

CONDENSER WATER SUPPLY TEMPERATURE RESET CONTROLS ACCEPTANCE

CEC-NRCA-MCH-17-A (Revised 01/20)

CALIFORNIA ENERGY COMMISSION



CERTIFICATE OF ACCEPTANCE		NRCA-MCH-17-A
Condenser Water Supply Temperature Reset Controls Acceptance		(Page 1 of 3)
Project Name:	Enforcement Agency:	Permit Number:
Project Address:	City:	Zip Code:
System Name or Identification/Tag:	System Location or Area Served:	

Compliance Results: <input type="checkbox"/> Complies <input type="checkbox"/> Does NOT Comply	Enforcement Agency Use: Checked by/Date
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Intent:	Ensure that the condenser water supply temperature is automatically reset as indicated in the control sequence(s). Submit one Certificate of Acceptance for each system that must demonstrate compliance. (NA7.5.16 , §140.4(k)4)
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A. Construction Inspection			
Building:	Floor:	Room/Area/Zone:	Control/System:
1	Required Documentation (check all of the following):		
<input type="checkbox"/>	a.	Designs, plans, schematics, and schedules as approved by the authority having jurisdiction.	
<input type="checkbox"/>	b.	Building documents including: manufacturer specifications, calibration certificates, or tear sheets for the installed system as available.	
2	Prior to functional testing, verify and document the following (check all of the following):		
<input type="checkbox"/>	a.	Condenser water supply system, control system, and temperature control sequence, including condenser water supply high and low limits, are available and documented in the building documents. (NA7.5.16.1(a))	
<input type="checkbox"/>	b.	Cooling tower fan motors are operational, and cooling tower fan speed controls (e.g. VSDs) are installed, operational, and connected to cooling tower fan motors as specified by Original Equipment Manufacturer (OEM) start-up manuals and sequence of operation. (NA7.5.16.1(b))	
<input type="checkbox"/>	c.	Cooling tower fan control sequence, including tower design wet-bulb temperature and approach, is available and documented in the building documents. (NA7.5.16.1(c))	
<input type="checkbox"/>	d.	The following temperature sensors are installed as specified by the plans: outdoor air dry-bulb, outdoor air wet-bulb, entering condenser water, and leaving chilled water. Note any discrepancies. (NA7.5.16.1(d))	
<input type="checkbox"/>	e.	All ambient dry bulb temperature, relative humidity, and pressure sensors used by controller are factory calibrated within 2% of a calibrated reference sensor. (NA7.5.16.1(e))	
<input type="checkbox"/>	f.	Document the current outdoor air dry bulb and wet bulb temperatures, entering condenser water temperature, and leaving chilled water temperature readings from the control system. (NA7.5.16.1(f))	
		Outdoor air dry-bulb temperature (° F):	Outdoor air wet-bulb temperature (° F):
		Entering condenser water temperature (° F):	Leaving chilled water temperature (° F):
Construction Inspection Compliance Results: <input type="checkbox"/> Complies <input type="checkbox"/> Does NOT Comply			

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B. Functional Testing

Building:	Floor:	Room/Area/Zone:	Control/System:
Steps:			Results
1	Exemption from Functional Test (NA7.5.16.2(c))		
a.	If the actual control sequence differs significantly from that implied by the tests and/or has already been tested during the building commissioning process, attach a description of the control sequence, a description of the tests that were done to verify the system operates according to the sequence, the test results, and a plot of associated trend data.		"Exempted" or "Perform Functional Test"
2	Pre-Functional Test Requirements		
a.	The system cooling load must be sufficiently high to run the test. If necessary, artificially increase the evaporator load to perform the functional tests, or wait until a time of stable chiller operation. If necessary, reverse Steps 3 and 4 in the test based on atmospheric conditions and buildings loads. (NA7.5.16.2(a))		
b.	If testing in cold ambient conditions, ensure that freeze protection controls are installed and functional to prevent equipment damage. (NA7.5.16.2(b))		
c.	Identify the reset control parameter: (NA7.5.16.2(d))	<input type="checkbox"/> Outside air wet-bulb temperature <input type="checkbox"/> Load signal from chiller <input type="checkbox"/> Condenser water & chilled water temperatures <input type="checkbox"/> Other	
3	Adjust the reset control parameter to decrease the condenser water supply temperature toward the lower supply temperature limit. Allow time for the system to stabilize. Verify and document the following: (NA7.5.16.2 Step 1)		
a.	Condenser water supply temperature controls modulate as intended. (NA7.5.16.2 Step 1(a))		P/F
b.	Actual condenser water supply temperature decreases to meet the new setpoint within $\pm 2^{\circ}\text{F}$. (NA7.5.16.2 Step 1(b))		P/F
c.	Cooling tower fan(s) stage properly and/or adjust speed accordingly to meet higher setpoint. (NA7.5.16.2 Step 1(c))		P/F
d.	Chiller load amperage decrease. (NA7.5.16.2 Step 1(d))		P/F
4	Adjust the reset control parameter to increase the condenser water supply temperature toward the upper supply temperature limit. Verify and document the following: (NA7.5.16.2 Step 2)		
a.	Condenser water supply temperature controls modulate as intended. (NA7.5.16.2 Step 2(a))		P/F
b.	Actual condenser water supply temperature increases to meet the new setpoint within $\pm 2^{\circ}\text{F}$. (NA7.5.16.2 Step 2(b))		P/F
c.	Cooling tower fan(s) stage properly and/or adjust speed accordingly to meet the lower setpoint. (NA7.5.16.2 Step 2(c))		P/F
d.	Chiller load amperage increase. (NA7.5.16.2 Step 2(d))		P/F
5	Restore reset control parameter to automatic control. Verify and document the following: (NA7.5.16.2 Step 3)		
a.	Condenser water supply temperature controls modulate as intended. (NA7.5.16.2 Step 3(a))		P/F
b.	Actual condenser water supply temperature changes to meet the new setpoint. (NA7.5.16.2 Step 3(b))		P/F
c.	Cooling tower fan(s) and chiller(s) stage properly and/or adjust speed accordingly to return to normal operation and meet the setpoint. (NA7.5.16.2 Step 3(c))		P/F
Functional Testing Compliance Results: Complies Does NOT Comply			

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Acceptance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Documentation Author Company Name:	Date Signed:
Address:	ATT Certification Identification (If applicable):
City/State/Zip:	Phone:

FIELD TECHNICIAN'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

- The information provided on this Certificate of Acceptance is true and correct.
- I am the person who performed the acceptance verification reported on this Certificate of Acceptance (Field Technician).
- The construction or installation identified on this Certificate of Acceptance complies with the applicable acceptance requirements indicated in the plans and specifications approved by the enforcement agency, and conforms to the applicable acceptance requirements and procedures specified in Reference Nonresidential Appendix NA7.
- I have confirmed that the Certificate(s) of Installation for the construction or installation identified on this Certificate of Acceptance has been completed and signed by the responsible builder/installer and has been posted or made available with the building permit(s) issued for the building.

Field Technician Name:	Field Technician Signature:	
Field Technician Company Name:	Position with Company (Title):	
Address:	ATT Certification Identification (if applicable):	
City/State/Zip:	Phone:	Date Signed:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

- I am the Field Technician, or the Field Technician is acting on my behalf as my employee or my agent and I have reviewed the information provided on this Certificate of Acceptance.
- I am eligible under Division 3 of the Business and Professions Code in the applicable classification to accept responsibility for the system design, construction or installation of features, materials, components, or manufactured devices for the scope of work identified on this Certificate of Acceptance and attest to the declarations in this statement (responsible acceptance person).
- The information provided on this Certificate of Acceptance substantiates that the construction or installation identified on this Certificate of Acceptance complies with the acceptance requirements indicated in the plans and specifications approved by the enforcement agency, and conforms to the applicable acceptance requirements and procedures specified in Reference Nonresidential Appendix NA7.
- I have confirmed that the Certificate(s) of Installation for the construction or installation identified on this Certificate of Acceptance has been completed and is posted or made available with the building permit(s) issued for the building.
- I will ensure that a completed, signed copy of this Certificate of Acceptance shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Certificate of Acceptance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Acceptance Person Name:	Responsible Acceptance Person Signature:	
Responsible Acceptance Person Company Name:	Position with Company (Title):	
Address:	CSLB License:	
City/State/Zip:	Phone:	Date Signed: