2016 ENERGY CODE

Ace Resources | Title 24, Part 6 Triggers

Residential

HVAC – Alterations

Split Systems and Packaged Systems

	Mandatory Requirements					Prescriptive Requirements	
Change This ***(and nothing else)***	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)*	**YES**	no	no[C]	**YES**[D]	no	no	**YES**[H, I]
Evaporator Coil (cooling coil), Condenser Coil, or Outdoor Condensing Unit	**YES**	no	no[C]	**YES**[D]	no	no	**YES**[H, I]
Furnace *(air handler)*	no	no	no[C]	**YES**[D]	no	no	**YES**[H, I]
Compressor, Refrigerant Metering Device	**YES**	no	no[C]	no	no	no	**YES**[H, I]
Some Ducts >40 feet of new or replacement	no	maybe[B]	maybe[C, B]	**YES**[E]	no	**YES**[G]	no
"All New" Ducts[A]	no	maybe[B]	maybe[C, B]	**YES**[E]	**YES**[F]	**YES**[G]	no
Whole Split or Packaged System and All New Ducts	**YES**	**YES**[B]	**YES**[C, B]	**YES**[E]	**YES**[F]	**YES**[G]	**YES**[H, I]

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 In duct systems 40 feet or longer, duct 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.

J HERS verification of minimum system airflow rate greater than or equal to 300 cfm per ton, or alternate approved procedure, is required.

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
- Energy Standards Section 150.0 – Mandatory Features and Devices
  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
- Energy Standards Section 150.2 – Energy Efficiency Standards for Additions and Alterations in Existing Buildings that Will Be Low-Rise Residential Occupanices
  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
- Online Resource Center:
  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
  - 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
    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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