

OPERATIONS MANUAL

ACTIVE CHILLED BEAMS



AHRI ACB OM – JANUARY 2018

2111 Wilson Blvd, Suite 500
Arlington, Virginia 22201
(703) 524-8800

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PREFACE

The following manual outlines the procedures and policies of the Performance Certification Program for Active Chilled Beams (ACB) Certification Program operated by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI). This manual is to be used in conjunction with the AHRI General Operations Manual (GOM) for AHRI Certification Programs. Where the AHRI 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 AHRI General Operations Manual, can be accessed through the AHRI website, www.ahrinet.org.

The ACB Certification Program by AHRI provides for independent verification of the ACB manufacturers' 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 ACB 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 manufacturer 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 Agreement.

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 Active Chilled Beams Operations Manual October 2017.

CERTIFICATION OPERATIONS MANUAL FOR
ACTIVE CHILLED BEAMS

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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 latest edition of AHRI Standard 1240 (I-P)/1241 (SI), *Performance Rating of Active Chilled Beams* (Standard). A copy of this standard is available for download from the AHRI website, www.ahrinet.org.

1.2 Product Definitions.

1.2.1 Active Chilled Beam. An air induction and diffusion device which introduces conditioned air for the purposes of temperature and/or humidity control. Primary air is delivered through a series of nozzles, which induces and conditions secondary air through a unit mounted coil.

1.3 Program Scope. This program applies to Active Chilled Beams, as defined in Section 1.2.

1.3.1 Program Scope Exclusions. The following are excluded from the certification program:

- Active Chilled Beam units employing volatile-refrigerant coils;
- Active Chilled Beam units employing steam coils;
- Passive chilled beam units; and
- Multi-service active chilled beams.

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

1.5 Basic Model Groups (BMGs). A Participant's listing shall be grouped by BMG. A BMG shall consist of a model or models that can be defined as an Active Chilled Beam of the same type with similar characteristics available in a progression of nozzle sizes and a progression of beam length and having a common designation as catalogued. A Participant may choose to further subdivide its products into additional BMGs.

1.5.1 Optional BMG Subdivision. The Participant may further subdivide its BMGs provided that this is clearly indicated on Form ACB-DS1.

1.6 Certify-All Policy. This program complies with the AHRI General Operations Manual Certify-All Policy for products within the program scope with the following allowances:

- New Participants shall submit all their BMGs for testing through the AHRI ACB Certification Program in accordance to the program scope within three (3) years from the date they are accepted into the certification program.

2. Qualification Process

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

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

- One test report for each BMG;
- Copy of Applicant's Selection Rating Software (refer to Section 2.1.3);
- Copy of Applicant's paper catalog, if applicable; and

- If the Applicant chooses to conduct witness testing at its AHRI Approved Test Stand within a Facility (Facility), all required forms per Section 3.3.1 of this manual for Witness Testing Facility Approval.

Electronic forms shall be obtained from AHRI (available on www.ahrinet.org under the Product-Specific Certification Program).

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 *Selection Rating Software Approval.* AHRI shall provide the Applicant with a login/password to a personalized Virtual Machine (VM) to install their Selection Rating Software, or to create a shortcut to the Software's webpage. Once the Applicant notifies AHRI that the Selection Rating Software has been successfully installed, AHRI shall grant approval of the Selection Rating Software.

STEP 2.1.3.2 *Number of Qualification Tests.* 20% 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 2.1.3.3 *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 9.5.1 of the General Operations Manual.

STEP 2.1.3.4 *Witness Test Facility Approval and Sample Selection.* If the Applicant has applied to conduct witness testing at its facility, the Independent Third-Party Laboratory contracted by AHRI (Laboratory) shall contact the Applicant to schedule a preliminary witness test facility inspection. Upon final approval of the Applicant's witness test facility and the approval of the Applicant's Selection Rating Software and/or paper catalogs, the Laboratory shall contact the Applicant to schedule initial qualification testing. Section 3 further explains the requirements and procedures for applying and conducting witness testing.

Qualification testing may be scheduled simultaneously with facility inspection; however, should the facility fail inspection the testing shall be delayed until the facility is brought into compliance.

If the Applicant has not applied to conduct witness testing at its facility, the qualification process shall continue with the approval of the Applicant's Selection Rating Software and/or paper catalogs. Upon approval by AHRI, the Laboratory shall contact the Applicant to schedule initial qualification testing.

STEP 2.1.4 Qualification Testing. AHRI will supply the 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 Qualification Test Options Following 1st Sample Failure. When the Applicant is notified of a first sample certified rating failure, it has seven (7) calendar days to select one (1) of the following options by filing out a Manufacturer's Decision Form (MDF):

- Re-rate all models within the failed sample's BMG and all untested BMGs, proportionate to the failed test's results;
- Re-rate all models within the failed sample's BMG and elect to test a sample from an untested BMG as selected by AHRI (should this sample pass then only the failed sample's BMG must be re-rated, should this unit fail then all untested BMGs must be re-rated); or
- Test a second sample of the same model (sample shall be available within the timeframe and procedure allotted in Section 3.4 following notification of decision to AHRI via MDF).
- Terminate the application process

STEP 2.1.4.3 Qualification Test Options Following 2nd Sample Failure. When the Applicant is notified of a second sample certified rating failure, the Applicant has seven (7) calendar days to select one of the following options by filing out a MDF:

- Re-rate all models within the failed sample's BMG and all untested BMGs, proportionate to the failed test's results; or
- Re-rate all models within the failed unit's BMG and elect to test a unit from untested basic model group as selected by AHRI (should this unit pass then only the failed units' BMG must be re-rated, should this unit fail then all untested BMGs must be re-rated).
- Terminate the application process

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 will proceed according to the AHRI General Operations Manual, Section 5.

PBM applicants are not required to undergo witness test facility inspection or initial qualification testing. PBM product certification is contingent upon the certification of the associated OEM product. PBM software must directly correlate to OEM software. If the software has variations, the PBM must register and test as an OEM.

STEP 2.2.1 Certification Application Package. In addition to the Application for AHRI Certification and product-specific ratings and data noted in the AHRI General Operations Manual, Section 5, STEP 1, Applicants shall submit the following:

- Copy of Applicant's Selection Rating Software (refer to Section 2.1.3); and
- Copy of Applicant's paper catalog, if applicable.

STEP 2.2.2 Processing Application Package.

STEP 2.2.2.1 Selection Rating Software Approval. AHRI shall provide the Applicant with a login/password to a personalized Virtual Machine (VM) to install their Selection Rating Software, or to create a shortcut to the Software's webpage. Once the Applicant notifies AHRI that the Selection Rating Software has been successfully installed, AHRI shall grant approval of the Selection Rating Software.

STEP 2.2.2.2 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 2.2.2.3 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 2.2.2.4 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 BMG shall be tested annually, with a minimum of two (2) tests per year. Fractional models shall be mathematically rounded up to the nearest whole number, for example: 2.2 tests becomes three (3) tests. For example, if a participant lists eleven (11) basic model groups it shall be assigned three (3) tests.

3.1.1 Introduction of New BMGs. Participants who choose to introduce new BMGs during a testing year may be subject to additional testing. Samples are eligible for test as soon as they have been introduced as AHRI certified product. For example: If Participant A has ten (10) BMGs he shall be assigned two tests. If the Participant adds a BMG in August, the Participant's total becomes eleven (11) BMGs and requires a total of three (3) tests. Thus, an additional test shall be assigned at the time of the introduction of the new BMG.

3.2 Location of Tests. Testing shall be performed at the Laboratory or Facility and the sample shall be installed in the test facility in accordance with the Participant's published installation instructions in printed or electronic format.

The Participant shall elect to conduct testing at the Laboratory or at the Facility. The Facility shall be approved by AHRI prior to any test being conducted. Testing shall continue to be conducted at the Participant's Facility, contingent upon it remaining AHRI-approved, or until the Participant notifies AHRI, in writing, of its desire to change facilities. All tests, regardless of location, shall be conducted or witnessed by the Laboratory's Representative (Representative).

3.3 Witness Testing and Facility Approval Procedures. This Certification Program allows for witness testing; where Participant personnel, witnessed by the Representative, conduct testing at a Facility on the Participant's premises. Witness testing requirements are covered in the AHRI General Operations Manual, Section 9.12 and as specified below.

3.3.1 Application for Witness Testing. A Participant shall submit Witness testing forms to AHRI.

- Form ACB-FA1—Application for Facility Approval

- Form ACB-FA2—Personnel Experience Questionnaire
- Form ACB-FA3—Facility and Equipment Questionnaire
- Form ACB-PC1—Witness Test Procedure and Checklist
- Form ACB-PC2—Facility Approval Procedure and Checklist

Electronic copies of these forms are available online at www.ahrinet.org.

3.3.1.1 *Acknowledgement of Request.* AHRI shall acknowledge receipt of the Participant's application to conduct Facility approval. AHRI shall review the material and shall inform the Participant if additional information and/or changes are required for the Participant's Facility to meet the Standard.

3.3.2 *Inspection of Witness Test Facility.* Following review and approval of submitted data, AHRI shall forward the application package to the Representative. The Representative shall then complete applicable portions of Witness testing forms to determine whether the Facility shall be granted preliminary approval (forms may be found online at www.ahrinet.org).

Once the Facility has been granted preliminary approval, the Representative shall make arrangements for the Facility Inspection to verify compliance of the data submitted to the certification program and complete the remaining sections of Witness testing forms. An active chilled beam must be running in the Facility for the inspection to be completed. (Witness testing forms may be found online at www.ahrinet.org).

3.3.2.1 *Non-Compliant Inspection Results.* If the results of the inspection indicate that a Facility is non-compliant with the Standard or the certification program, all discrepancies shall be resolved and resubmitted to AHRI before approval may be granted to proceed with certified rating tests.

3.3.2.2 *Final Approval of Witness Test Facility.* Upon acceptable results of the inspection, AHRI shall notify the Participant in writing, of final acceptance and approval to proceed with witness tests. Testing may be scheduled in conjunction with a Facility inspection; however, should the Facility fail inspection, the testing shall be delayed until the Facility is brought into compliance. AHRI shall provide the Participant with a certificate that shall be displayed in the approved Facility, approving the specific witness test Facility for use for AHRI ACB certification testing.

3.3.3 *Scheduled Witness Test Facility Re-approval.* The Facility shall remain approved for no more than two (2) years. At which time, re-approval shall be required, including submittal of the documents outlined in Section 3.3.1 and inspection outlined in Section 3.3.2. Upon re-approval by AHRI, the Facility shall receive a new certificate of approval to be displayed in the Facility.

3.3.4 *Unscheduled Facility Re-approval.* Any changes that may affect a Facility's ability to function per the certification program requirements shall be required to be re-approved by the Laboratory personnel prior to the conducting of any witness testing. At this time, re-approval shall be required; including submittal of the documents outlined in Section 3.3.1 and inspection as outlined in Section 3.3.2.

3.3.5 *Witness Test Operations at Participant's Facility.*

3.3.5.1 *Advance Setup of Sample in the AHRI Approved Test Facility.* A Participant may set up the test sample in the Facility prior to the arrival of the Representative. The Representative shall complete Witness testing forms in conjunction with conducting the witness test. Prior to test commencement, the Representative shall verify that the sample is the model selected by AHRI for testing and that the sample has been set up in the Facility in accordance with the Participant's

published installation instructions in printed or electronic format and referenced method of test (Witness testing forms may be found online at www.ahrinet.org).

3.3.5.2 Duty Assignments of Representative. Sample testing, data acquisition, and generation of test data shall be performed by the Participant and assisted and witnessed by the Representative. Participant or Facility personnel shall be on-hand to assist the Representative as requested and are permitted to be present, but are not permitted to tamper or adjust samples during tests, unless specifically requested by the Representative responsible for the test.

Verification of instrument application (in accordance with the procedures defined in the Standard) and verification of calibrations shall be performed by the Representative.

3.3.5.3 Use of Laboratory Instrumentation. The Representative shall use primary test instruments belonging to the Laboratory in line with those provided by the Participant to measure power input, water pressure drop, and air and water temperatures in accordance with the Standard. Readings shall be taken from both devices. The readings from the Participant data acquisition system shall be used provided that:

- The Participant equipment is under current calibration;
- The Participant instrumentation and the Laboratory instrumentation do not vary by more than 2% for power input;
- Each Participant instrument and the Laboratory instrument for water temperature at each location shall not differ by more than 0.11 °C [0.2°F];
- The water temperature difference across the evaporator as determined by the average of the two (2) sets of Participant instrumentation shall not differ by more than 0.11°C [0.2°F] from the Laboratory instrumentation;
- The air temperature difference entering the chilled beam measured by the Participant instrumentation and the Laboratory instrumentation do not differ by more than 0.17°C [0.3°F] ;
- The Participant instrumentation and the Laboratory instrumentation do not vary by more than 2% for water pressure drop; and
- All data acquisition is in accordance with the Standard.

The Representative shall verify that the Facility test conditions remain within the allowable tolerances for the duration of the 15 minute test period, by checking the Representative's test condition measurements at intervals not to exceed 15 seconds.

Should any of these criteria not be met, steps should be taken to ensure that the discrepancy is resolved. In cases where the discrepancy cannot be resolved and no damage is apparent, the Laboratory instrumentation data for that parameter shall be used.

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

3.4 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. The method for acquiring test samples for the ACB program is random sample selection, as outlined in Section 9.5.1 of the General Operations Manual

3.5 Methods for Acquiring Test Samples. Selected samples shall be accompanied by the Participant's published installation instructions in printed or electronic format; or be available for Witness Testing at the Facility.

3.6 Sample Acquisition Timeframe. Upon notification of selections by AHRI, the Participant shall have 60 calendar days to deliver the units to the Laboratory, or conduct witness testing at the Facility. Extended transit times shall be approved by AHRI prior to selection. Prior to test, AHRI shall supply the Laboratory with the Published Ratings.

Upon notification of selections by AHRI, the Participant shall work with AHRI to determine mutually agreed upon test date which may require the Participant to accelerate product production.

3.7 Selection Rating Software

3.7.1 Requesting Approval of Rating Methods. A Participant shall request approval of its Selection Rating Software by submitting all of the following to AHRI:

- Selection Rating Software shall be either personal computer (PC) based, run on MS Windows® 7 platform, or web-based software and allow for selection of any certified product at any application rating condition per the latest edition of the Standard;
- Provide outputs for:
 - Catalog Number;
 - Catalog Issue Date/Code;
 - Software Version Number;
 - Primary air flow rate, L/s [cfm] (Standard Air);
 - Primary air temperature, °C [°F];
 - Primary air pressure drop, Pa [inches w.c.];
 - Reference air temperature, Cooling: 24°C [75°F];
 - Water coil sensible capacity, for cooling circuit and heating circuit, W [Btu/h];
 - Entering water temperature, Cooling: °C [tabulated °F] Heating: °C [tabulated °F];
 - Leaving water temperature, °C [tabulated °F];
 - Water flow rate, L/h, [tabulated gpm];
 - Water pressure drop, Pa, [tabulated inches w.c.];
 - Supply air temperature, °C [°F];
 - Sound Power Level by octave bands 2 to 7 (free discharge combined with casing radiated), dB; and
 - Total sensible capacity (air plus water) W [Btu/h]
- All necessary passwords to access software and updates,
- Instructions for use of the Selection Rating Software; and
- An electronic copy of the Participant(s) published catalog, if applicable.

If the Participant has more than one (1) Selection Rating Software available to users, each software shall be verified by AHRI.

3.7.1.1 Installation of Selection Rating Software. AHRI shall provide the Participant with a login/password to a personalized Virtual Machine (VM) to install their Selection Rating Software. The Participant shall generate two (2) random selections to ensure successful software installation and operation. Once the Participant notifies AHRI that the Selection Rating Software has been successfully installed, AHRI shall grant approval of the Selection Rating Software within seven (7) calendar days.

3.7.2 Initial Approval of Selection Rating Software through Published Rating Comparison. AHRI upon receiving the necessary materials shall, if applicable, utilize the Participant's Selection Rating Software to determine computer ratings for a certain set of conditions and compare them for the same conditions as those in the published catalog, if a published catalog exists. The Selection Rating Software output (printout and on-screen display) shall match the published certified ratings from the catalog, if applicable. AHRI may also request selection sheets from customers who have received bids. These selection sheets shall match the Selection Rating Software output.

The Participant shall be notified when the Selection Rating Software has been approved for certification. Upon approval from AHRI, the Participant may release the Selection Rating Software to other users. Selection Rating Software released to other users prior to obtaining AHRI approval shall result in a program violation. Also, the Selection Rating Software shall be approved by AHRI prior to field release.

3.7.3 Updates to Previously Approved Software. Per the AHRI General Operations Manual, Section 9, AHRI shall have an updated copy of any Selection Rating Software being used in the field. Any updates shall promptly be provided to AHRI via installation to the Participant's VM. Major changes to Selection Rating Software shall go through an Initial Approval as per Section 3.7.2 and adhere to the requirements in Section 7.2.3. The Directory shall be locked and Participants shall not be allowed to make changes to Selection Rating Software version updates until the Participant has obtained approval from AHRI.

3.7.4. Statements Regarding Certification. When possible, for units within the scope of the program, the Mark should be included on the Selection Rating Software outputs for certified units in accordance with the AHRI Brand Usage Guide.

All Selection Rating Software outputs from an approved Selection Rating Software shall include one of the following statements:

3.7.4.1 For Units Within the Scope of the Program. "Certified in accordance with the AHRI Active Chilled Beams Certification Program, which is based on AHRI Standard 1240/1241. Certified units may be found in the AHRI Directory at www.ahridirectory.org."

3.7.4.2 For Units Outside the Scope of the Program. "Unit is outside of the scope of AHRI Active Chilled Beams Certification Program, but is rated in accordance with AHRI Standard 1240/1241."

3.7.4.3 For Units Within the Scope of the Program, but for Application Ratings. (if applicable) "Unit is within the scope of AHRI Active Chilled Beams Certification Program and is rated in accordance with AHRI Standard 1240/1241."

3.8 Certified Data. In accordance with the Standard, the following certified ratings are verified, by test:

- Water Flow Rate, L/s [gpm], adjusted to achieve mean water temperature differential of 8.0°C [14.4 °F] relative to reference air temperature;
- Water Pressure Drop, kPa [inches w.c.];
- Water Coil Capacity, W, [Btu/h];
- Primary Air Flow Rate, L/s [cfm];
- Sound Power Level by octave bands 2 to 7 (free discharge combined with casing radiated), dB; and
- Induced air flow rate, L/s [cfm], calculated in accordance with ASHRAE 200.

At the following conditions:

- Standard Air Condition for cooling capacity test:
 - Primary Air Temperature, 24 °C [75°F] Isothermal to reference air temperature;
 - Primary Air Pressure Drop, 125 Pa [0.5 inches w.c.];
 - Entering Water Temperature, : 14.0°C [57.2°F];
 - Leaving Water Temperature, °C [°F].

3.9 Test Failures.

3.9.1 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 by filing out a MDF:

- Re-rate all models within the failed sample's BMG, proportionate to the failed test's results;
- Test second sample of the same model (sample must be available within 30 calendar days following notification of failure); or
- Obsolete the model, which also obsoletes all models within the corresponding BMG.

3.9.2 Second Sample Certified Rating Test Failure. When the Participant is notified of a second-sample certified rating failure, the Participant has seven (7) calendar days to select one of the following options by filing out a MDF:

- Re-rate all models within the failed sample's BMG proportionate to the failed test's results; or
- Obsolete the model, which also obsoletes all models within the corresponding BMG.

4. Challenge Tests

Refer to Section 10 of the AHRI General Operations Manual.

5. AHRI Directory of Certified Product Ratings

All certified products shall be listed in the Directory, www.ahridirectory.org. Certification shall not be implied nor 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 Certified Ratings in Certified Directory. For each certified model, the Directory shows:

- AHRI Certified Reference Number;
- Name of Manufacturer;
- Model Status;
- Brand Name of Model;
- Model Number or Designation;
- Catalog Number;
- Catalog Issue Date/Code;
- Software Version Number;
- Water Flow Rate, L/s [gpm];
- Water Pressure Drop, kPa [inches w.c.];
- Water Coil Capacity, W [Btu/h];
- Primary Air Flow Rate, L/s [cfm];

- Sound Power Level by octave bands 2 to 7 (free discharge combined with casing radiated), dB; and
- Induced air flow rate, L/s [cfm].

5.2 Data Forms. Each Participant shall list its products, by BMG. BMG information shall not be published on the Directory. OEM and PBM Participants shall supply product data via the Directory.

6. Assessment and Payment of Certification Fees

The assessment and payment of certification fees shall proceed according to the AHRI General Operations Manual, Sections 9 and 12.

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

9.1 Publication of Non-Certified Ratings. Participant's printed materials and Selection Rating Software may contain non-certified ratings; however it must be clearly indicated that such ratings are outside the scope of the AHRI ACB Certification Program as per Section 3.7.4.

9.2 AHRI Verification and Monitoring of Computerized Rating Software and Selection Methods.

9.2.1 Random Comparisons. AHRI shall make random comparisons of the catalog ratings, if applicable, and the computer ratings as a further check procedure to guard against a Participant using a second program not approved by AHRI.

9.2.2 Additional Monitoring. AHRI may request Participants, users, consulting engineers, etc. to submit copies of specific job conditions and ratings that they have utilized. Additionally, parties may request that AHRI verify certification of product ratings. AHRI shall compare the ratings obtained through the use of the Participant's Selection Rating Software. Comparison shall only be made on jobs in which the Selection Rating Software implemented by the user matches that of the verified rating method, including issue date or code, of the current software held by AHRI. AHRI provides verification services to all legitimate parties. All requesters shall provide the following information before verifications are completed:

- Name of the Requester;
- Affiliation of the Requester;
- Contact information of the Requester (email, phone number);
- Original job submittal with the job name; and
- Manufacturer representative that provided the selection.

9.2.3 Responsibility of Participant for Catalog/Software Revisions. Whenever a Participant's catalog and/or Selection Rating Software is revised, the Participant shall supply the revised version to AHRI. Version numbers shall comply with the following:

- Version number shall be in increasing numerical order so that the revision level can be determined by AHRI;
- Software outputs shall prominently display a revision code, software name, date, or version identification;
- Version number shall match the number listed on the performance output data sheet generated from the Selection Rating Software and the Directory; and
- Version number shall be tied to ratings; if any ratings are changed, a new version of the software shall be issued.

Once the Participant notifies AHRI that the Selection Rating Software has been successfully installed, AHRI shall grant approval of the Selection Rating Software within seven (7) calendar days.

Upon approval from AHRI, the Participant may release the software to other users. Selection Rating Software released to other users prior to obtaining approval from AHRI, shall result in a program violation. The Directory shall be locked and Participants shall not be allowed to make changes to Selection Software Rating version updates until the Participant has obtained approval by AHRI.

9.2.4 Data Comparison between Rating Software and Catalog. Catalogs must be consistent with the current Selection Rating Software at time of publication. Current versions must be listed in the Directory at the time of release. Any published catalog shall make reference to the version number of the Selection Rating Software to which it corresponds. AHRI considers the Selection Rating Software output to be the primary source of information.

If, at any time, the referenced Selection Rating Software is not in agreement with the catalog, or if the catalog or Selection Rating Software does not correspond to the version listed in the Directory, the Participant shall be issued a program violation notifying them of the discrepancy and shall have 60 calendar days to resolve the discrepancy.

Program revisions that make no changes to the selection output may be made without submitting the new program. Revisions that in any way alter the selection process or add units must be submitted prior to release with a general explanation of what changes were made.

9.3 Changes to Certified Active Chilled Beams Model Groups. AHRI must be informed of changes to certified products prior to such changes being implemented. The Participant shall submit a report stating the exact changes proposed, indication of any effects on published ratings, and an approximate date on which production of the changed chilled beam(s) is to begin.

If the Participant anticipates changes to the product ratings, or if within 60 calendar days of receiving the information AHRI believes the proposed changes may affect Published Ratings, the Participant may be required to test, or provide additional information on, the BMGs in question.

Certification may not be claimed for the changed product(s) until authorized by AHRI. Failure to obtain approval from AHRI shall result in a program violation.