

REFRIGERATED WAREHOUSE 3000 FT² OR GREATER AND SERVED BY THE SAME REFRIGERATION SYSTEM

CEC-NRCC-PRC-08-E (Revised 01/16)

CALIFORNIA ENERGY COMMISSION



CERTIFICATE OF COMPLIANCE		NRCC-PRC-08-E
Refrigerated Warehouse >3,000 ft ² and Served by the Same Refrigeration System		(Page 1 of 5)
Project Name:	Date Prepared:	

NOTE: This form required when multiple spaces for refrigerated warehouses when equal to or more than 3,000 ft² of refrigerated space is served by the same refrigeration system compressor(s) and condenser(s).

A. Mandatory Measures	Title 24 Sections	Indicate page reference for information on the plans or specification, or list the information below				
Condenser ID or Tags (e.g. Cond-1)						
Minimum condensing temperature set point ≤ 70°F.	§120.6(a) 4C,D					
Condenser fans must be continuously variable speed and all fans on a common high side are to be controlled in unison.						
The condensing temperature set point for air-cooled condensers must be reset in response to ambient dry-bulb temperature. The condensing temperature set point for evaporative-cooled condensers or water-cooled condensers (via cooling towers or fluid coolers) shall be reset in response to ambient wet-bulb temperatures.	§120.6(a) 4E					
Exception to §120.6(a)4E. Condensing temperature control strategies approved by the Executive Director that have been demonstrated to provide at least equal energy savings. Attach letter of approval to compliance document.						
Minimum allowed condenser specific efficiency. <i>(Reference Table 120.6-B)</i>	§120.6(a) 4F					
Installed condenser specific efficiency <i>(Reference PRC-08-E Page 3 or 4)</i>						
Is the installed condenser efficiency ≥ the minimum allowed condenser efficiency?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is an evaporative condenser or water-cooled condenser served by a fluid cooler or cooling tower installed? If Yes then fill out the next 5 lines.	§120.6(a) 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design wet-bulb (WB) temperature (°F).	§120.6(a) 4A					
Saturated condensing temperature (SCT) under design conditions (°F).						
Maximum allowed SCT under design conditions WB ≤ 76°F SCT = WB + 20°F 76°F < WB ≤ 78°F SCT = WB + 19°F WB > 78°F SCT = WB + 18°F						
Exception to §120.6(a)4A. Exempted condenser is on a refrigeration system where more than 20% of the design refrigeration load is for quick chilling or freezing (space with design cooling capacities of greater than 240 Btu/hr-ft ²), or process refrigeration cooling for other than a refrigerated space.						
Condenser exempt or is the installed condensing temperature ≤ the maximum allowed condensing temperature?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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B. Mandatory Measures	Title 24 Sections	Indicate page reference for information on the plans or specification, or list the information below					
Condenser ID or tags (e.g. Cond-1)							
Is an air-cooled condenser installed? If Yes then fill out the next 9 lines.	§120.6(a) 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Design dry-bulb (DB) temperature (°F)							
Saturated condensing temperature (SCT) under design conditions (°F).							
Is condenser serving a cooler or freezer? (if both list freezer)							
Maximum allowed SCT under design conditions for systems serving cold storage. Freezer SCT = DB + 10°F Cooler SCT = DB + 15°F							
Exception 1 to §120.6(a)4B. Exempted condensing unit has a total compressor power < 100 HP.		§120.6(a) 4B					
Exception 2 to §120.6(a)4B. Exempted air-cooled condenser is on a refrigeration system where more than 20% of the design refrigeration load is for quick chilling or freezing (space with design cooling capacities of greater than 240 Btu/hr-ft ²), or process refrigeration cooling for other than a refrigerated space.							
Condenser or condensing units(s) exempt, or is the installed condensing temperature less than or equal to the maximum allowed condensing temperature?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the fin density < 10 fins per inch?	§120.6(a) 4G	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Exception to §120.6(a)4G. Condenser is a micro-channel condenser.							
Compressor ID or Tags (e.g. Comp-1)							
Compressors shall be designed to operate at a minimum condensing temperature of 70°F or less.	§120.6(a) 5A						
New open-drive screw compressors with a design saturated suction temperature (SST) ≤ 28°F that discharges to the system condenser pressure shall control compressor speed in response to the refrigeration load.							
Exception 1 to §120.6(a)5B. Exempted compressor is part of a multiple compressor suction group.		§120.6(a) 5B					
Exception 2 to §120.6(a)5B. Exempted compressor(s) is part of a system where more than 20% of the design refrigeration load is for quick chilling or freezing (space with design cooling capacities of greater than 240 Btu/hr-ft ²), or process refrigeration cooling for other than a refrigerated space.							

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C. Condenser Efficiency Worksheet

WATER-COOLED CONDENSER SERVED BY A FLUID COOLER (EXEMPT)

EVAPORATIVE CONDENSER

Tag/ ID	Fans				Pumps				Condenser		
	01	02	03	04	05	06	07	08	09	10	11
	Motor Power (HP)	Motor Efficiency (%)	Motor Input Power (kW) (0.746 x C01 / C02)	Total Fan Power (kW)	Motor Power (HP)	Motor Efficiency (%)	Motor Input Power (kW) (0.746 x C05 / C06)	Total Pump Power (kW)	Capacity (MBH)	Total Input Power (kW) C04 + C08	Specific Efficiency (Btuh / Watt) C09 / C10
1 ___	1 ___	1 ___									
2 ___	2 ___	2 ___			1 ___	1 ___	1 ___				
3 ___	3 ___	3 ___			2 ___	2 ___	2 ___				
4 ___	4 ___	4 ___			3 ___	3 ___	3 ___				
5 ___	5 ___	5 ___			4 ___	4 ___	4 ___				
6 ___	6 ___	6 ___									
1 ___	1 ___	1 ___									
2 ___	2 ___	2 ___			1 ___	1 ___	1 ___				
3 ___	3 ___	3 ___			2 ___	2 ___	2 ___				
4 ___	4 ___	4 ___			3 ___	3 ___	3 ___				
5 ___	5 ___	5 ___			4 ___	4 ___	4 ___				
6 ___	6 ___	6 ___									
1 ___	1 ___	1 ___									
2 ___	2 ___	2 ___			1 ___	1 ___	1 ___				
3 ___	3 ___	3 ___			2 ___	2 ___	2 ___				
4 ___	4 ___	4 ___			3 ___	3 ___	3 ___				
5 ___	5 ___	5 ___			4 ___	4 ___	4 ___				
6 ___	6 ___	6 ___									

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name:	Documentation Author Signature:
Company:	Signature Date:
Address:	CEA/HERS Certification Identification (if applicable):
City/State/Zip:	Phone:

RESPONSIBLE PERSON'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 Compliance is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
- The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
- The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
- I will ensure that a completed signed copy of this Certificate of Compliance shall be 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 completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name:	Responsible Designer Signature:
Company :	Date Signed:
Address:	License:
City/State/Zip:	Phone:

NRCC-PRC-08-E User Instructions

This is the compliance document for refrigerated warehouses 3,000 ft² and greater served by the same refrigeration system, which provides compliance information for the use of the enforcement agency's field inspectors. This compliance document must be included on the plans. A copy of this compliance document should also be submitted to the enforcement agency along with the rest of the compliance submittal at the time of building permit application.

Project Description

PROJECT NAME is the title of the project, as shown on the plans and known to the enforcement agency.

DATE is the last revision date of the plans. If the plans are revised after this date, it may be necessary to re-submit the compliance documentation to reflect the altered design. Note that it is the enforcement agency's discretion whether to require new compliance documentation or not.

Section A. Mandatory Measures

The mandatory measures must be incorporated into the construction documents. Left column list the measures and the section numbers in the Building Energy Efficiency Standards where the requirements for those measures are specified. The columns labeled *Indicate Page Reference on Plans or Schedule* are for designating the specific sheet on the plans or specification section(s) where the measures used to comply with the Standards are documented. In each column, the documentation author shall identify where each of the required measures are specified on the plans or in the project specifications. Where a measure is not applicable to the specific system, the letters "NA" (for not applicable) are placed in the cell. Groups of similar systems can be entered in a single column where appropriate.

Section B. Mandatory Measures

The mandatory measures must be incorporated into the construction documents. Left column list the measures and the section numbers in the Building Energy Efficiency Standards where the requirements for those measures are specified. The columns labeled *Indicate Page Reference on Plans or Schedule* are for designating the specific sheet on the plans or specification section(s) where the measures used to comply with the Standards are documented. In each column, the documentation author shall identify where each of the required measures are specified on the plans or in the project specifications. Where a measure is not applicable to the specific system, the letters "NA" (for not applicable) are placed in the cell. Groups of similar systems can be entered in a single column where appropriate.

Section C. Condenser Efficiency Worksheet (Evaporative Cooled)

TAG/ID – is the system name or identifying number that corresponds to the mechanical schedule on the plans.

1. MOTOR POWER – is the nominal horsepower (hp) for an individual motor. If the manufacturer specifies the input power in kW, then skip to 3 and enter it there.
2. MOTOR EFFICIENCY – this value is taken from the manufacturer's specifications
3. MOTOR INPUT POWER – this value is the reported input power in kW, as specified by the manufacturer or the calculated kW using the product of the motor power hp and conversion factor 0.746 and divided by the motor efficiency.
4. TOTAL FAN POWER – is the reported fan power in kW, as specified by the manufacturer.
5. MOTOR POWER – this is the nominal motor hp of the pump as specified by the manufacturer. If the manufacturer specifies the input power in kW, then skip to 7.
6. MOTOR EFFICIENCY – this value is taken from the manufacturer's specifications.
7. MOTOR INPUT POWER - this value is the reported input power in kW, as specified by the manufacturer or the calculated kW using the product of the motor power hp and conversion factor 0.746 and divided by the motor efficiency.
8. TOTAL PUMP POWER – is the reported fan power in kW, as specified by the manufacturer.
9. CAPACITY – Enter the rated capacity of the condenser at 100 °F saturated condensing temperature and 70°F ambient wet-bulb temperature.
10. TOTAL INPUT POWER – is the sum of 4 and 8
11. SPECIFIC EFFICIENCY – is the ratio of 9 and 10

Section D. Condenser Efficiency Worksheet (Air Cooled)

TAG/ID – is the system name or identifying number that corresponds to the mechanical schedule on the plans.

1. NUMBER OF FANS – indicate the number of fans
2. MOTOR POWER – is the nominal horsepower (hp) for an individual motor. If the manufacturer specifies the input power in kW, then skip to 3 and enter it there.
3. MOTOR EFFICIENCY – this value is taken from the manufacturer’s specifications
4. MOTOR INPUT POWER – this value is the reported input power in kW, as specified by the manufacturer or the calculated kW using the product of the number of fans, motor power hp and conversion factor 0.746 and divided by the motor efficiency.
5. CAPACITY – Enter the rated capacity of the condenser at 100 °F saturated condensing temperature and 70°F ambient wet-bulb temperature.
6. SPECIFIC EFFICIENCY – is the ratio of 5 and 4

Documentation Author’s Declaration Statement

The CERTIFICATE OF COMPLIANCE is signed by both the Documentation Author and the Principal Designer who is responsible for preparation of the plans of building. This latter person is also responsible for the energy compliance documentation, even if the actual work is delegated to a different person acting as Documentation Author. It is necessary that the compliance documentation be consistent with the plans.

DOCUMENTATION AUTHOR is the person who prepared the energy compliance documentation and who signs the Declaration Statement. The person’s telephone number is given to facilitate response to any questions that arise. A Documentation Author may have additional certifications such as a Certified Energy Analyst or a Home Energy Rating System certification number. Enter number in the CEA# or HERS# field provided.

Declaration Statement of Principle Designer

The Declaration Statement is signed by the person responsible for preparation of the plans for the building and the documentation author. This principal designer is also responsible for the energy compliance documentation, even if the actual work is delegated to someone else (the Documentation Author as described above). It is necessary that the compliance documentation be consistent with the plans. The Business and Professions Code governs who is qualified to prepare plans and therefore to sign this statement. See Section 2.2.2 Permit Application for applicable text from the Business and Professions Code.