

# OPERATIONS MANUAL

## DIRECT HEATING EQUIPMENT CERTIFICATION PROGRAM

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**AHRI DHE OM – DECEMBER 2019**

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## PREFACE

The following manual outlines the procedures and policies of the Performance Certification Program for Direct Heating Equipment (DHE) operated by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI). This manual is to be used in conjunction with the General Operations Manual for AHRI Certification Programs. Where the General Operations Manual and this product-specific manual differ, this product-specific operations manual shall prevail.

The revision of this manual supersedes all previous revisions. The current edition of this manual, as well as the General Operations Manual, can be accessed through the AHRI website, [www.ahrinet.org](http://www.ahrinet.org).

The DHE Certification Program by AHRI provides for independent verification of the Direct Heating manufacturer's stated equipment performance. Safety criteria are not within the scope of this program.

Participation in the program is voluntary. Any manufacturer, regardless of AHRI membership, may obtain approval of Program Ratings and use of the AHRI DHE Certification Mark hereinafter referred to as the "Mark". The Mark is the Participant's public representation that the ratings of randomly selected units have been verified by an independent laboratory in accordance with test procedures prescribed by this operations manual. A Certification Agreement is executed between the Participant and AHRI specifying the conditions under which such Ratings and the Mark may be used. No manufacturer has the right to use Program Ratings or to state that their products have been tested in conformance with the procedures outlined in this Rating Procedure unless and until they have received written authority from AHRI to use the Marks as applied to the specific approved Program Ratings.

This Operations Manual has been prepared to assure that administration of the program is carried out in a uniform manner. It is an amplification of the Certification Agreement signed by licensees and AHRI. General information, procedural details, and copies of forms are included in this Operations Manual. Provisions of the Operations Manual may be amended as provided in the Certification Agreements.

This certification program complies with requirements of the ISO/IEC Standard 17065:2012, *General Requirements for Bodies Operating Product Certification Systems*.

### Note:

This manual supersedes the Direct Heating Equipment Operations Manual, October 2019.

# CERTIFICATION OPERATIONS MANUAL FOR

## DIRECT HEATING EQUIPMENT

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## 1. Program Overview

1.1 Applicable Rating Standard. It is mandatory for program Participants to comply with the provisions of the Department of Energy (DOE) Home Heating Equipment Test Procedures as published in the latest edition of the Code of Federal Regulations, 10 CFR Part 430. A copy of the CFR is available for download from the U.S. Government Printing Office website, GPO Access, at <https://www.gpo.gov/fdsys/>.

### 1.2 Product Definitions.

1.2.1 Direct Heating Equipment (DHE). A product which is either a gas-fired or oil-fired Direct Heating Equipment. “Vented home heating equipment” or “vented heater” means a call of home heating equipment, not including central furnaces, designed to furnish warmed air to the living space of a residence, directly from the device, without duct connections (except with boots), not to exceed 10 inches beyond the casing may be permitted: vented wall furnaces, vented floor furnace, and vented room heaters.

- Vented Wall Furnace. A self-contained vented heater complete with grilles or the equivalent, designed for incorporation in, or permanent attachment to, a wall or a residence and furnishing heated air circulated by gravity or by a fan directly into the space to be heated through openings in the casing.
- Vented Floor Furnace. A self-contained vented heater suspended from the floor of the space heated, taking air for combustion from outside the space. The Vented Floor Furnace supplies heated air, circulated by gravity or by a fan, directly into the space to be heated through openings in the casing.
- Vented Room Heater. A self-contained, free standing, non-recessed, vented heater for furnishing warmed air to the space in which it is installed. The Vented Room Heater supplies heated air, circulated by gravity or by a fan, directly into the space to be heated through openings in the casing.

1.2.1.1 Residential Gas-Fired Direct Heating Equipment. Direct Heating equipment utilizes natural gas or propane as its fuel source.

1.2.1.2 Residential Oil-Fired Direct Heating Equipment. Direct Heating equipment utilizes heating oil as its fuel source.

1.3 Program Scope. This program applies to all Production Models of Direct Heating Equipment defined in Section 1.2.

1.4 Intended Market. The Intended Market for this certification program, where the Standard applies, includes all products defined in Section 1.3 that are sold for use in the U.S. and Canada (U.S., U.S. Territories and Canada).

1.5 Basic Model Groups (BMGs). Each Participant's listing shall be grouped by BMG. A BMG is a family of models of the same type (as defined in Section 1.2.1) which have identical ratings for Input, Output Heating Capacity, and Annual Fuel Utilization Efficiency (AFUE).

1.6 Certify-All Policy. All products that fall within the program scope and the intended market shall be required to be AHRI certified.

## 2. Qualification Process

2.1 Original Equipment Manufacturer (OEM) Applicants. With the additions noted below, the OEM qualification process shall proceed according to the AHRI General Operations Manual, Section 4.

STEP 2.1.1 Certification Application Package. In addition to the Application for AHRI Certification and Annual Sales Volume Form noted in the AHRI General Operations Manual, Section 4, STEP 4.1, Applicants shall submit the following documentation to AHRI:

- Two test reports for each BMG supporting the claimed ratings; and
- An Applicant requesting AHRI to submit data to CEC, DOE, and FTC shall submit third-party authorization, compliance forms and other necessary information.

Electronic forms shall be obtained from AHRI.

STEP 2.1.2 Processing Application Package.

STEP 2.1.2.1 Performance Certification Agreement for Original Equipment Manufacturer (OEM Agreement). No further action required beyond that listed in Section 4, STEP 4.2 of the AHRI General Operations Manual.

STEP 2.1.2.2 Participation and Licensing Fee Invoice. Payment of the Participation and Licensing Fee is due within 30 calendar days of the invoice issue date. Testing shall not be conducted until the invoice is paid in full. No further action required beyond that listed in Section 4, STEP 4.2 of the AHRI General Operations Manual.

STEP 2.1.3 Selection and Acquisition of Test Samples.

STEP 2.1.3.1 Number of Qualification Tests. 30% of an Applicant's BMGs shall be tested, with a minimum of two (2) models. Fractional numbers shall be rounded to the nearest whole number using traditional rounding methods.

STEP 2.1.3.2 Acquisition of Qualification Test Samples/Selection Criteria. Within 30 calendar days of a request from AHRI, the Applicant shall have samples available for selection. Samples shall be acquired in accordance with Section 3 of this manual.

STEP 2.1.4 Qualification Testing. AHRI shall supply the Independent Third-party Laboratory Contracted by AHRI (Laboratory) with the Published Ratings. The Laboratory shall conduct the testing of the samples in accordance with the Standard, against the Published Ratings.

STEP 2.1.4.1 Successful Completion of All Qualification Tests. If all qualification tests pass, proceed to STEP 2.1.5.

STEP 2.1.4.2 First Sample Qualification Test Failure. Refer to Section 4, STEP 4.4.2 of the AHRI General Operations Manual for details regarding the first sample qualification failure options:

STEP 2.1.4.3 Second Sample Qualification Test Failure. Refer to Section 4, STEP 4.4.3 of the AHRI General Operations Manual for details regarding the second sample qualification failure options.

STEP 2.1.5 Welcome to the Program. No further action required beyond that listed in Section 4, STEP 4.5 of the AHRI General Operations Manual.

2.2 Private Brand Marketer (PBM) Applicants. With the additions noted below, the PBM qualification process shall proceed according to the AHRI General Operations Manual, Section 5.

PBM Applicants are not required to undergo qualification testing. PBM product certification is contingent upon the certification of the associated OEM product.

STEP 2.2.1 Certification Application Package. In addition to the Application for AHRI Certification Form noted in the AHRI General Operations Manual, Section 5, STEP 5.1, Applicants shall submit the following documentation to AHRI:

- An Applicant requesting AHRI to submit data to CEC, DOE, and FTC shall submit third-party authorization, compliance forms and other necessary information.

#### STEP 2.2.2 Processing Application Package.

STEP 2.2.2.1 Performance Certification Agreement for Private Brand Marketer (PBM Agreement). No further action required beyond that listed in Section 5, STEP 5.2.1 of the AHRI General Operations Manual.

STEP 2.2.2.2 OEM Agreement on Behalf of the PBM Applicant. No further action required beyond that listed in Section 5, STEP 5.2.2 of the AHRI General Operations Manual.

STEP 2.2.2.3 Licensing Fee Invoice. Payment of the Licensing Fee is due within 30 calendar days of the invoice issue date.

STEP 2.2.3 Welcome to the Program. No further action required beyond that listed in Section 5, STEP 5.3 of the AHRI General Operations Manual.

### 3. Equipment Selection and Testing

3.1 Annual Testing Requirement. 20% of a Participant's BMGs shall be tested annually, with a minimum of two (2) models. Fractional numbers shall be rounded to the nearest whole number using traditional rounding methods.

3.2 Location of Tests. Testing shall be performed at the Laboratory.

3.3 Selection of Test Samples. Selections shall be made based on data contained in the Directory. AHRI shall inform the Participant, in writing, of the sample(s) selected for test.

3.4 Methods for Acquiring Test Samples. The Participant shall make the samples ready for Random Sample Selection within 30 calendar days of a selection by AHRI. Selected samples shall be shipped to the Laboratory accompanied by the Participant's published installation instructions in printed or electronic format. Refer to Section 9 of the AHRI General Operations Manual.

3.5 Sample Acquisition Timeframe. The Participant shall deliver the selected sample(s) to the Laboratory within 14 calendar days of the Random Sample Selection by the Laboratory personnel.

3.6 Sample Installation and Start-Up. Installation and start-up of the sample shall be in accordance with the Participant's published installation instructions in printed or electronic format.

3.7 Damaged Samples. Samples received at the Laboratory which are damaged, produce more than 400 parts per million (ppm) air free CO (sample taken at steady state following the procedure described in ANSI Z21.86) at normal input, or otherwise cannot be tested, shall be deemed a Damaged Sample.

3.7.1 Disposition of Damaged Samples. All Damaged Samples shall be returned, with all costs associated with the Damaged Sample borne by the Participant. Time limitation on the acquisition of a new sample shall be the same as Section 3.4.

3.8 Certified Data. At conditions specified in the DOE vented home heater test procedures as published in the latest edition of 10 CFR Part 430, the following certified ratings are verified, by test:

- Annual Fuel Utilization Efficiency, %
- Output Heating Capacity, Btu/h

3.9 Tolerances. The Standard Rating shall be such that any Direct Heating Equipment selected and tested in accordance with the Standard has an AFUE and an Output Heating Capacity not less than 95% of the Standard Ratings.

3.10 Test Failures.

3.10.1 Options Following First Sample Failure. When the Participant is notified of a first sample certified rating failure, it has seven (7) calendar days to select one (1) of the following options:

- Re-rate all models in the BMG proportionate to the failed test's results. The failed model shall be re-rated to the nearest 0.10% for AFUE and the nearest thousand Btu/h of the Output Heating Capacity, and no better than the test results. Other models in the BMG shall be re-rated in accordance with the percentage by which the tested unit failed.
- Test second sample of the same model (sample shall be available within 30 calendar days following notification of failure).
- Obsolete the model, which also obsoletes all models within the corresponding BMG.

3.10.2 Options Following 2<sup>nd</sup> Sample Failure. When the Participant is notified of a second sample certified rating failure, it has seven (7) calendar days to select one (1) of the following options:

- Re-rate all models in the BMG proportionate to the failed test's results. The failed model shall be re-rated to the nearest 0.10% for AFUE and the nearest thousand Btu/h of the Output Heating Capacity, and no better than the test results. Other models in the BMG shall be re-rated in accordance with the percentage by which the tested unit failed.
- Test additional units of the same model per 3.10.2.1;
- Obsolete the model, which also obsoletes all models within the corresponding BMG.

3.10.2.1 Additional Unit Testing for the Same Model. In an effort to preserve the Published Ratings for the failed model, the Participant may opt to test up to two additional samples of the model that failed. If possible, the samples should be selected from different production runs. The final rating shall be the average of the 1<sup>st</sup> sample, 2<sup>nd</sup> sample, and all tests requested by the Participant.

If a Participant exercises this option, testing of additional sample shall be completed within six (6) months of the second sample test.

3.11 Requirement for Adding New Basic Model to the Directory. Product data submitted for acceptance shall meet the requirements of Section 2.1 STEP 2.1.1.

#### **4. Challenge Tests**

Refer to Section 10 of the AHRI General Operations Manual.

#### **5. AHRI Directory of Certified Product Performance**

All certified products shall be listed in the Directory, [www.ahridirectory.org](http://www.ahridirectory.org). Certification shall not be implied or claimed for any product not listed in the Directory. Except as noted below, the Participant shall follow the steps outlined in Section 11 of the AHRI General Operations Manual.



5.1 Publication of Ratings in Certified Directory. For each certified model, the Directory lists:

- AHRI Certified Reference Number
- Name of Manufacturer
- Model Status
- Trade/Brand Name of Model
- Model Number(s) or Designation(s)
- Fuel type (gas or oil)
- Model Number(s) or Designation(s)
- Input, MBH
- Output Heating Capacity, Btu/h
- Annual Fuel Utilization Efficiency, % (AFUE)
- Equipment Type

Additional data may be shown for products sold in areas requiring further product information or ratings.

5.2 Data Forms. Each Participant shall list its products by BMG. OEM Participants shall submit/edit product data via the Directory.

#### **6. Assessment and Payment of Certification Fees**

Refer to Section 12 of the AHRI General Operations Manual.

#### **7. Issuance of Violations and/or Termination**

Refer to Section 14 of the AHRI General Operations Manual.

#### **8. Program Hierarchy, Complaints, and the Appeals Process**

Refer to Section 15 of the AHRI General Operations Manual.

#### **9. Proper Use of the AHRI Certification Mark and Claims to Certification**

Refer to Section 8 of the AHRI General Operations Manual.