

2005 BUILDING ENERGY EFFICIENCY STANDARDS
HVAC CHANGEOUTS AND REPAIRS

Section 152 - Energy Efficiency Standards for Additions and Alterations in Existing Buildings that will be Low-Rise Residential Occupancies

- D. When more than 40 feet of new or replacement space-conditioning ducts are installed in unconditioned space, the new ducts shall meet the requirements of Section 150 (m) and the duct insulation requirements of Package D Section 151 (f) 10, and if in climate zones 2, 9, 11 (Redding is 11), 12, 13, 14, 15, or 16, and the duct system shall be sealed as confirmed through field verification and diagnostic testing in accordance with procedures for duct sealing of existing duct systems as specified in the Residential ACM manual, to meet one of the following requirements:
- i. If the new ducts form an entirely new duct system directly connected to the air handler, the measured duct leakage shall be less than 6% of fan flow; or
 - ii. If the new ducts are an extension of an existing duct system, the combined new and existing duct system shall meet one of the following requirements:
 - a. The measured duct leakage shall be less than 15% of fan flow; or
 - b. The measured duct leakage to outside shall be less than 10% of fan flow; or
 - c. The duct leakage shall be reduced by more than 60% relative to the leakage prior to the installation of the new ducts and a visual inspection including a smoke test shall demonstrate that all accessible leaks have been sealed; or
 - d. If it is not possible to meet the duct sealing requirements of Subsection a, b, or c, all accessible leaks shall be sealed and verified through a visual inspection and a smoke test by a certified HERS rater.
- E. In climate zones 2, 9, 10, 11, 12, 13, 14, 15, and 16, when a space-conditioning system is altered by the installation or replacement of space-conditioning equipment (including replacement of the air handler, outdoor condensing unit of a split system air conditioner or heat pump, cooling or heating coil, or the furnace heat exchanger) the duct system that is connected to the new or replacement space-conditioning equipment shall be sealed, as confirmed through field verification and diagnostic testing in accordance with procedures for duct sealing of existing duct systems as specified in the Residential ACM manual, to one of the following requirements:
- i. The measured duct leakage shall be less than 15% of fan flow; or
 - ii. The measured duct leakage to outside shall be less than 10% of fan flow; or
 - iii. The measured duct leakage shall be reduced by more than 50% relative to the measured leakage prior to the installation or replacement of the space conditioning equipment and a visual inspection including a smoke test shall demonstrate that all accessible leaks have been sealed; or
 - iv. If it is not possible to meet the duct requirements of i, ii, or iii, all accessible leaks shall be sealed and verified through a visual inspection and a smoke test by a certified HERS rater.

EXCEPTION 1 to Section 152 (b) 1 E: Duct systems that are documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Residential ACM manual.

EXCEPTION 2 to Section 152 (b) 1 E: Duct systems with less than 40 linear feet in unconditioned spaces.

EXCEPTION 3 to Section 152 (b) 1 E: Existing duct systems constructed, insulated or sealed with asbestos.

Section 149 - Additions, Alterations, and Repairs to Existing Buildings that will be Non-Residential, High Rise Residential, and Hotel/Motel Occupancies

- C. New space-conditioning systems or components other than new or replacement space conditioning ducts shall meet the requirements of Section 144 applicable to the systems or components being altered; and

EXCEPTION to Section 149(b) 1C: Section 144 (I) applies only to expansions of more than 300 tons to existing chilled water plants.

- D. When new or replacement space-conditioning ducts are installed to serve an existing building, the new ducts shall meet the requirements of Section 124, and if they meet the criteria of Section 144(k) 1, 2, and 3, the duct system shall be sealed and labeled as confirmed through field verification and diagnostic testing in accordance with procedures for duct sealing of existing duct systems as specified in the Nonresidential ACM manual, to meet one of the following requirements:
 - i. If the new ducts form an entirely new duct system directly connected to the air handler, the measured duct leakage shall be less than 6% of fan flow; or
 - ii. If the new ducts are an extension of an existing duct system, the combined new and existing duct system shall meet one of the following requirements:
 - a. The measured duct leakage shall be less than 15% of fan flow; or
 - b. The duct leakage shall be reduced by more than 60% relative to the leakage prior to the equipment having been replaced and a visual inspection shall demonstrate that all accessible leaks have been sealed; or
 - c. If it is not possible to meet the duct sealing requirements of Subsections a. or b., all accessible leaks shall be sealed and verified through a visual inspection by a certified HERS rater.

EXCEPTION to Section 149 (b) 1 D ii: Existing duct systems that are extended, which are constructed, insulated or sealed with asbestos.

- E. When a space conditioning system is altered by the installation or replacement of space conditioning equipment (including replacement of the air handler, outdoor condensing unit of a split system air conditioner or heat pump, cooling or heating coil, or the furnace heat exchanger), the duct system that is connected to the new or replaced space conditioning equipment, if the duct system meets the criteria of Section 144 (k) 1, 2, and 3, shall be sealed, as confirmed through field verification and diagnostic testing in accordance with procedures for duct sealing of existing duct systems as specified in the Nonresidential ACM manual, to one of the requirements of Section 149 (b) 1 D; and

EXCEPTION 1 to Section 149 (b) 1. E.: Buildings altered so that the duct system no longer meets the criteria of Section 144 (k) 1, 2, and 3.

EXCEPTION 2 to Section 149 (b) 1. E.: Duct systems that are documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Nonresidential ACM manual.

EXCEPTION 3 to Section 149 (b) 1. E.: Existing duct systems constructed, insulated or sealed with asbestos.

Signature _____

Date _____