BLUEPRIN CALIFORNIA ENERGY COMMISSION

EFFICIENCY DIVISION

In This Issue

- Nonresidential and Multifamily
 Water Chiller Packages
- Updated Lighting Videos
- New Training Presentations
- Online Fact Sheets Updated
- Energy Code Support Center
- ASHRAE Resources
- Q&A
 - Nonresidential Chiller
 Alterations
 - Nonresidential Electric Resistance Heating
 - ° Solar PV for Campus Projects
 - ° Multifamily Lighting
 - ° Unpermitted ADUs

For additional help with the Energy Code, see Energy Code Ace's **online offerings** of trainings, tools, and resources.



Nonresidential and Multifamily Water Chiller Packages

The 2022 Energy Code lists efficiency requirements for water chiller packages in **Table 110.2-D**. This table separates equipment by type and size. Equipment type is categorized as water or air-cooled, which refers to the method used for cooling the refrigerant in the condenser. Per the prescriptive requirements in **Section 140.4(i)** and **Section 170.2(c)4G**,

chillers must meet the efficiency requirements shown in the Path B Efficiency column.

The exceptions are:

- Chillers with an electrical service greater than 600 volts
- Chillers attached to a heat recovery system with a design heat recovery capacity greater than 40% of the design chiller cooling capacity
- Chillers used to charge thermal energy storage systems where the charging temperature is less than 40 degrees Fahrenheit
- In a building with more than three chillers, only three chillers are required to meet path B efficiencies

In addition, the Energy Code provides a prescriptive requirement for chilled water plants in **Section 140.4(j)** and **Section 170.2(c)4H**. No more than 300 tons of cooling for a chilled water plant can be provided by air-cooled chillers when using the prescriptive compliance approach. The exceptions are:

- Where the water quality of the building site fails to meet the manufacturer's specifications for the use of water-cooled chillers
- Chillers that are used to charge a thermal energy storage system with a design temperature of less than 40 degrees Fahrenheit
- Nonresidential systems serving healthcare facilities.

New or replacement spaceconditioning systems or components, including water chillers, must meet the prescriptive requirements that are applicable to the system or component being altered or replaced. For example, the maximum 300-ton air-cooled chiller requirement in **Section**

140.4(j) and Section 170.2(c)4H

only applies to HVAC alterations when additional cooling tower tonnage is added to an existing chilled water plant or when an entirely new or an entire replacement chilled water plant is installed. The 300-ton air-cooled chiller limitation does not apply to HVAC alterations where existing tonnage of an existing chilled water plant is replaced (no new tonnage, not an entirely new system). For more information, please see the **Nonresidential Compliance Manual Chapter 4**.

Updated Lighting Videos

Newly updated 2022 Energy Code lighting videos have been added to the **Lighting webpage**.

Residential

• Overview of High Efficacy Lighting

Nonresidential

- Introduction to Lighting Control Systems
- Introduction to Lighting Controls Acceptance Testing
- Introduction to Lighting
 Alterations
- Outdoor Lighting and Sign Control Requirements

The videos were developed by the California Lighting Technology Center at UC Davis with funding from Southern California Edison, in collaboration with RMS Energy Consulting, LLC, and the California Energy Commission.

ENERGY STANDARDS HOTLINE

Available to help with Energy Code (Title 24, Part 6) questions.

New Training Presentations

New training presentations for the 2022 Energy Code are available on the Online Resource Center.

Envelope webpage

- 2022 Single-Family Envelope
- 2022 Multifamily Envelope
- 2022 Nonresidential Envelope

HVAC webpage

- 2022 Single-Family HVAC Overview
- 2022 Multifamily HVAC Overview
- 2022 Nonresidential HVAC Overview

Lighting webpage

- 2022 Single-Family Lighting Overview
- 2022 Multifamily Indoor Lighting Overview
- 2022 Multifamily Outdoor Lighting Overview
- 2022 Multifamily Sign Lighting Overview
- 2022 Nonresidential Indoor Lighting Overview
- 2022 Nonresidential Outdoor Lighting Overview
- 2022 Nonresidential Sign Lighting Overview

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916-654-5106 Outside CA

HOURS 8 a.m.–12 p.m. and 1 p.m.–4:30 p.m.

Online Fact Sheets Updated

The online fact sheets have been updated with frequently asked questions on the **Solar PV, Solar Ready, Battery, and Electric-Ready webpage**.

- Low-Rise Multifamily Solar PV
- High-Rise Multifamily Solar PV
- High-Rise Multifamily Battery
 Storage Systems
- Nonresidential Solar PV
- Nonresidential Battery Storage
 Systems
- Single-Family Solar PV
- Single-Family ESS-Ready

Energy Code Support Center

In response to stakeholder feedback, the **Online Resource Center webpage** will soon get a new name and look along with the launch of an intake form for Energy Code Hotline inquiries.

ASHRAE Resources

The Energy Code includes requirements that refer to the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standards. Read-only versions of ASHRAE Standards are available on the **ASHRAE website**.

Q&A

Nonresidential Chiller Alterations

Does a project with a 900-ton air-cooled heat pump plant on the roof, consisting of several 4-pipe heat pump heat recovery modular chillers that will provide heating and cooling to the building meet the 2022 Energy Code prescriptive requirements?

No. Per **Section 140.4(j)** chilled water plants shall not have more than 300 tons provided by aircooled chillers. The remaining capacity must be water-cooled chillers since they are more efficient than air-cooled chillers. Consider the performance approach to model this project to trade-off the air-cooled limitation with other efficiencies.

If a facility has separate chilled water systems serving different spaces, could each system be defined as a standalone plant to meet the prescriptive requirement in Section 140.4(j) for air-cooled chiller capacity limit of 300 tons per each chilled water plant?

Yes. The 300-ton limitation on air-cooled chillers applies to each separate plant, assuming each one is on its own loop, piping, and serving different areas.

Does Section 140.4(j) apply to airto-water heat pumps?

No. The limitation per **Section 140.4(j)** does not apply unless the space conditioning system has a chiller that is air-cooled.

Does the 300-ton limit on aircooled chillers in Section 140.4(j) apply to 600 tons of heat recovery chillers with an auxiliary aircooled coil which operate in cooling only mode, but are intended to provide heating when there is simultaneous load?

Yes. For prescriptive compliance the 300-ton limitation on air-cooled chillers will apply to equipment that has an air-cooled chiller, with an add-on to perform heat recovery. There is not an exception to **Section 140.4(j)** for heat recovery capabilities. Consider the performance approach to model this project to trade-off the air-cooled limitation with other efficiencies.

Does a project replacing two chillers serving computer room air conditioning units with newer 150-ton chillers with a total of 300-tons of cooling need to meet the economizer requirements in Section 140.9(a)1?

No. Replacing the chiller equipment alone does not trigger the economizer requirements in Section 140.9(a).

Nonresidential Electric Resistance Heating

Does replacing all gas-fired equipment with electric boilers in a second-generation tenant improvement meet the prescriptive requirements in Section 140.4 of the 2022 Energy Code?

No. Electric resistance heating is prohibited for space conditioning per **Section 140.4(g)**. The altered HVAC system or component must meet the applicable requirements in **Section 140.4**. However, there are several **exceptions to Section 140.4(g)**. Consider the performance approach to model this project to trade-off the electric resistance heating with other efficiencies.

Solar PV for Campus Projects

Does a campus project need to install PV, if the project includes office, commercial, and an amenity building with a cafe, commercial kitchen, dining area, and a gym with locker rooms?

Yes. Per **Section 140.10(a)** of the 2022 Energy Code newly constructed nonresidential buildings where at least 80% of the floor area is of the building type listed in **Table 140.10-A** must install PV. Also a battery storage system may be required per **Section 140.10(b)**. Nonresidential spaces are generally defined in **Section 100.1(b)**. Although "amenity building" is not listed in **Table 140.10-A**, some of these spaces may



The CEC welcomes feedback on Blueprint. Please contact the editor at **Title24@energy.ca.gov** fall under restaurant or retail. The building department should confirm the space types of the amenity building.

Multifamily Lighting

Does Reference Joint Appendix JA8 apply to indoor lighting systems in multifamily buildings?

Yes. In multifamily buildings, **JA8** is applicable to dwelling units, but it is not applicable to common areas. In newlyconstructed multifamily buildings, dwelling units must meet Section 160.5(a) of the 2022 Energy Code. Per Section 160.5(a)1B screw based luminaires shall contain lamps that comply with JA8. Per Section 160.5(a)1D lamps and other separable light sources that are not compliant with the **JA8** elevated temperature requirements, including marking requirements, shall not be installed in enclosed or recessed luminaires. Table 160.5-A lists the classification of dwelling unit high luminous efficacy light sources. Common areas must meet Section 160.5(b).

For alterations of an existing multifamily building, per **Section 180.2(b)4A** altered dwelling unit lighting must meet the luminaire efficacy requirements of **Section 160.5(a)** and **Table 160.5-A**.

Where existing screw base sockets are present in ceiling-recessed luminaires, removal of these sockets is not required provided that new **JA8** compliant trim kits or lamps designed for use with recessed downlights or luminaires are installed. Common areas must meet **Section 180.2(b)4B**.

Unpermitted ADUs

Does an ADU built 10 years ago without a permit need to comply with Energy Code requirements?

Yes. Per **Section 100.0** of the 2022 Energy Code if the building was not permitted prior and the building permit application is submitted now, then the ADU must meet the applicable Energy Code requirements. The building department should determine how to demonstrate compliance and whether the ADU must comply as a newly-constructed building or as an addition.

FOR MORE INFORMATION

Online Resource Center (ORC): www.energy.ca.gov/orc

Home Energy Rating System (HERS): www.energy.ca.gov/HERS

Acceptance Test Technician Certification Provider Program (ATTCP): www.energy.ca.gov/ATTCP

2022 Approved Compliance Software:

https://www.energy.ca.gov/programsand-topics/programs/buildingenergy-efficiency-standards/2022building-energy-efficiency-1

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SPECIAL THANKS

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Building Standards Branch

715 P Street Sacramento, CA 95814 Blueprint newsletter serves as a resource to assist stakeholders in complying with the Energy Code. It does not provide legal advice. Please refer to California Code of Regulations, Title 24, Parts 1 and 6 for specific requirements.



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