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## Protocols for Projects Installing New HVAC

Sometimes, customers with wall furnaces and window air conditioning systems want to install a new central HVAC system. We want to encourage any improvements that improve the efficiency, performance, and comfort for SMUD homeowners. Therefore, SMUD has implemented a protocol to offer an appropriate rebate for new central ducted HVAC systems, as part of the SMUD Home Performance Program.

A rebate project of this type will qualify for the normal HVAC rebate based upon the efficiency tier of the unit installed. (Note: The all-electric heating doubling of rebates would be applicable only if the existing heater is an electric built-in source, for example, baseboard electric heaters). The normal new duct rebate does not qualify in this instance because it is reserved for the replacement of existing ducts. Because we understand that R-8 insulated ducts are above Title 24 code for new installations, and that R-8 Ducts are more expensive than R-6 ducts, SMUD will allow the customer to receive \$250 toward this part of the project, (\$500 if the home was electrically heated). The contractor shall mark the menu box for duct sealing, and make a note in Vision that this is a cut in. All ducts that receive a rebate from the SMUD HPP must be sealed to 6% or less and insulated to at least R-8. For a brief synopsis of the rules regarding adding ducts to a home that does not have existing ducts, review the table below.

**Table 1 – Your questions and SMUD’s answers regarding adding ducts to a home**

Your Questions	SMUD’s Answers
Can a home without central AC and ducts receive a rebate?	Yes
What rebate is available for installing ducts in a home that does not already have ducts?	\$250 or \$500 if the home has an electric heater
What are the requirements for the ducts?	Sealed to 6% or better Insulated to R-8 or better

## No Test-In Required for HPP Projects

As of September 17, you can **plan your project with a walk-through audit, start work upon satisfaction of the three-day right-to-cancel period**, and provide your JRT information **within two weeks of starting work**. HPP no longer needs to review your pre-upgrade data and documents, so “Authorized to Proceed” step has been dropped from the job submission process. Contractors simply need to submit the JRT and receive “Project Received” notification that a job is reserved for rebate.

Remember: The three-day right-to-cancel period does not include Sundays and Federal holidays. For example: (1) If customer signs contract on Monday February 1, the cancellation or *rescission* period ends midnight Thursday February 4; (2) if customer signs contract on Wednesday, December 24 (one day before Christmas), the rescission ends midnight Monday December 29; or (3) if customer signs contract on Friday December 26, the rescission ends midnight Tuesday December 30 (Sunday excluded).

Pre-upgrade air-infiltration and duct leakage details will be set to defaults and all other pre-upgrade conditions must be documented within the JRT. Reminder, SMUD HPP expects **all project test-out data** will be provided once a job is completed (including air-infiltration and duct leakage). Review the new job submission process and reach out to SMUD, BKi, Efficiency First CA, or TRC with any questions or comments.

## SMUD Program Reminders

The CAEAFTA Loan program is now closed to new applications (deadline was October 1). If you have a project-in-progress with CAEAFTA loan financing, you must complete the project **before December 1, 2014**. Contact SMUD, EFCA, or BKi if your project will not be completed by this date.

In order to continue providing financing support to customers and contractors, SMUD has a **new** residential loan program that is **available today!** Loans for energy efficiency home improvements under the Home Performance Program are unsecured up to \$30,000, with 180 month term, and 6.99 percent interest rate. Applicant must be the vested owner of the property, have an active SMUD account at the property, and work with a SMUD HPP Participating Contractor. For more information, click [HERE](#).

SMUD will no longer honor Assessments subsidies submitted past December 12, 2014. Get all assessments turned in and copies to your customers as soon as possible to obtain the \$150 incentive.

## Contractor Question Regarding Deep Buried Ducts and Air Flow

Contractors have asked the program to clarify how to install deep buried ducts without negatively impacting the air flow. Specifically, **how can a duct system that is flush with the attic floor be routed into floor boots and air registers without affecting air resistance targets?**

ACCA Manual D provides detailed guidance about duct design to minimize pressure loss through the ducts. 90-degree turns in the ducting increase the static pressure thereby reducing the effectiveness of the duct system. Sharp turns are difficult to avoid, but should be minimized throughout the duct system when possible. For the boot connection, best practice would be to install hard pipe 90-degree elbow if attic conditions permit. By doing this, the best of both worlds are obtained, deep buried ducts for thermal purposes, and reduced static pressure for flow purposes. Design of flex systems can be maximized for performance by observing the following guidelines: Flex ducts must be straight and pulled tight. If a flex duct is not tight, air flow is significantly impacted. For example, a 20-foot duct run, if the duct is relaxed by 1 foot (meaning 21 feet of flex duct is used for this 20-foot run), the air resistance increases by 30 percent due to the corrugation within the pipe system. If care is taken throughout the installation of the duct system, the flex turning into a boot penalty is not as noticeable. So make sure that all ducts in the attic are straight, and pulled tight, and not longer than they really need to be, with as few turns as possible.

Mike MacDonald is a home performance contractor in Redding, California. His experience with deep buried ducts shows that ACCA Manual D air flow design criteria can be met with deep buried ducts while using flex ducts in the attic. His average test-out results are listed in the table below. Industry standards are sourced from a 2011 PIER report by Rick Chitwood available [here](#).

**Table 2 – Duct performance**

Duct Performance	Energy Docs	Industry targets*
Air flow delivered	500-600 CFM/ton	326 CFM/ton
Power requirement	0.2 W/CFM	0.60 W/CFM



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