



INTRODUCTION

For a heating and cooling system to work right, you need to do more than just put in the parts and turn them on. By itself, a forced-air furnace, air conditioner, or heat pump will provide heating and cooling, but indoor comfort will not be the best the equipment is capable of producing. The HVAC system will also function at a lower level of efficiency than it's designed for, which means you'll waste both energy and money. To ensure your heating and cooling systems are operating at their best, it's necessary to perform testing, adjusting, and balancing on your HVAC equipment.



WHAT IS TESTING, ADJUSTING AND BALANCING?



Testing, adjusting, and balancing is the process of evaluating temperature and environmental control systems to ensure they're heating or cooling according to design specifications and at the equipment's highest level of efficiency. The process involves using test instruments, sensors, and monitors to verify proper temperatures, airflow, and other characteristics of the HVAC system.

• **Testing:** Testing figures out the numbers about the HVAC system, like how much airflow is being made or how fast heat is being moved.

• **Adjusting:** When you adjust, you make changes to system parts so that the heating or cooling unit works right and meets the design requirements and comfort needs inside. Adjusting may involve changing temperature settings, opening or closing a damper, increasing or reducing fan or blower speeds, or making other changes that affect system function.

• **Balancing** ensures that all terminals, branches, and subsystems have equal proportional airflow, heat transfer, and other characteristics. Balancing could involve making sure that equal amounts of heated air are distributed down two branches of a ductwork system.

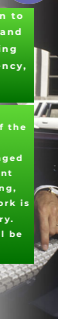


DUCTWORK IS KEY



Over time, as heating and cooling systems work from season to season, their performance deteriorates. Testing, adjusting, and balancing existing HVAC systems restores heating and cooling equipment to its best operating level, boosts system efficiency, and significantly improves indoor comfort.

Ductwork is the air distribution network that brings heated and cooled air to your home's interior. The ductwork transports all of the heated and cooled air that your heating and cooling equipment produces. This means that air leaks, unsealed connections, damaged sections, or other problems in the ductwork can have a significant effect on indoor comfort and system efficiency. Before any testing, adjusting, and balancing efforts are made, make sure the ductwork is in good condition, properly sealed, and insulated where necessary. Otherwise, testing results will be incorrect, and adjustments will be futile.



TAB WILL ADDRESS FACTORS SUCH AS:

For Commissioning the Air-Cooled Chiller of HVAC Systems, the Pre-Quality Checklist includes several components. The items included in the Physical and Component Verification parts of the Pre-Installation Quality

- ☒ Airflow quantities from the HVAC unit
- ☒ Amount of air flowing through the ductwork and exiting into the building from registers, vents, and grilles
- ☒ Pressure levels, including air velocity, barometric pressure, static pressure, differential pressure, and total pressure
- ☒ Mixture levels and temperatures of air in plenums
- ☒ Air turbulence and stratification within the system
- ☒ Fan and blower operation, including motor amperage and voltage
- ☒ Fan speed and rotation
- ☒ Proper operation and sequencing of automatic control systems



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