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2019 Building Energy Efficiency Standards Lead Commissioner Hearing For 45-Day Language

California Energy Commission
Hearing Room A
(Arthur Rosenfeld Room)

February 6, 2018

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Subchapter 5
Sections 140.0 Through 140.9



**SUBCHAPTER 5
NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, AND
HOTEL/MOTEL OCCUPANCIES –
PERFORMANCE AND PRESCRIPTIVE COMPLIANCE
APPROACHES FOR ACHIEVING ENERGY
EFFICIENCY**



§140.3 – Prescriptive Requirements For Building Envelope

§140.3(a)1 – Exterior roof and ceilings

- Changes made in order to clarify that the Exceptions are dependent on weight
 - Exception 2 to Section 140.3(a)1Aia
 - Exception to Section 140.3(a)1Aii

§140.3(a)3 – Demising Walls

- Minor changes made for consistency in limiting the scope of 1403(a)5 to windows in the exterior walls



§140.3 – Prescriptive Requirements For Building Envelope **(Continue)**

§140.3(a)5 – Exterior Windows

- Changes made to separate the two requirements of (a) previously compounded together
- Updated the language for consistent use of defined terms
- Changes made to clarify the requirements for windows in a demising wall

§140.3(a)6 – Skylights

- Updated the language for consistent use of defined terms



§140.3 – Prescriptive Requirements For Building Envelope

§140.3(d) Performance Requirements of Daylighting Devices for the Advanced Daylighting Design

- Clerestories installed on east, west, or south facades
- Horizontal Slat installed on east, or west facades
- Light Shelves installed on south facades

Reference Note: Power Adjustment Factors for luminaires located in daylit zones with the Advanced Daylighting Design are in §140.6(a)2L.



§140.4 – Prescriptive Requirements For Space Conditioning Systems

§140.4(a) – Sizing and Equipment

§140.4(b) – Calculations

Edits to the scope of this section to accommodate healthcare facilities including:

- Heating and cooling loads
- Indoor design conditions
- Outdoor design conditions



§140.4 – Prescriptive Requirements For Space Conditioning Systems

§140.4(c) – Fan Systems

Each fan systems with a total nameplate horsepower exceeding 5 hp:

Fan power limitations depending on constant or variable air volume;

Table 140.4-A – Fan Power Limitation Table

Table 140.4-B – Fan Power Limitation Pressure Drop Adjustment



§140.4 – Prescriptive Requirements For Space Conditioning Systems

§140.4(d) – Space Conditioning Zone Controls

No new requirements

Section was re-worked to bring the previous EXCEPTION 1 to 140.4(d) into the Standards

Odd to have such an extensive EXCEPTION, made more sense to include it as an option for acceptable zone controls.



§140.4 – Prescriptive Requirements For Space Conditioning Systems

§140.4(e) – Economizers

Expanded the water economizer requirements to not just forced air systems.

New water economizer requirements:

- Maximum pressure drop
 - Less than 15 feet of water; or
 - Secondary loop to bypass the heat exchanger
- Full integration to provide partial cooling



§140.4 – Prescriptive Requirements For Space Conditioning Systems

§140.4(h)5 – Cooling Tower Efficiency

Open-circuit cooling towers serving condenser water loops of 900 gpm or greater:

- Minimum efficiency of 60 gpm/hp
- EXCEPTION of replacement of building mounted towers
- EXCEPTION of towers serving buildings in Climate Zone 1 and 16.



§140.4 – Prescriptive Requirements For Space Conditioning Systems

§140.4(I) – Duct Leakage

Added a requirement for duct systems serving healthcare facilities

Directs users to the OSHPD amendments to the California Mechanical Code

This change is consistent with current practice



§140.4 – Prescriptive Requirements For Space Conditioning Systems

§140.4(o) – Exhaust System Transfer Air

- Sets limitations on conditioned air delivered to any space with mechanical exhaust
- Conditioned air shall not exceed the greater of:
 - Supply flow required for heating or cooling; or
 - Ventilation rate required; or
 - Mechanical exhaust flow minus the available transfer air

Available transfer air is defined as the portion of total outdoor ventilation air that is not required to satisfy other exhaust needs or to maintain pressurization of other spaces and that is transferable according to Section 120.1(g)



§140.5 – Prescriptive Requirements For Service Water Heating Systems

- Add exception for High-Rise Residential and Hotel/Motel Occupancies
 - Buildings of eight stories and higher are not required to comply with the solar fraction requirement.



§140.6 – Prescriptive Requirements For Indoor Lighting Power Allowance

- Revised the allowed lighting power density values using LED lighting as the baseline
- Updated the types of buildings and areas under all three approaches
- For an area not defined in Table 140.6-C, allowed a reasonably equivalent type to be chosen for the area and LPD value (§ 140.6(c)2.A)
- Added luminaire lighting power adjustment for small aperture tunable-white and dim-to-warm LED luminaires (§ 140.6(a)4C)



§140.6 – Prescriptive Requirements For Indoor Lighting Power Allowance

Added power adjustment factors for luminaires located in daylit zones with the Advanced Daylighting Design in §140.6(a)2L

- Clerestories: PAF of 0.05
- Horizontal Slat: PAF of 0.05
- Light Shelves: PAF of 0.10



§140.7 – Prescriptive Requirements For Outdoor Lighting Power Allowance

- Revised General Hardscape Lighting Power Allowance - Table 140.7-A
- Revised Specific Application Lighting Power Allowance - Table 140.7-B
- A new lighting power allowance for narrow band spectrum lighting where required by local or state law.



§140.9 – Prescriptive Requirements For Covered Processes

§140.9(a) – Computer Rooms

- Aligned with the Fault Detection and Diagnostics requirement of 120.2(i) for computer rooms with an air economizers
- Added an exception to air or water economizers for computer rooms that incorporate a fluid economizer
- Added an EXCEPTION for healthcare facilities

§140.9(b) – Commercial Kitchens

- Added an EXCEPTION for healthcare facilities



§140.9(c) - Prescriptive Requirements for Laboratory and Factory Exhaust Systems

§140.9(c)2 - Exhaust System Transfer Air

Aligned with §140.4(o), Exhaust System Transfer Air.



§140.9(c) - Prescriptive Requirements for Laboratory and Factory Exhaust Systems

§140.9(c)3 - Fan System Power Consumption

- Exhaust systems greater than 10,000 CFM must meet the discharge requirements of ANSI Z9.5-2012 and one of the following:
 - 0.65 watts per cfm exhaust air power demand limit
 - Exhaust volume flow rate control based on wind speed and direction from a calibrated local anemometer
 - Exhaust volume flow rate control based on the measured contaminant concentration in the exhaust plenum from a calibrated contaminant sensor



§140.9(c) - Prescriptive Requirements for Laboratory and Factory Exhaust Systems

§140.9(c)4 - Fume Hood Automatic Sash Closure

- Fume hood intensive laboratories with variable air volume vertical sash fume hoods now require automatic sash closure systems meeting the following:
 - Dedicated zone presence sensor that automatically closes the sash within 5 minutes of no detection
 - Controls capable of preventing the sash from closing when a force of no more than 10 lbs is detected
 - Obstruction sensor that prevents the sash from closing when obstructions are present. Obstruction sensor must be able to detect transparent materials



How to submit written comments

- **We strongly encourage submitting written comments via e-file.** Comments on the proposed 2019 Energy Code can be submitted to: <https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=17-BSTD-02>.
- Comments on the proposed 2019 CALGreen can be submitted to: <https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=17-BSTD-03>.
- Comments can also be submitted physically or by e-mail, here:

California Energy Commission
Dockets Office, MS-4

Re: Docket No. 17-BSTD-02 (for CALGreen, 03)

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