination Schedules	6
Special Accommodation Requests	6
Registration Changes, Refunds, and Cancellations	6
Identification	6
Testing Procedures	6
Examination Results	6
Retaking the Examination	7
Complaints and Comments	7
CPDT Sample Questions	8
CPDT Sample Question Explanations	9

2021 CPDT Examination Summary

Examination dates

October 11-22, 2021

Last day to register

October 8, 2021

Examination time

Three and a half hours are allotted for the test.

Cost

ASPE Members: \$225 | Nonmembers: \$450

CPDT Examination Registration Procedure

Go to aspe.org/education-credentialing/eligibility-form to complete the eligibility form. If you are eligible, you will be sent a link to register for the exam..

Certified Plumbing Design Technician Program

The Certified Plumbing Design Technician Examination was developed by the American Society of Plumbing Engineers (ASPE) to provide professional recognition of qualified individuals who design plumbing systems. The CPDT certification was developed to articulate with the Certified in Plumbing Design (CPD) certification. The Certified Plumbing Design Technician program has four primary objectives:

1. Provide a standard of professional competence in the practice of plumbing design at the technician level.
2. Identify and recognize those individuals who successfully complete the certification examination, thereby demonstrating their acquired knowledge and abilities in the field of plumbing design.
3. Encourage plumbing designers to become lifelong learners and participate in a continuing program of professional development.
4. Provide a standard for educational programs in plumbing design and encourage implementation of such programs.

The Certified Plumbing Design Technician program is under the guidance of an independent committee appointed by the Society's Board of Directors. The CPDT is the first step toward a CPD (Certified in Plumbing Design) designation. ASPE encourages all CPDTs to continue their education and work toward a CPD designation.

Note: The CPDT designation does not allow individuals the right to sign drawings or specifications or to use the title "Engineer" in states where this is restricted by law.

Who Is Eligible?

To be eligible to take the CPDT Examination, a candidate must:

- Have a bachelor's degree in engineering and have one year of experience designing plumbing systems; or
- Have an associate's or bachelor's degree in a field related to engineering (physics, mathematics, architecture, environmental studies, construction, HVAC, etc.) and have a minimum of two years of experience designing plumbing systems; or
- Have four years minimum of plumbing design experience

Approved experience may include:

- Internship
- Co-op programs/cooperative education programs
- Documented and approved employer-based internship or work experience
- Plumbing Journeyman, Plumbing Master

Individuals who have passed the CPDT Examination and have achieved the CPDT designation are required to maintain the designation through a biennial recertification program.

CPDT Examination

The Certified Plumbing Design Technician Examination consists of 100 multiple-choice questions and is administered by a remote proctoring service. Candidates will take the exam from the comfort of their home or office at a date and time convenient to them. The CPDT Examination score is based on the number of correct answers. No penalties are assessed for wrong answers. Therefore, it is advantageous to answer every question, even if it is a guess. If time is left when you have finished the test, you can go back and review the questions of which you were unsure.

ASPE invests in the long-term reliability of the CPDT Examination by pretesting examination questions. Most of the questions answered by candidates are used to determine the candidate's score on the test. Some of the questions are evaluated for future use as scored questions and are not included in candidates' scores. Pretesting questions is a common practice that increases the validity of professional assessments.

The questions in the CPDT Examination are linked to 10 broad job domains or job categories of a plumbing design technician. These job domains include:

- A) 12% Set up small projects or a portion of large projects
- B) 7% Collect utility data prior to layout
- C) 4% Research codes, ordinances, and building certifications
- D) 16% Lay out general systems
- E) 16% Coordinate with other disciplines
- F) 16% Perform sizing calculations
- G) 12% Select equipment
- H) 5% Prepare documentation for submission
- I) 7% Support construction administration
- J) 5% Prepare project closeout documentation

CPDT Examination Registration

Once eligibility is determined, you will receive a registration link via email. Complete the exam registration and submit the fee, and include your middle name and suffix if applicable during checkout. Your name during checkout will be shared with the exam proctor to verify your identity on your identification. 5-7 business days after submission you'll receive information from the exam proctor about how to sign on to take your exam when the testing window, October 11-22, has begun.

To be processed, online registration and payment must be completed no later than October 8, 2021.

CPDT Examination Fees

ASPE Members: \$225 | Nonmembers: \$450

Examination fees are not transferable to another test date.

Remote Proctoring

Candidates will take the exam from October 11-22, 2021 via remote proctoring. Registered candidates will receive confirmation emails from ProctorExam (via StrasZ) with more information about technical specifications and requirements to take their exam. Candidates do not select a date and time for their examination. Candidates launch the remote proctoring software through Google Chrome web browser and begin their exam session. More information about the technical requirements:

- Your computer is required to have a webcam (internal or external) which will be used to monitor you during the exam process.
- You're required to download an app to your Android or Apple phone or table. This will be placed behind you in the room which you'll be taking the exam to monitor your surroundings.
- You're required to use Google Chrome and download a browser extension which records your monitor. Nothing is downloaded or stored to your computer. Upon the conclusion of your exam session you may remove Google Chrome from your computer if you wish.
- Your internet speed should be consistent enough as to not time out during your exam session. It's recommended that your internet speeds be at least 5 MB down and up. If you need to determine this please visit [speedtest.net](https://www.speedtest.net) and run a test on the computer and internet connection you will use for the exam.

Examination Schedules

Each CPDT Examination candidate is permitted 3.5 hours to complete the CPDT exam. No one will be permitted to work on the test beyond the allotted time.

Special Accommodation Requests

Any individual who has a physical or cognitive limitation that prevents him/her from taking the test under standard conditions may request special testing arrangements. For the electronic examination, ASPE and the testing company require written documentation of the special condition with a minimum of 45 days advance notice prior to registration closing. Documentation should be in the form of a letter on the official letterhead of a licensed or certified professional qualified to diagnose and treat special conditions. The written documentation must be emailed to the Certification Department at certification@aspe.org. Candidates with religious beliefs that preclude taking examinations on certain days should send an email to the Certification Department explaining their situation. This email should include a self-certification confirming their affiliation with a recognized religious organization.

The American Society of Plumbing Engineers or its testing company will send an email confirming the special arrangements (an alternate date and time, if appropriate) for the examination to the candidate approximately 10 days prior the examination date. There is no additional fee for special arrangements or accommodations.

Registration Changes, Refunds, and Cancellations

Changes, additions, and modifications to registration information and data can be done by contacting certification@aspe.org. Candidates will be assessed a \$20 cancellation fee. Candidates can cancel their examination until October 8, 2021.

Identification

You will be required to present two forms of identification. Proper forms of identification include a driver's license, a state-issued identification card, a credit card issued with your name on it, or a passport.

Testing Procedures

To ensure equality and the quality of the CPDT Examination, all remote proctors follow standard procedures and policies that will be explained prior to launching your online exam. General information is as follows:

- The CPDT Examination will be administered only between October 11-22, 2021.
- The examination will end on time; candidates are not permitted to continue beyond the established time limit for any reason. The candidate is responsible for his/her test-taking pace. Candidates leaving the examination seat for personal reasons must first obtain the proctor's permission; there will be no examination time extension for any reason.
- No books or papers of any kind may be used during the exam.
- Information such as charts, equations, and tables are included within the questions.
- Examination candidates may only bring and use silent, hand-held solar or battery-operated, nonprogrammable calculators; no portable or laptop computers are permitted.
- Examination candidates determined to be engaging in any kind of misconduct by the test supervisor will be dismissed from the examination and not permitted to return.

It is the responsibility of the examination candidate to inform the test supervisor of any special arrangements that have been approved. Examination candidates are encouraged to provide feedback about the CPDT Examination or a question.

Examination Results: Release of Information

CPDT Examination results will be available approximately six to eight weeks after the exam testing window. Candidates will receive either a pass or fail notification. Examination results are mailed simultaneously to all candidates. The CPDT Examination results are confidential and reported only to the candidate. As the certifying organization, ASPE will issue each successful candidate a Certified Plumbing Design Technician (CPDT) certificate approximately six to eight weeks after the examination results have been received. Names of successful candidates will be included in an online CPDT directory at aspe.org

The Credentialing Committee, under the guidance and direction of a psychometrician, established the level of overall examination performance/passing score that the CPDT Examination candidate must demonstrate to be entitled to the CPDT designation.

ASPE reserves the right to cancel or withhold test results if, in its opinion, there is adequate reason to question the examination's validity or a candidate's conduct, such as:

- An examination being rendered invalid because of circumstances beyond the examination candidate's control, such as faulty test materials or mistiming. When warranted, the testing company will conduct an investigation. In the event examination results are ruled invalid, arrangements will be made for a no-cost re-examination.
- Doubts raised about the validity of an examination candidate's test results because of suspected misconduct. In such circumstances, the candidate will be notified of established testing company and ASPE procedures for ensuring fair treatment. An examination candidate is expected to cooperate in a certification investigation. Examples of misconduct include giving or receiving help, using notes or unauthorized books or papers, removing test material or notes from the testing room, or attempting to take the test for someone else.

Retaking the Examination

CPDT Examination candidates who failed a test and wish to retake it, must submit a new examination registration form and include the complete examination fee. The CPDT Examination is only held once per year.

Complaints and Comments

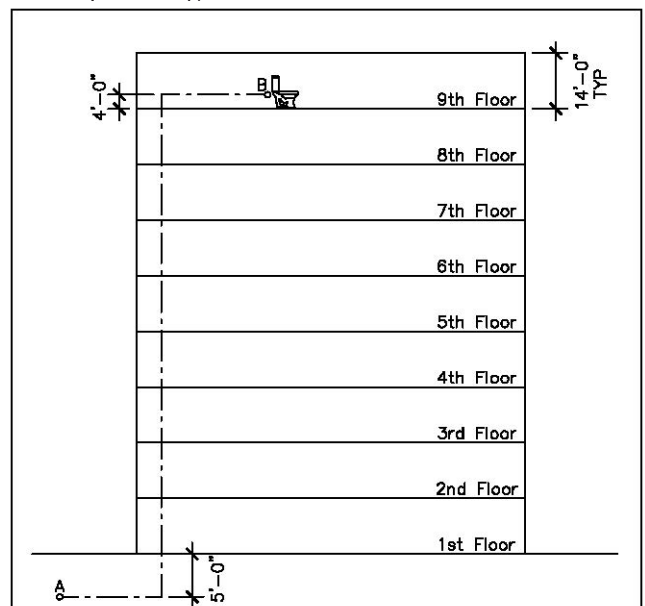
Complaints or comments about examination center facilities, examination supervision, examination content, or any other matter related to the CPDT Examination should be reported immediately on an examination candidate's comment form available from the examination supervisor or in a letter sent to ASPE in care of the Certification Department. When writing to ASPE regarding the CPDT Examination, please be sure to identify the examination date, and your complete name, address, and examination candidate identification number. ASPE and/or the testing company will investigate and respond to all complaints and comments.

CPDT Sample Questions

Some sample items are provided below. These sample questions are indicative of the content areas covered by the CPDT Examination. The questions do not represent the full range of content or the levels of difficulty found in the actual examination. The answers to the sample questions are provided after the questions.

- The capacity of an electric water heater is generally a function of:
 - Storage capacity and voltage provided
 - Temperature of the water and voltage provided
 - Venting requirement, temperature of the water, and voltage provided
 - Storage capacity and temperature of the water
- To close out a large project, O&M manuals are required to be delivered to the building owner. Manuals for what equipment would most likely be required?
 - Floor drains, trench drains, and roof drains
 - Sanitary and water distribution piping
 - Cleanouts (wall and floor) for sanitary sewer
 - Water heaters, RPZ backflow preventers, and circulation pumps
- A water flow pressure test is typically obtained from:
 - The architect
 - The civil engineer or geotechnical consultant
 - Data collected from the neighboring buildings
 - The municipality in which the project is located
- How should the plumbing design technician obtain the owner's preferences for fixtures?
 - Show the owner several fixture options
 - Ask the plumber to discuss it with the owner
 - Ask the owner to visit a plumbing display
 - Ask the architect to discuss it with the owner
- What information must the plumbing design technician have to create the plot sheets for a project?
 - Layout of the drainage and water supply piping within the building
 - Scope of work, applicable local codes, and as-builts for any existing buildings
 - Scale of the drawings, the backgrounds, sheet size, and the orientation of the building
 - Civil engineer's drawings, the floor plans and elevations, and the plumbing fixture locations

- The typical floor-to-floor height is 14 feet. The piping is sized for a uniform pressure drop of 3 psi per 100 and the total developed length (from point A to Point B) is 500 feet. The street main (at point A) pressure reading is measured 5 feet below the first floor. What is the total pressure drop due to flow and elevation? The pressure relationship between feet of water column (wc) and pressure (psi) is as follows:
 - 1 ft wc = 0.433 psi
 - 1 psi = 2.31 ft wc
 - 52.4 psi
 - 63.5 psi
 - 67.4 psi
 - 69.6



CPDT Sample Question Explanations

1. Answer: d.

All plumbing designers must know the various types of water heaters and how to select them. While voltage is a factor in considering/selecting a water heater, it does not impact the amount of available hot water that a heater will produce. However the temperature of the stored water has a direct impact on the amount of available hot water.

References:

ASPE Domestic Water Heating Design Manual, 2nd edition

ASPE Engineered Plumbing Design II, Chapter 16: Hot Water System Design

ASPE Advanced Plumbing Technology, Chapter 6: Water Heaters

ASPE Plumbing Engineering Design Handbook, Volume 2, Chapter 6: Domestic Water Heating Systems

ASHRAE Handbook—HVAC Applications, Chapter 50: Service Water Heating

2. Answer: d.

The owner needs operation and maintenance manuals to take care of and maintain their equipment.

References:

ASPE Plumbing Engineering Design Handbook, Volume 1, Chapter 5: Job Preparation, Drawings, and Field Reports

3. Answer: d.

The entities identified in a, b, or c, are not likely to have direct knowledge of the municipality system capability. They may, however, be able to assist in acquiring the information. Only the municipality would have direct information related to their service utilities.

References:

ASPE Plumbing Engineering Design Handbook, Volume 3, Chapter 11: Site Utility Systems

ASPE Advanced Plumbing Technology, Chapter 12: Preliminary Design and Outline Specifications

ASPE Engineered Plumbing Design II, Chapter 14: Water System Sizing

4. Answer: a.

It is important that the owner knows the type of fixtures that you are using. The owner may have an opinion on water conservation vs. fixture usability in their facility. Also, you may be suggesting a particular fixture and/or manufacturer with which they have had problems.

References:

ASPE Engineered Plumbing Design II, Chapter 1, Systems and Fixtures

ASPE Advanced Plumbing Technology, Chapter 12: Preliminary Design and Outline Specifications

ASPE Plumbing Engineering Design Handbook, Volume 1, Chapter 5: Job Preparation Drawings and Field Reports

ASPE Plumbing Engineering Design Handbook, Volume 4, Chapter 1, Plumbing Fixtures

5. Answer: c.

Setting up plotting sheets/drawings involves only the graphic reproduction of the construction documents. The items in a, b, and d are not related to the set-up of plumbing plotting sheets/drawings.

References:

ASPE Plumbing Engineering Design Handbook, Volume 1, Chapter 5: Job Preparation, Drawings, and Field Reports

6. Answer: c.

The pressure drop from A to B due to flow is $(3 \text{ psi}/100 \text{ ft}) \times 500 \text{ ft} = 15 \text{ psi}$. The pressure drop due to elevation is $(8 \times 14) + 5 + 4 = 121 \text{ ft}$. Convert ft to psi; $121 \text{ ft} \times 0.433 \text{ psi}/\text{ft} = 52.4 \text{ psi}$. The total pressure drop is $15 \text{ psi} + 52.4 \text{ psi} = 67.4 \text{ psi}$.