"Accessible" Ducts: A Quick Guide for Contractors

DEFINITION OF "ACCESSIBLE"

In Title 24 Part 6 (California Building Energy Efficiency Standards), the California Energy Commission (CEC) defines "accessible" as "having access thereto, but which first may require removal or opening of access panels, doors, or similar obstructions." Other building codes present more flexible definitions of "accessible" for the purposes of designing and constructing a home that is safe and functional. For example, section 1209.1.1 of the California Building Code states: "Accessible under-floor areas shall be provided with an 18-inch by 24-inch (457 mm by 610 mm) access crawl hole."[1] A more practical definition of "accessible" is having access so long as the performance to remove or open access panels, doors, or similar obstructions is cost-effective. A real-world example is having access to a portion of ducts, which may first require the contractor to cost-effectively remove and replace drywall or other building materials.

In the SMUD Home Performance Program, "accessible" is defined as having access so long as the cost to remove or open and replace access panels, doors, or similar obstructions is offset by the rebate amount, and is thereby cost-effective.

AS IT APPLIES TO THE SMUD HPP PROGRAM

The definition of "accessible" determines how contractors achieve duct sealing and duct replacement rebate measures. The SMUD HPP duct sealing rebate is earned by sealing "accessible" portions of the duct to achieve the duct leakage target of 8% or less. The new duct rebate is earned by replacing 100% of "accessible" portions of the duct with new ducting material and achieving the duct leakage target of 5% or less.

Contractors are allowed to reuse some of the original system's existing fittings, such as the register boots, and/or up to a maximum of 10% of "inaccessible" ducts by length. (Determining 10% inaccessibility can be tricky, so, when in doubt, contact the SMUD program administrators.) More than 10% inaccessibility is allowed on a case-by-case basis.

Replacing all of the ducts and equipment will also trigger Energy Standards requirements for "completely new systems," which includes minimum airflow and maximum fan watt draw verification, 350 cfm/ton and 0.58 watts/cfm respectively. Contractors need to size their ducts correctly. See ***Sizing Ducts in Residential HVAC Systems: A Quick Guide for Contractors*** for more information.

INACCESSIBLE DUCT ALLOWANCE

Duct sealing and complete duct replacement rebate measures require achieving an overall duct leakage target of 8% (5% for new ducts). However, if a significant portion (not to exceed 10%) of a home's ducts are inaccessible, this requirement may not be possible to achieve. In this instance, the SMUD HPP administrators can perform a weighted average of the test-in duct leakage and target duct leakage according to what percent of the ducts are accessible. This formula calculates the maximum allowable post-upgrade duct leakage for partially inaccessible duct systems:

[test-in leakage %] X [inaccessible duct %]
+
[target leakage] X [accessible duct %]

REFERENCES

2013 Reference Appendices, CEC Publication #CEC-400-2012-005-CMF-REV3

- Appendix JA1 – Glossary
- Section RA3.1 for duct leakage and verification protocols.
- Section RA3.3 for airflow and fan watt draw verification protocols.

FOR MORE INFORMATION

For more information about energy efficiency incentives available through SMUD, visit: ***http://hpp.smud.org/*** or email Jim Mills at: ***james.mills@smud.org***

[1] Be sure you know the latest OSHA requirements for "confined spaces" because they are quite strict and definitely apply to residential attics and crawlspaces. OSHA requirements can be found ***HERE***.