

**INSTALLER and INSPECTOR QUICK-REFERENCE:
2025-NRCA-PRC-18a,b,c-F
Steam Trap Fault Detection**

Purpose and Scope of the Test

To verify that the central steam trap monitoring system detects faults and reports the fault detection to the operator.

- Nonresidential Certificate of Acceptance NRCA-PRC-18a-F must be completed for each steam trap system.
- If testing each steam trap within the steam trap system individually, then NRCA-PRC-18b-F must be completed for each steam trap.
- If there are more than seven (7) steam traps within the steam trap system, then sample groups may be used by completing NRCA-PRC-18c-F for each sample group.
- All test results must be summarized on NRCA-PRC-18a-F for each steam trap system.

Test trigger

Per Section 120.6(i), this acceptance test applies to steam traps in new industrial facilities and new steam traps added to support new, nonreplacement, process equipment in existing industrial facilities where the installed steam trap operating pressure, which is the steam pressure entering the steam trap during normal design operating conditions, is greater than 15 psig and the total combined connected boiler input rating is greater than 5 million Btu/hr.

Relevant Energy Code References and Required Compliance Documents

Title 24, Part 6 of the California Building Standards Code, Building Energy Efficiency Standards (Energy Code) sections Section 120.6(i); NA7.19; NRCC-PRC-E; NRCI-PRC-E.

Who Can Perform the Test

There are no restrictions. The test is typically performed by the startup technician. Note that the contractor can complete the test, and ATTCP certification is not required for this test at this time.

Required Tools

Performance of this test will not require measurements; thus no tools are necessary.

Estimated Time to Complete Test

Construction Inspection: 45 minutes

Functional testing: 45 minutes

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Potential Issues and Cautions

For steam systems with up to seven (7) steam traps required to have fault detection in accordance with Section 120.6(i), all steam traps would be tested individually (NRCA-PRC-18b-F). For steam systems with more than seven (7) steam traps the installer may choose to use sample groups (NRCA-PRC-18c-F). Sample groups are limited to a minimum of 1 steam trap and a maximum of up to 7 steam traps.

If the tested steam trap in the sample group passes the acceptance test, the remaining steam traps in the sample group also pass. If the tested steam trap in a sample group fails, the rest of the steam traps in that group must be tested individually (NRCA-PRC-18b-F).

If any tested steam trap fault detection sensor fails it must be repaired, replaced, or adjusted until it passes the test.

Inspection Enforcement

NRCA-PRC-18a-F and all iterations of NRCA-PRC-18b-F or NRCA-PRC-18c-F must be made available to the enforcement agency.

Acceptance Criteria

NRCA-PRC-18a-F:

To pass, all tested steam traps must be code compliant in Table A-2. If not code compliant all tested steam traps must be remediated until they are code compliant. If any tested steam trap cannot be remediated further and is not code compliant, the system fails.

NRCA-PRC-18b-F:

If all Functional Test Compliance Results in Table B indicate 'pass,' then the tested steam trap passes. If the steam trap fails any functional test in Table B, the steam trap must be remediated until it passes. If the steam trap cannot be remediated further and still does not pass, then the system fails.

NRCA-PRC-18c-F:

If all Functional Test Compliance Results in Table B-2 indicate 'pass,' then the tested steam trap passes and the sample group passes. If the steam trap fails any functional test in Table B-2, then all members of the steam trap group (Table B-1) must be tested individually using NRCA-PRC-18b-F and the tested steam trap must be remediated until it passes. If the steam trap cannot be remediated further and still does not pass, then the system fails.