REFRIGERATED WAREHOUSE AIR COOLED CONDENSER CONTROLS ACCEPTANCE

CERTIFICATE OF ACCEPTANCE		NRCA-PRC-06-F
Refrigerated Warehouse Air Cooled Condenser Controls Acceptance		(Page 1 of 4)
Project Name:	Enforcement Agency:	Permit Number:
Project Address:	City:	Zip Code:

Note: Submit one Certificate of Acceptance for each system that must demonstrate compliance.	Enforcement Agency Use: Checked by/Date

Intent:	*Verify that the air-cooled condenser has ambient drybulb following control and fan motor variable speed control*

A. Construction Inspection

1. Installation. Verify the following:
   - ☐ All condenser fan motors are operational and rotating in the correct direction.
   - ☐ All condenser fan speed controls are operational and connected to condenser fan motors to operate in unison the fans serving a common condenser loop.
   - ☐ Temperature sensor used by the controller is mounted in a location that is not exposed to direct sunlight.
   - ☐ Receiver pressurization valves, such as the outlet pressure regulator (OPR), (if used) are set lower than the drain leg pressure regulator valve setting.
   - ☐ Drain leg pressure regulator valves (if used) are set below the minimum condensing temperature/pressure setpoint.

2. Control System. Verify the following:
   - ☐ Saturated condensing temperature input is the temperature equivalent reading of the condenser pressure sensor.
   - ☐ Minimum condensing temperature control setpoint is at 70°F or lower.
   - ☐ All speed controls are in “auto” mode.

3. Field Calibration:

   Sensors used for control must be calibrated to read accurate from the control system. Calibration values must be documented. Attach field calibration records to this compliance document. The following sensors are used for air-cooled condenser control:
   - ☐ Condenser inlet and outlet pressure sensors
   - ☐ Ambient dry-bulb temperature sensor

   The calibrating instruments used to calibrate the sensors used for control must have the following accuracies:
   - ☐ Pressure: ±2.5 psi between 0 and 500 psig
   - ☐ Temperature: ±0.7°F between -30°F and 200°F

Notes:

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B. Functional Testing	**Results**
The system cooling load must be sufficiently high to run the test, (i.e. with a condensing temperature above the minimum SCT set point). The loads can often be increased somewhat as required to perform the Functional Testing.	
Step 1: Override any conflicting controls before performing functional tests.	
Notes:	
Step 2: Document the current operating conditions and current set points.	
a. Current ambient dry-bulb temperature (DBT).	°F
b. Current saturated condensing temperature (SCT) or condensing pressure.	°F psig
c. Calculate the actual condenser temperature difference (Actual TD) [SCT – DBT].	°F
d. Current SCT or pressure control set point.	°F psig
e. Current condenser control temperature difference (Control TD).	°F
Notes:	
Step 3: Set the Control TD set point to the Actual TD obtained in Step 2. This will be referred to as the "test set point." Allow 5 minutes for condenser fan speed to normalize.	
Step 4: Using the control system, raise the test set point in 1°F increments until the condenser fan control modulates to minimum fan motor speed.	
a. Fan motor speed decrease.	
b. All condenser fan motors serving common condenser loop decrease speed in unison in response to controller output; observed at the control system and at the condenser(s).	
c. Record the minimum fan motor control speed. Enter with units as rpm, Hertz, or percent of full speed.	
Notes:	
Step 5: Using the control system, lower the test set point in 1°F increments until the condenser fan control modulates to increase fan motor speed.	
a. Fan motor speed increases.	
b. All condenser fan motors serving common condenser loop increase speed in unison in response to controller output; observed at the control system and at the condenser(s).	
Notes:	
Step 6: Verify override minimum SCT set point.	
a. Record the current minimum condensing temperature set point.	°F
Using the control system, change the minimum SCT set point to a value greater than the current operating SCT.	
b. Condenser fan controls modulate to decrease capacity.	
c. All condenser fans serving common condenser loop modulate in unison.	
d. Condenser fan controls stabilize within a 5 minute period.	
Notes:	
Step 7: Restore the Control TD and the minimum SCT set point to the values recorded Step #2e and #6a.	
Step 8: Restore any controls disabled in Step #1.	

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C. Testing Results	PASS	FAIL
Step 1: All condenser fan motors serving a common condenser loop decrease speed in unison in response to a higher condenser control TD set point. (Pass if all Answers are Yes)	○	○
Step 2: All condenser fan motors serving a common condenser loop increase speed in unison in response to a lower condenser control TD set point. (Pass if all Answers are Yes)	○	○
Step 3: The control system overrides the variable set point with a minimum SCT set point. This override minimum SCT set point is 70°F or lower. (Pass if all Answers are Yes)	○	○

D. Evaluation

☐ PASS: All **Construction Inspection** responses are complete and all **Testing Results** responses are "Pass".

Notes:

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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:	CEA/HERS/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:

1. The information provided on this Certificate of Acceptance is true and correct.
2. I am the person who performed the acceptance verification reported on this Certificate of Acceptance (Field Technician).
3. 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.
4. 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:	CEA/HERS/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:

1. 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.
2. 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).
3. 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.
4. 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.
5. 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: