

**Nonresidential - Commercial**

# Refrigeration System Features

**Application:** Retail food stores with 8,000 ft<sup>2</sup> or more of conditioned area that utilize either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units.

Refrigeration Component Utilized	Mandatory Requirements							
	Variable Speed Fan Control <sup>D</sup> §120.6(b)1A	Variable Setpoint Control §120.6(b)1B, C	Floating Suction Pressure <sup>F</sup> §120.6(b)2A	Liquid Subcooling <sup>C</sup> §120.6(b)2B	Lighting Control §120.6(b)3A, §120.6(b)3B			Heat Recovery <sup>G</sup> §120.6(b)4 Minimum 25% of THR
					Timed Overrides: Allow ON <1 hour	Manual Overrides: Turn OFF after <1 hour	Motion Sensor: Reduce power by 50% (min.) within 30 min. after the area is vacated	
Condensers <sup>A, B</sup>	<b>YES</b>	<b>YES<sup>E</sup></b>	no	no	no	no	no	no
Compressors <sup>C</sup>	no	no	<b>YES</b>	<b>YES</b>	no	no	no	no
Refrigerated Display Cases	no	no	no	no	<b>YES</b>	<b>YES</b>	<b>YES</b>	no
Associated HVAC	no	no	no	no	no	no	no	<b>YES</b>

- A Minimum condensing temperature set point less than or equal to 70°F. Refer to Table 1 below for Minimum Specific Efficiency Requirements. Air-cooled condensers, except microchannel condensers and reused condensers, shall have a fin density no greater than 10 fins per inch.
- B Not applicable to new condenser replacement where compressor system Total Heat of Rejection (THR) is not increased, less than 25% of the attached compressors, and attached display cases are new.
- C Only for low temperature systems having: (1) design capacity ≥ 100,000 Btu/h; (2) design saturated suction temperature ≤ 10°F; (3) subcooled liquid temperature at 50°F or less; (4) saturated suction temperature operation at 18°F or higher. Not applicable to: (1) low temperature cascade systems condensing into additional refrigeration system; (2) existing systems being reused for an addition or alteration.

- D For fan-powered condensers.
- E Based on ambient drybulb or ambient wetbulb for air-cooled or evaporative-cooled applications, respectively.
- F Not applicable to: (1) single compressor systems without continuous variable capacity; (2) suction groups that comprise the high side of a two-stage or cascade systems, or have design saturated suction temperature of >30°F, or primarily serve chillers.
- G Only if THR for individual refrigeration system is ≥ 150,000 Btu/h at design conditions. The increase in hydrofluorocarbon refrigerant charge associated with refrigeration heat recovery equipment and piping cannot exceed 0.35 lbs. per 1,000 Btu/h of recovery capacity. Exempt where: (1) site in Climate Zone 15; (2) systems are reused for an addition or alteration.

Condenser Type	Minimum Specific Efficiency	Rating Condition
Evaporative-Cooled	160 Btuh/W	100°F Saturated Condensing Temperature (SCT), 70°F Entering Wetbulb Temperature
Air-Cooled	65 Btuh/W	105°F Saturated Condensing Temperature (SCT), 95°F Entering Drybulb Temperature

Table 1: Fan-powered Condensers - Minimum Efficiency Requirements  
Source: Table 120.6-C in §120.6(b)

## For More Information

### Primary Sources

- Energy Standards Section 120.6(b) - Mandatory Requirements for Commercial Refrigeration  
[energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1206mandatoryrequirementsforcoveredprocesses.htm](http://energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1206mandatoryrequirementsforcoveredprocesses.htm)

### California Energy Commission Information & Services

- Energy Standards Hotline: 1-800-772-3300 (Free) or [Title24@energy.ca.gov](mailto:Title24@energy.ca.gov)
- Online Resource Center:  
[energy.ca.gov/title24/orc/](http://energy.ca.gov/title24/orc/)
  - The Energy Commission’s main web portal for Energy Standards, including information, documents, and historical information

### Additional Resources

- Energy Code Ace:  
[EnergyCodeAce.com](http://EnergyCodeAce.com)
  - An online “one-stop-shop” providing free resources and training to help appliance and building industry professionals decode and comply with Title 24, Part 6 and Title 20. The site is administered by California’s investor-owned utilities. Please register with the site and select an industry role for your profile in order to receive messages about all our free offerings!



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