

COOL SMART QIV Services – Requirements

Why COOL SMART Is Promoting Quality Installation Verification (QIV) Services

Improperly installed units waste energy. An analysis of over 75,000 in-field units revealed that over 70% of installed cooling equipment fails to meet manufacturer specifications for airflow and refrigerant charge.¹

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Federal standards require manufacturers to make split air conditioning units with an EER of 11.0 and a SEER of no less than 13. Effective April 1, 2006 the standard for ENERGY STAR qualified central air conditioners including mini-split systems is **a minimum SEER of 14 and EER of 11.5.** **Since reducing summer peak electrical demand is a growing issue nationally for energy efficiency and the economy, effective January 2007 the ARI website (aridirectory.org) now lists EER as well as SEER for nearly all units. The CEE directory shows only ENERGY STAR units.**

COOL SMART sponsors are committed to this quality effort and are moving forward with the HVAC industry and efficiency programs in CT, VT, NJ, NY, TX, CA and others to adopt and implement the latest in QIV tools and protocols.

QIV Customer Eligibility: Program Year 2007

These offers are valid only for National Grid and NSTAR Electric customers in Massachusetts and Rhode Island.

COOL SMART will continue to support QIV services to help contractors check refrigerant charge and airflow. These services allow contractors to test and report on the efficiency of units installed and serviced, and to help them market and differentiate themselves from the competition. They also help educate and assist customers in receiving quality installations and maintaining their equipment.

QIV Commissioning

QIV services can be performed on any new installation regardless of SEER or rebates. This includes ENERGY STAR and non-ENERGY STAR systems. QIV Commissioning is for units installed on or after April 1, 2005. The QIV contractor incentive is \$175, which also covers the cost of educating customers on the importance of making air flow improvements by using the optional Air Flow Education form and confirming that air flow improvements were offered when needed.

¹ Response to U.S. EPA on New ENERGY STAR Specification for Residential Air-Source Heat Pumps and Central Air Conditioners; Paul Berkowitz – Conversation Services Group

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Digital Checkups

A Digital checkup involves testing existing AC systems, using the same specialized tools as in QIV Commissioning. Tools available for this third-party verification process include the Honeywell Service Assistant and the CheckMe! phone-in service. Digital Checkups can be performed on any existing, operable system installed before April 1, 2005.

Information about testing tools approved for use in COOL SMART QIV services is included below:

Proctor Engineering CheckMe! Northeast Sales Rep: CSG Charlie McCracken (508) 836-9500 ext. 13205 Charles.McCracken@csggrp.com http://www.proctoreng.com/	Honeywell Service Assistant Sales Rep: (Eastern MA and RI) Air Purchases Inc. Rich Zaker (781) 273-2050 rzaker@airpurchases.com www.airpurchases.com http://www.serviceassistantonline.com/	Honeywell Service Assistant Sales Rep: (CT & Western MA) Star Supply John Danek (800) 438-7827 JDanek@star-supply.com http://www.serviceassistantonline.com/
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These offers are valid only for National Grid and NSTAR Electric customers in Massachusetts and Rhode Island.

COOL SMART - QIV Description

Contractor Incentive: \$175

Instant Invoice Credit for Customer: \$100 (Digital Checkup only)

QIV involves measuring charge with respect to airflow, and the required reporting, on either new or existing equipment using CheckMe! or Honeywell Service Assistant. The results/data are reported to the customer for educational purposes and to COOL SMART for third-party verification. Only contractors who are QIV trained and website listed are eligible to participate. Each residential central AC or HP unit is eligible for this service once per owner every 5 years.

For a contractor to receive the \$175 incentive when performing a Digital Checkup, a \$100 Instant Credit must be offered to and accepted by the customer, and the system must pass program requirements. The Instant Credit may be applied to the cost of repairs needed to have the system pass program requirements or may cover the fee contractors charge customers to perform a Digital Checkup. **The AC unit must be operable** and the customer must agree to needed repairs sufficient to adjust charge with respect to air flow. See [procedures](#) section starting on page 5 for more details.

Contractors will receive an incentive of \$175 from COOL SMART for performing a Digital Checkup provided:

1. the unit passes or meets exception condition where at least charge with respect to air flow is within acceptable parameters
2. this unit is eligible as defined above

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For the customer to receive the \$100 instant credit the following conditions must be met:

1. The customer agrees to pay the QIV contractor for repairs, if needed, that are sufficient to adjust charge with respect to air flow
2. The unit passes COOL SMART requirements for system charge with respect to air flow
3. This unit meets system requirements as defined above, and the customer has not received a COOL SMART incentive for a Digital Checkup on the system within the past five years
4. The customer signs a copy of the contractor's invoice to show acceptance of the \$100 Instant Credit.

Contractors may use the Digital Checkup Customer Responsibilities Acknowledgement form for details. This form is available at mycoolsmart.com. Beginning in 2007 this form is optional for contractor use with customers and there is no need to submit paper work.

Overview of QIV Contractor Requirements

- Purchase or lease Honeywell Service Assistant or subscribe to CheckMe! service or approved equivalent.
- All technicians participating must complete and pass the COOL SMART QIV training course (usually a one-day or a one-half day course) offered by the QIV tool provider – this training covers use of the tool/service and includes hands-on testing of the technician's ability to use it correctly.
- Use the required equipment on-site to calculate or measure airflow and provide documentation.
- Agree to and abide by conditions for QIV listing, which include providing the necessary data for a "commissioning" report to customers and to COOL SMART.
- Agree to perform QIV services for customers who request such services and are directed to your company by COOL SMART staff.

(See Training Description and Specifications and Data Guide sections for details)

Incentives and Assistance to Participating Contractors

- COOL SMART will list QIV-certified contractor company names on the COOL SMART website. **Participating contractors must complete and submit a minimum of 5 QIV units by May 15, 2007 in order to remain listed on the website.**
- Contractor companies with QIV certified technicians are eligible to use the COOL SMART QIV logo in its marketing activities. (Contractors agree not to use the standard COOL SMART logo in marketing materials.)
- Inspection of 10% of all QIV Commissioning or Digital Checkups by COOL SMART staff.
- COOL SMART will provide marketing to promote QIV service in various media.
- Customer literature describing the need for and value of QIV, proper system sizing and repair of duct leaks.
- QIV Incentive of \$175 for each system that passes charge and airflow tests and is properly reported to COOL SMART – see data requirements.
- Reimbursement of up to \$125 for hands-on QIV field training after three QIV "passes" by technician in the field.

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- Reimbursement of up to \$150 for purchase of a digital thermometer, flow grid, or hot wire anemometer that meets the program specifications after three QIV “passes” by technician in the field. (*This \$150 reimbursement may be toward purchase of HSAT, but only if contractor already owns a digital thermometer or hot wire anemometer and the required thermocouples.*)

Training Description

Experienced technician(s) must be trained and certified by CheckMe! or Honeywell to perform charge and airflow testing and correction. This training is a one-day or one half-day (respectively) hands on course limited to four participating technicians per class. Classroom and field training includes:

- Customer interaction
- Equipment options, sources and calibration procedures
- Test procedures
- Data collection and reporting procedures
- Calculation software and/or procedures required to determine test pass-fail status
- Charge and air flow correction procedures

Equipment Requirements

Equipment required will vary between the CheckMe! and Honeywell platforms. Below is a listing of requirements by platform, which will be verified by the training provider:

Both Platforms:

- Digital Refrigerant Charging Scale
- Appropriate vacuum pump to evacuate new line sets, and recovery machine to reclaim refrigerant from overcharged systems, when necessary.
- Digital thermometer(s) for measuring wet and dry bulb temperatures within air stream; a wet bulb sock and distilled water installed over a dry bulb sensor, or a device capable of measuring relative humidity, may also be used (a sling psychrometer will not work in this application)

CheckMe! Platform:

- Digital thermometer to display temperature sensor readings (may also be same digital thermometer listed above)
- Three to five accurate temperature sensors (thermocouples, type k) – with at least one that is capable of being clamped to refrigerant piping
- Compound refrigerant gauge, or digital gauge that provides pressure and saturation temperatures
- Phone access for contacting *CheckMe!* call center

Honeywell Platform:

- Honeywell Service Assistant with “quick array” sensor harness
- PDA (personal digital assistant) compatible with Honeywell Service Assistant
- Modem or Internet communication access

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QIV Commissioning Procedure for New Installations

1. Install system of any SEER rating.
2. For Program year 2007, units installed on or after April 1, 2005 are eligible for QIV Commissioning.
3. An eligible system is one that has not had a successful COOLSMART QIV event conducted for the same owner within the last five years.
4. Adjust charge for line set (weigh-in additional charge, or recover overcharge).
5. Connect manifold gauge and thermocouples.
6. Start system (let run 12 to 15 minutes).
7. Locate and/or provide return and supply duct-measuring taps.
8. Document system parameters when steady state is reached (record liquid pressure and temperature; suction pressure and temperature; ambient air temperature; return wet and dry bulb temperature; and supply wet and dry bulb temperature) as required by the QIV platform being used.
9. Consult with expert system (CheckMe! or Service Assistant) interface. Use the COOL SMART Air Flow Education flyer or otherwise educate customer on any air flow improvements needed and provide estimate for this to customer if interested. (There no longer is any need to submit a signed form to COOL SMART)
10. Make corrections to refrigerant charge and airflow as indicated by system.
11. Re-test and document results (or make additional adjustments as needed). Document in CheckMe or in Honeywell Service Assistant inputs that air flow improvements were made, or offered but not accepted in cases if he/she chooses not to have air flow improvement services conducted.
12. Secure QIV Tie Tag to the evaporator or air handler of each unit serviced.
13. Make minor adjustments or offer customer air flow improvements services (if needed)
14. Commissioning certificate is mailed to customer by COOLSMART

QIV Digital Checkup Procedure for Existing Systems

1. Verify the existing system is eligible. For Program Year 2007, an eligible system is one that has not had a QIV event within the last five years for the same owner, is operable prior to the Digital Checkup, and was installed prior to April 1, 2005.
2. Connect manifold gauge and thermocouples.
3. Start system (let run 12 to 15 minutes).
4. Locate and/or provide return and supply duct-measuring taps.
5. Document system parameters when steady state reached (record liquid pressure and temperature; suction pressure and temperature; ambient air temperature; return wet and dry bulb temperature; and supply wet and dry bulb temperature).
6. Consult with expert system (CheckMe! or Service Assistant interface).
7. Offer customer air flow improvement services, if needed, and document the results as described above in QIV step 9.

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- 8 Make corrections to refrigerant charge and airflow as indicated by system.
- 9 Re-test and document results in CheckMe or in Honeywell Service Assistant inputs (or make additional adjustments as needed). Document repairs such as coil cleaning and that air flow improvements were made, or offered but not accepted in cases if he/she chooses not to have air flow improvement services conducted.
- 10 Secure QIV Tie Tag to the evaporator or air handler of each unit serviced.
- 11 COOL SMART sends customer the Commissioning certificate.

Data Requirements

IMPORTANT:

Many of the fields are required for the third-party verification report (also called the Commissioning report). Please use care in entering or calling in the data; accurate data entry is critical for contractors to receive incentives. **As there are no written reporting requirements in 2007, there are a few additional data elements that must be captured. Accuracy is essential.**

Matching the Data for QIV Incentives

COOL SMART will only pay the QIV incentive when:

1. The proper QIV related data is entered in the system as described in the steps below and in training handouts for the CheckMe or HSAT platform.
2. The QIV meets program requirements in one of two ways:
 - a. The data “**passes**” when both charge and airflow are within charge and air flow parameters below.
 - b. The data can also meet requirements when charge is correct but airflow falls outside the range of Program Requirements. This situation is called an “exception.”
3. Data is complete and matches up with the unit serviced.

Passing Parameters

1. Charge

TXV Systems – Subcooling shall be within 3 degrees of target subcooling found on the unit’s service manual or information plate.

Fixed Orifice Systems – Superheat shall be within 5 degrees of Target Superheat Table.

2. Air Flow

Each QIV platform verifies air flow differently. A system will “pass” airflow if the calculated flow over the evaporator coil is between 350 and 450 cfm per ton. Contractors will verify the airflow, as required by the QIV procedure they are using, either CheckMe! or the Honeywell Service Assistant.

COOL SMART QIV Services – Requirements

It's Easy to Receive QIV Incentive Units

For 2007 the program will not require any written QIV incentive application.

QIV requires entries in CheckMe or in Honeywell Service Assistant (HSAT) to document repairs such as coil cleaning and that air flow improvements were either done, or recommended but not accepted by customer.

For Digital Check-ups

Data that technicians enter in HSAT or CheckMe will be captured and provided to the sponsor, including verification that customer has been given the \$100 instant credit on their invoice and that they were offered air flow repairs if necessary to correct system.

COOLSMART has sent notification to all existing QIV contractors regarding these “paperless” changes. This information will be added to all QIV training courses for 2007. All contractors participating in “refresher” courses will also receive this information at the classes.

With the paperless process for 2007, two different procedures will capture the invoice credit and airflow repairs, depending on QIV procedure used. For contractors using the Honeywell SAT, reporting fields/questions will be added to the palm pilot. For contractors using CheckMe, technicians will be given a short checklist of questions they must answer and provide to the call center, and the call center operator will ask these same questions during the CheckMe call.

Contractors will be asked:

- 1 If the customer was offered the \$100 instant credit on their invoice
- 2 If the customer was offered a quote to repair system airflow (if the system failed airflow)
- 3- Did customer refuse air flow repair
- 4- What was done to repair airflow problems
- 5- Was the outdoor coil cleaned

The technician will continue to use the tie tag, which will help identify units that have already been tested and received an incentive. COOLSMART will also validate and cross check all customer units in its database, and any units for which contractor has received incentives in the prior 5 years will be refused another incentive. **It is the contractor's responsibility to determine the unit's eligibility initially.**

As part of the Quality Control process, contractors selected for QC inspections will be asked to present documentation (copy of invoice) detailing the instant credit, repair quote, and improvements.

Data Entry: In-Field Training

Details for CheckMe! and HSAT data entry will be provided in the field training:

- CheckMe! uses a data collection sheet; key fields for the type of job will be noted in training.
- HSAT data entry training uses screen-shots of the PDA information.

COOL SMART QIV Services – Requirements

Below is a sample of the QIV tie tag, including the ticket number. This year the ticket number is the same as the customer ID that you designate for the site:

QIV Tie Tag – Sample







Quality Installation Verification

Date of QIV Service: ____ / ____ / ____

Number of A/C or Heat Pump Units on Site: _____

Number of Units that Passed QIV Test: ____

This Unit's ID #: Unit # ____ of ____

Example: Unit # 1 of 2

This Unit's Ticket Number:

_____ / _____ / _____

Example:
Customer Phone # / Contractor ID / Unit # 505 555 1212 / ABC / 1

Reminder: Each of the current homeowner's A/C or heat pump units is eligible for a COOL SMART QIV service incentive once every 5 years from the date of QIV service listed above. However, we encourage contractors to use and homeowners to request third-party QIV verification each year.

Contractor: Please complete and tie this tag to a visible spot on the indoor coil for each unit receiving QIV service.

For information call your contractor at

**or call 800-473-1105,
email info@mycoolsmart.com,
or write
COOL SMART
c/o Conservation Services Group
40 Washington Street
Wesborough, MA 01581**

The **COOL SMART Program** is subject to change without prior notice, including rebates and incentive levels.

Warranties: SPONSORS DO NOT WARRANT THE PERFORMANCE OF INSTALLED OR SERVICED EQUIPMENT, EXPRESSLY OR IMPLICITLY. Program sponsors make no warranties or representations of any kind, whether statutory, expressed, or implied, including, without limitations, warranties or merchantability or fitness for a particular purpose regarding the HVAC equipment or services provided by a manufacturer or vendor. Contact your contractor for details regarding equipment performance and warranties.

COOL SMART QIV Services – Requirements

Quality Installation Verification Participating Contractor Agreement

This document outlines the responsibilities of contractors participating in the Quality Installation Verification (QIV) initiative for the COOL SMART Residential HVAC Program.

Quality of Workmanship: All HVAC system work completed by contractor must meet all manufacturer guidelines and be in compliance with all applicable municipal, state, and federal codes, standards, and regulations and program requirements.

Contractor Incentive: Contractor will be eligible for incentives to be compensated at \$175 per system tested and passed using the QIV tools provided work is performed according to the COOL SMART Program Quality Installation Verification Contractor Requirements Document (Contractor Requirements). COOL SMART reserves the right to deny incentive payments and withdraw incentives for improper work performance as noted in Participation Requirements below.

Post-Installation Work Verification: Contractor agrees to allow random field inspections of work performed, including performance testing, in order to maintain quality standards sought by this program. If inspection determines that equipment was not installed properly and in accordance with the Contractor Requirements or other inspection protocol, COOL SMART requires that work be corrected within 14 days.

Documentation of Completed Work: Contractor agrees to complete the Quality Installation Verification process in its entirety to generate the QIV payment and to provide customer with all required supporting documentation as outlined in the COOL SMART rebate application.

Referrals: Contractor agrees that if COOL SMART staff directs a customer to them for QIV services, contractor will make every effort to promptly contact and serve that customer. If contractor is unable to contact and/or provide QIV services to any customer referred by program staff, contractor will notify COOL SMART staff immediately so the customer may be referred to another contractor.

Participation Requirements: Contractors participating in this program do so at the discretion of the COOL SMART Sponsors and are subject to removal from the list of participating QIV contractors and discontinuation of QIV incentives for future work if inspected work is deemed to have been improperly or fraudulently installed. The following guidelines apply:

- If upon inspection it is determined that a contractor has misrepresented QIV testing reported, Contractor will have 14 days to rectify the situation to the satisfaction of the homeowner and the Sponsors or their designee
- Any subsequent inspections that represent fraudulent activity or misrepresentation of information may result in de-listing from the QIV service listing
- Contractors using the Honeywell Service Assistant or CheckMe! for third-party verification of accuracy of installation or service are subject to quality assurance standards associated with this aspect of the program. Should such quality assurance indicate that contractor has knowingly submitted false information or failed to provide complete information to Honeywell Service Assistant or CheckMe! on more than one occasion, contractor may be de-listed from the COOL SMART QIV service listing.

Limitation of Liability: In no event shall COOL SMART Sponsors or their vendor be liable to Contractor or its agents for consequential, incidental, punitive, reliance, or indirect damages for any action arising from this Agreement.

COOL SMART QIV Services – Requirements

Term: QIV incentives are for COOL SMART QIV Commissioning and QIV Digital Checkups performed between January 1, 2007, and December 31, 2007.

I have read and agree to the terms and conditions for participation in the COOLSMART QIV service as defined in the 2007 COOL SMART QIV Contractor Requirements document, appended here.

Contractor Name (printed) _____

Contractor Signature _____

Date _____

Company _____

Website _____

Email Address _____

Contact _____

Address _____

Phone Number _____

Agreement must be submitted to:

Agnes Hagopian
COOL SMART c/o CSG
40 Washington St.
Westborough, MA 01581
Phone: 508-836-9500 x 13213