

**INSTALLER AND INSPECTOR QUICK-REFERENCE:
2022 NRCA-PRC-01-F
Compressed Air Systems**

Purpose and Scope of the Test

The purpose of functionally testing the controls of a compressed air system is to confirm that the controls are set up in a compliant manner. A compliant system will choose the most efficient combination of compressors, given the current air demand as measured by a sensor, according to the Energy Code. This test is designed for flexibility, as this covers both newer compressed air systems designed with controls and older systems retrofitted with controls for the first time.

Test trigger

Newly Constructed and Additions/Alterations: All new compressed air systems, and all additions or alterations of compressed air systems, where there are three or more compressors, with a total combined online horsepower greater than 100 horsepower, must be tested.

Exceptions: Alterations to systems that include centrifugal compressors, or compressed air and medical gas compressors for healthcare facilities do not need to be tested.

Relevant Energy Code References and Required Compliance Documents

Title 24, Part 6 of the California Building Code, Building Energy Efficiency Standards (Energy Code) sections 120.6(e) and NA7.13.1

Who Can Perform the Test

There are no restrictions.

Required Tools

Instrumentation to perform the test includes:

- Power meter(s) for each compressor.
- Pressure transducer(s) for each compressor.
- Sensor or set of sensors to measure or infer current air demand, including but not limited to:
 - Flow meter.
 - Set of pressure transducers.
 - Pressure transducers and power meters.

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Estimated Time to Complete Test

Construction inspection: 1 to 1.5 hours (depending on complexity of the system)
Functional testing: 1 to 3 hours (depending on familiarity with the controls and issues that arise during testing)

Potential Issues and Cautions

For older systems, it may not be feasible to run at a steady demand for 10 minutes. In these cases, still observe the compressors to ensure that the controls are operating efficiently.

Inspection Enforcement

Prior to the functional test, the system and compressor specifications must be documented. In addition, the method for determining the current air demand and the state of each of the compressors must also be documented. Having this documented will assist in determining if the controls are working properly.

Required:

NRCA-PRC-01-F must be completed by the installing technician or another qualified person.

Acceptance Criteria

The states of each compressor will be observed throughout the duration of the test. By the end of the 10-minute duration, each compressor must not exhibit short-cycling or blow-off.
For new compressed air systems, the trim compressors are the only compressors that can be partially loaded. All base compressors must be either fully loaded or off by the end of the test.