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# Perform Plumbing System Tests & Witness the Duct Air Leakage Test (DALT).

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# CERTIFIED COMMISSIONING TECHNICIAN CXT REFRESHER

Plumbing system tests are crucial for verifying the integrity, functionality, and safety of plumbing systems. They ensure compliance with codes, standards, and best practices, safeguarding public health and ensuring efficient system operation. Common tests include pressure testing, drainage system tests, smoke testing, and backflow testing. Component calibration is essential for devices like pressure gauges, flow meters, and thermostatic mixing valves to ensure accurate performance.

# Learning Objectives

- Course Overview and Introduction
- CxT's Technical, Communication, and Commissioning Skills
- HVAC Systems - Why is CxA of buildings necessary?
- Basics of field TAB , HVAC systems - Trained on jobsite safety and PPE
- CxT Responsibilities - Post Acceptance
- Perform installation pre-functional tests
- Perform plumbing system tests and witness the duct air leakage test (DALT).
- Verify TAB pre-functional tests and CxT responsibilities

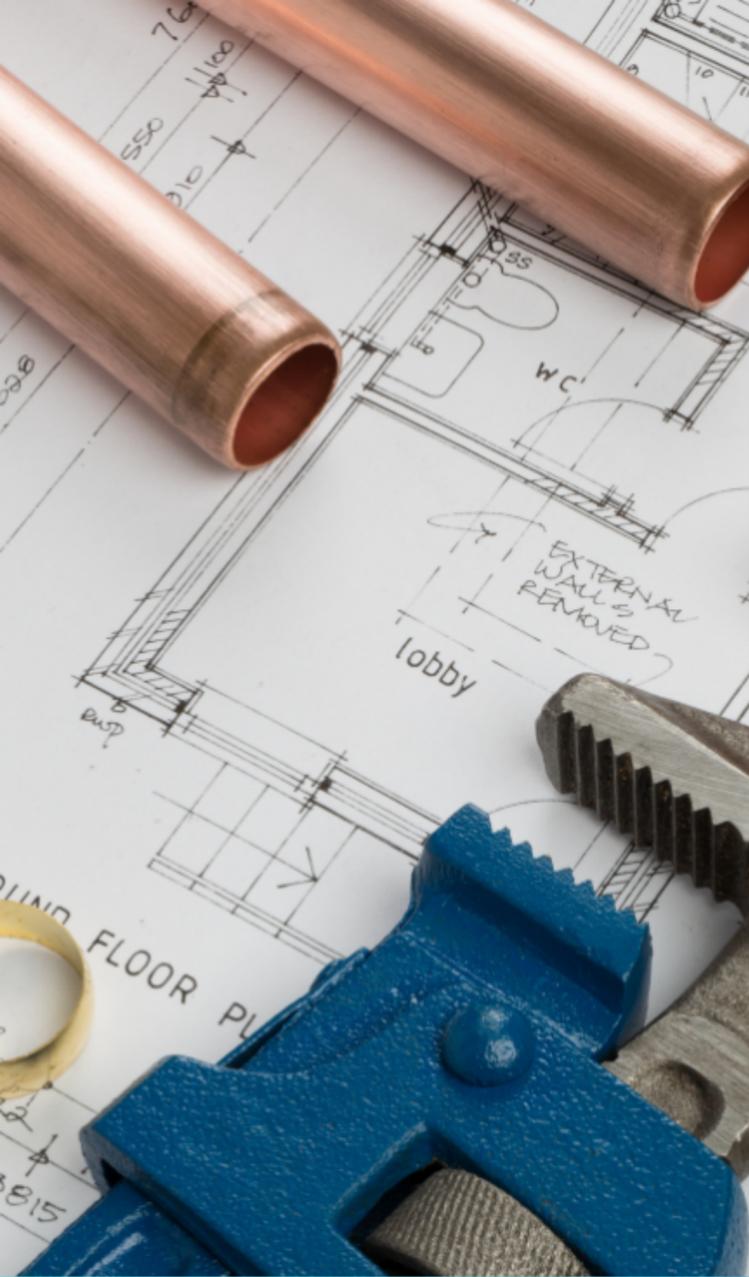


## INTRODUCTION

- Plumbing system tests are crucial for verifying the integrity, functionality, and safety of plumbing systems.
- These tests ensure compliance with codes, standards, and best practices, ensuring public health and efficient system operation.

# TYPES OF PLUMBING SYSTEM TESTS

- Pressure Testing: Identifies leaks that can compromise the system's integrity.
- Drainage System Tests: Tests for blockages and proper flow.
- Smoke Testing: Introduces non-toxic smoke into the drainage system to identify leaks and cross-connections.
- Water Test: Fills the drainage system with water and checks for leaks at joints and connections.
- Backflow Testing: Uses a specialized gauge to measure the operational integrity of backflow prevention devices.



# COMPONENT CALIBRATION

- Calibration refers to adjusting and setting the parameters of plumbing system components to ensure accurate performance.
- Pressure Gauges: Calibrated against a known standard.
- Flow Meters: Calibrated in accordance with the manufacturer's specifications.



# PROPER LOCATION AND INSTALLATION METHODS



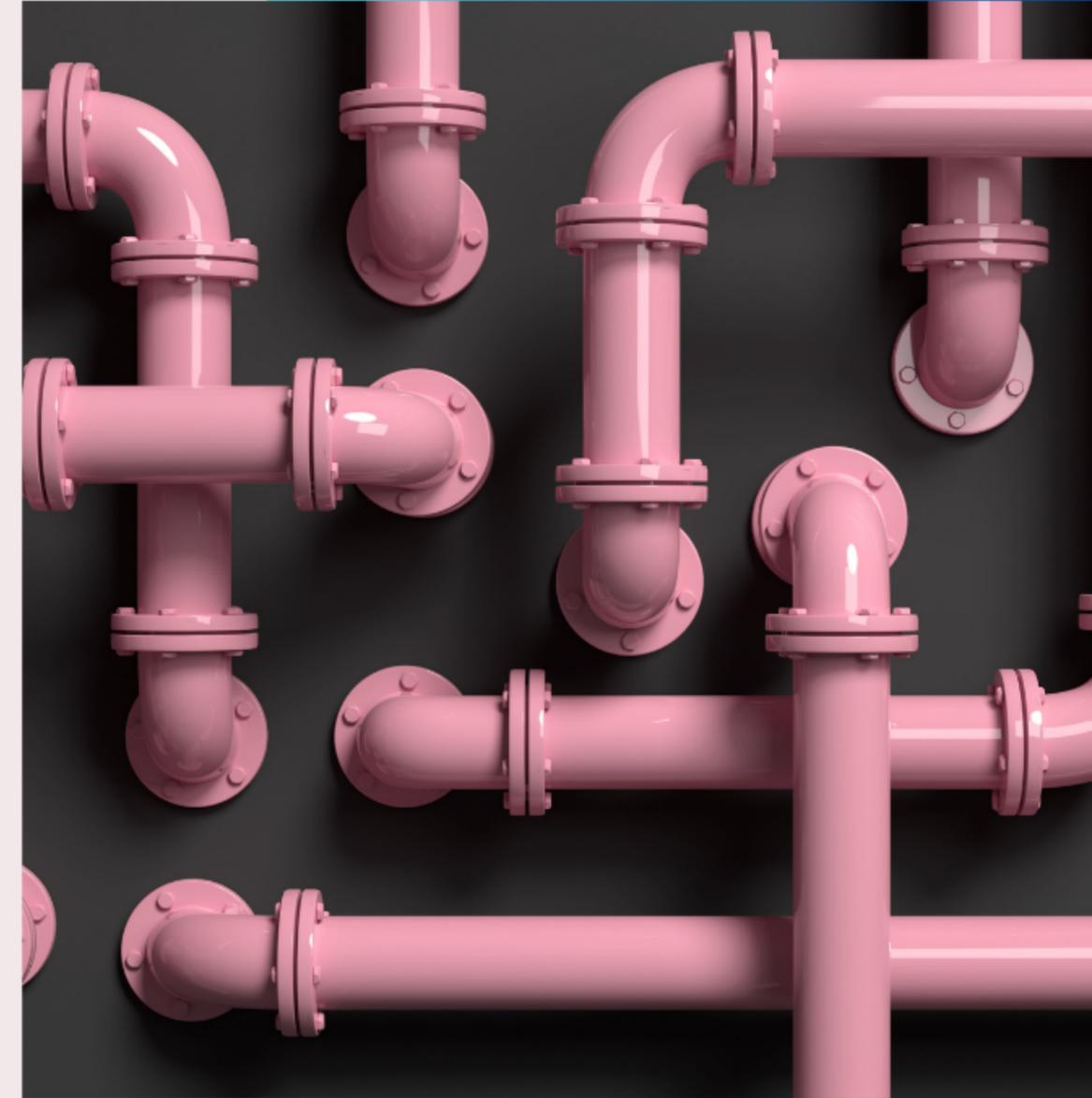
- Pipe Installation: Install pipes with the correct slope for efficient drainage.
- Valves: Located for easy access and maintenance.
- Backflow Preventers: Installed in accordance with local codes.
- Vent Pipes: Installed to maintain air pressure in the drainage system.

# UNDERSTANDING DUCT AIR LEAKAGE TESTING (DALT)

- DALT is a crucial method for assessing the integrity and efficiency of HVAC ductwork.
- It identifies leaks that can lead to energy loss, poor air quality, and reduced system performance.

## Determining Allowable Leakage

- Building codes or project specifications establish a predetermined limit for allowable leakage.
- The total allowable leakage can be calculated by dividing the project's allowable leakage by the total duct area.





# DUCT AIR LEAKAGE TESTING (DALT) +

## Specifying Test Pressure

- The duct system is tested at a specified test pressure, usually set at 25 Pa.
- This pressure allows for consistent comparisons between different duct systems and ensures compliance with regulations.



## Calculating Leakage Based on Orifice Charts

- Orifice charts estimate leakage based on differential pressure and the size of the leak.
- The process involves measuring the pressure differential across the duct system, locating the corresponding flow rate on the orifice chart, and adjusting the flow rate based on the duct's size and configuration.



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