

**Split Systems and Packaged Systems**

Change This (and nothing else)	Mandatory Requirements					Prescriptive Requirements	
	Setback Thermostat §110.2(c), §150.2(b)1Fi	Cooling Load Calcs §150.0(h), §150.2(b)1C	Heating Load Calcs §150.0(h), §150.2(b)1C	HERS: Duct Seal and Test §150.0(m)1-3 & 11 §150.2(b)1C, D, & E	Air Filtration and HERS: Cooling Coil Airflow and Fan Watt Draw §150.2 (b)1C, D	Duct Insulation §150.2(b)1D	HERS: Refrigerant Charge §150.2(b)1F
Whole Split or Packaged System (no ducts added or replaced)	<b>YES</b>	no	no <sup>C</sup>	<b>YES<sup>D</sup></b>	no	no	<b>YES<sup>H, I</sup></b>
Evaporator Coil (cooling coil), Condenser Coil, or Outdoor Condensing Unit	<b>YES</b>	no	no <sup>C</sup>	<b>YES<sup>D</sup></b>	no	no	<b>YES<sup>H, I</sup></b>
Furnace (air handler)	<b>YES</b>	no	no <sup>C</sup>	<b>YES<sup>D</sup></b>	no	no	<b>YES<sup>H, I</sup></b>
Compressor, Refrigerant Metering Device	<b>YES</b>	no	no <sup>C</sup>	no	no	no	<b>YES<sup>H, I</sup></b>
Some Ducts >40 feet of new or replacement	no	maybe <sup>B</sup>	maybe <sup>C, B</sup>	<b>YES<sup>E</sup></b>	no	<b>YES<sup>G</sup></b>	no
"All New" Ducts <sup>A</sup>	no	maybe <sup>B</sup>	maybe <sup>C, B</sup>	<b>YES<sup>E</sup></b>	<b>YES<sup>F</sup></b>	<b>YES<sup>G</sup></b>	no
Whole Split or Packaged System and All New Ducts	<b>YES</b>	<b>YES<sup>B</sup></b>	<b>YES<sup>C, B</sup></b>	<b>YES<sup>E</sup></b>	<b>YES<sup>F</sup></b>	<b>YES<sup>G</sup></b>	<b>YES<sup>H, I</sup></b>

Note:   
 • Replacing the blower wheel fan is considered a repair and does NOT trigger the Energy Standards.   
 • All new HVAC equipment must meet minimum federal efficiency requirements   
 • Cooling line insulation is triggered if the line set (cooling system, suction line) is replaced or repaired. Line sets ≤ 1.5" in diameter must have 0.75" thick insulation.

- A The system is considered to have "all new" ducts when 75% or more of the ducts are new material and up to 25% reused parts from the existing duct system (e.g., registers, grilles, boots, air handler, coil, plenums, duct material) if the reused parts are accessible and can be sealed to prevent leakage.
- B Cooling and heating load calculations are required when ducts are added to serve new conditioned space, such as an addition.
- C Heating equipment must meet CBC minimum capacity requirements.
- D Duct system leakage must be ≤ 15% in total, or ≤ 10% to the outside. Or, if unable to meet the sealing requirements, all accessible leaks must be sealed and verified by a HERS rater. §150.2(b)1E applies.
- E Unless exceptions apply, duct systems must be sealed and verified if >40 feet of new or replacement ducts are installed. In all climate zones, when new duct systems are installed in unconditioned space, leakage must be ≤ 5% of the air handler airflow.

- F When new duct systems are installed, cooling coil airflow must be >350 CFM per ton, and fan watt draw must be ≤ 0.58W/CFM. Alternatively, the system can meet the requirements in Table 150.0-B or Table 150.0-C (Return Duct Sizing and Filter Sizing).
- G When adding or replacing >40 feet of ducts in unconditioned space: CZ 1-10 and 12-13: R-6; CZ 11 and 14-16: R-8. HERS verification is required for insulated ducts in conditioned space. Mandatory duct insulation requirements (R-4.2) apply to all new or replacement ducts (not existing or unaltered ducts).
- H HERS verification of refrigerant charge is required in climate zones 2 and 8–15 only when a refrigerant containing component of an air conditioner or heat pump is replaced or installed in an existing building.
- I Although there are no commercially available HVAC systems with approved Fault Indicator Displays (FID) devices at the time of publication (July 2016) the Energy Standards do allow use of a CEC-approved FID should such equipment become available during the 2016 code cycle.

# For More Information

## Primary Sources

- Energy Standards Section 110.2 – Mandatory Requirements for Space-Conditioning Equipment  
[energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1102mandatoryrequirementsforspaceconditioningequipment.htm](http://energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1102mandatoryrequirementsforspaceconditioningequipment.htm)
- Energy Standards Section 150.0 – Mandatory Features and Devices  
[energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1500mandatoryfeaturesanddevices.htm](http://energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1500mandatoryfeaturesanddevices.htm)
- Energy Standards Section 150.1 – Performance and Prescriptive Compliance Approaches for Newly Constructed Residential Buildings  
[energycodeace.com/site/custom/publicreference-ace-2016/index.html#!Documents/section1501performanceandprescriptivecomplianceapproachesforlowr.htm](http://energycodeace.com/site/custom/publicreference-ace-2016/index.html#!Documents/section1501performanceandprescriptivecomplianceapproachesforlowr.htm)
- Energy Standards Section 150.2 – Energy Efficiency Standards for Additions and Alterations in Existing Buildings that Will Be Low-Rise Residential Occupancies  
[energycodeace.com/site/custom/public/reference-ace-2016/Documents/section1502energyefficiencystandardsforadditionsandalterationsto.htm](http://energycodeace.com/site/custom/public/reference-ace-2016/Documents/section1502energyefficiencystandardsforadditionsandalterationsto.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.  
*Of special interest:* 2016 Fact Sheet on Residential HVAC Alterations  
[energycodeace.com/content/resources-fact-sheets](http://energycodeace.com/content/resources-fact-sheets)  
Please register with the site and select an industry role for your profile in order to receive messages about all our free offerings!



This program is funded by California utility customers under the auspices of the California Public Utilities Commission and in support of the California Energy Commission. © 2016 Pacific Gas and Electric Company, San Diego Gas and Electric, Southern California Gas Company and Southern California Edison. All rights reserved, except that this document may be used, copied, and distributed without modification. Neither PG&E, Sempra, nor SCE — nor any of their employees makes any warranty, express or implied; or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any data, information, method, product, policy or process disclosed in this document; or represents that its use will not infringe any privately-owned rights including, but not limited to patents, trademarks or copyrights.