

**INSTALLER and INSPECTOR QUICK-REFERENCE:**  
**20252-NRCA-MCH-24-A**  
**Cooling Tower Conductivity Controls**

**Purpose and Scope of the Test**

This test requires the blowdown control sequence for open and closed-circuit cooling towers to be triggered when one or more of recirculating water parameters specified in Table NA-7 reaches a value specified in NRCC-MCH-E or NRCC-PRF-E form. This measure also ensures the installation and proper functioning of the overflow alarm.

Blowdown is the process of draining water from a cooling tower to remove any dissolved solids or chemicals that have accumulated during its operation. Removing these particles and chemicals minimizes the risk of corrosion, scale, fouling, and biological growth, all of which can reduce cooling tower and chiller efficiency. Inspecting and testing blowdown controls sequence and overflow alarms can result in significant water savings.

**Test trigger**

Newly Constructed and Additions/Alterations: Applies to open and closed-circuit cooling towers.

Exception: Open and Closed-circuit cooling towers with rated capacity less than 150 tons are not subject to this test.

**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 110.2(e), 120.5(a)19 and NA7.5.18.

**Who Can Perform the Test**

This test must be performed by an acceptance test technician certified by a California Energy Commission (CEC) approved Acceptance Test Technician Certification Provider, using compliance document NRCA-MCH-24-A.

**Required Tools**

- Access to Energy Management Control System (EMCS) system controlling the cooling tower.
- Flow meter with analog output for flow on makeup water line.
- Overflow alarm to prevent sump overflow.
- Drift eliminators for counter and cross flow towers.

**Estimated Time to Complete Test**

- Construction inspection: 0.5 to 1 hour [depending on availability of construction documentation (i.e., plumbing drawings, material cut sheets, specifications, etc.)].
- Functional testing: 0.5 to 1 hour (depending on familiarity with BAS, method employed to vary operating parameters, and time interval between control command and system response).

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**Potential Issues and Cautions**

- Difficulties could be encountered with manipulating the control system if not familiar with the programming language. Therefore, a controls contractor should be on-site to assist with adjusting system operation and overriding controls.

**Inspection Enforcement**

Required:

Verify the inspector is in receipt of the NRCA-MCH-24-A for EACH system that must demonstrate compliance. All NRCA forms for Mechanical Systems must have a water mark logo from a certified Mechanical ATTCP Provider.

**Acceptance Criteria**

The following are verified through inspection:

- Verify blowdown control sequence is available.
- Verify controls are programmed for bleed to maximum cycles of concentration.
- Verify controls are programmed for blowdown until one or more parameters reaches target threshold.
- Verify that the overflow alarm is triggered either through an audible signal or via alert to EMCS.

Follow the **Construction Inspection** and **Functional Testing** instructions on the NRCA-MCH-24-A.