Candidate Certification Handbook

air barrier
abaa
association of
america

DISCLAIMER

The Air Barrier Association of America (ABAA) will continue to post the latest versions of documents pertinent to the certification scheme on the ABAA website (**www.airbarrier.org**). The document posted on the website will be considered the official version. It is the applicant's responsibility to check the ABAA website when they are considering certification and to obtain the official version of the documents.

This Handbook contains information and current policies on how to become and continue to be a Certified Whole Building Airtightness Blower Door Technician (WBAT-BD). Information in this version of the Handbook supersedes the information contained in prior versions.

Written material or guidance provided is made available to people on an "as is" basis without any warranties of any kind provided, whether expressed or implied. The Air Barrier Association of America, its officers, its directors, agents, authorized representatives, and affiliates, or its management organization expressly disclaim and deny, to the fullest extent by law, any and all liability and/or responsibility for any claims, actions, liabilities, losses, damages, expenses or injuries of any kind or nature, (including without limitation, direct, indirect, incidental, consequential, special, exemplary or lost profits) arising directly or indirectly out of or resulting from the use of or reliance upon such documents, the information provided by this Handbook or the certification scheme in general or specifically.

This handbook is not allowed to be used or referenced during the certification examination.

Eligibility standards, exam content, exam standards, fees, and guidelines are subject to change.

Please visit www.airbarrier.org or contact ABAA at abaa@airbarrier.org for updates.

Developed by Building Professionals Quality Institute Inc.

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1.0 About the Air Barrier Association of America (ABAA)

The Air Barrier Association of America, Inc. was founded in 2001 as a response to air barriers being referenced in the Commonwealth of Massachusetts building code. It was identified at that time that there were few installers who understood how to properly install an air barrier system in a building. There were no standards, specifications, guidelines, training courses, or other materials in the United States that focused on or could be used for installing air barrier systems on the six sides of the enclosure.

Over the years, ABAA has led the development of information and criteria for the air barrier industry related to materials, installation, inspection, and details. ABAA has focused on education and site quality assurance from inception and has continued this effort through the decades. ABAA has also led the way in improving the performance of installed air barrier systems with follow up through a site audit to confirm the installation through the ABAA Quality Assurance Program.

2.0 ABAA Vision

We do air barriers right for energy efficiency, better buildings, and healthier communities.

3.0 ABAA Mission Statement

To work together with our membership, industry and trade to be the recognized voice for air barrier knowledge and quality assurance.

4.0 Terms and Definitions

For the purposes of this document, the terms and definitions are given in ISO/IEC 17024, and the following apply.

4.1 Appeal

Request by *applicant*, *candidate,* or certified person for reconsideration of a decision made by the certification body related to her/his desired certification status.

4.2 Applicant

A person who has applied to be admitted into the *certification process.*

4.3 Assessment

Process that evaluates a person's fulfillment of the requirements of the *certification program.*

4.4 Candidate Applicant

Person who has fulfilled specified prerequisites and has been admitted to the *certification process.*

4.5 Certificate

Document issued by a certification body under the provisions of ISO 17024, indicating that the named person has fulfilled the *certification requirements.*

4.6 Certification Process

Activities by which a certification body determines that a person fulfills *certification requirements*, including application, assessment, the decision on certification, recertification, and use of *certificates* and logos/marks.

4.7 Certification Body

An independent 3rd party that manages the certification process in accordance with ISO 17024 requirements.

4.8 Certification Program Owner

Organization responsible for developing and maintaining a *certification program.*

4.9 Certification Requirements

Set of specified requirements, including requirements of the certification program to be fulfilled to establish or maintain certification.

4.10 Certification Scheme Competence

Requirements related to specific occupational or skilled categories of persons.

4.11 Competence

Ability to apply knowledge, skills, and abilities to achieve intended results.

4.12 Complaint

Expression of dissatisfaction, other than an *appeal*, by an individual or organization to a certification body, relating to the activities of that body or a certified person, where a response is expected.

NOTE: Adapted from ISO/IEC 17024:2004, definition 6.5.

4.13 Examiner

A person competent to conduct and score an *examination*, where the examination requires professional judgment.

4.14 Examination

Mechanism that is part of the *assessment* which measures a *candidate's competence* by one or more means, such as written, oral, practical, and observational, as defined in the *certification program.*

4.15 Fairness

Equal opportunity for success provided to each *candidate* in the *certification process.*

4.16 Impartiality

Presence of objectivity.

NOTE 1: Objectivity means that conflicts of interest do not exist, or are resolved, so as not to influence subsequent activities of the certification body adversely.

NOTE 2: Other terms that are useful in conveying the element of impartiality are: independence, freedom from conflict of interests, freedom from bias, lack of prejudice, neutrality, fairness, open-mindedness, even-handedness, detachment, and balance.

4.17 Interested Party

Individual, group, or organization affected by the performance of a certified person or the certification body.

EXAMPLES: Certified person; user of the services of the certified person; employer of the certified person; consumer; governmental authority.

4.18 Proctor

Person authorized by the certification body who administers or supervises an *examination* but does not evaluate the *competence* of the *candidate.*

4.19 Personnel

Individuals, internal or external, of the certification body conducting activities for the certification body.

NOTE: These include committee members and volunteers.

4.20 Qualification

Demonstrated education, training, and/or work experience.

4.21 Reliability

Indicator of the extent to which *examination* scores are consistent across different examination times and locations, different examination forms, and different *examiners.*

4.22 Certification Program Owner

Organization responsible for developing and maintaining a *certification program.*

4.23 Surveillance

Periodic monitoring, during the periods of certification, of a certified person's performance to ensure continued compliance with the certification scheme.

4.24 Validity

Evidence that the *assessment* measures what it is intended to measure, as defined by the *certification scheme.*

NOTE: validity is also used in its adjective form "valid."

5.0 Whole Building Airtightness - Blower Door Technician Certification Program

5.1 Overview

The *Blower Door Technician* certification is designed for those involved in airtightness testing of new construction or existing buildings, whether whole or in part. The airtightness testing can be done on most types of buildings, including multi-family, commercial, industrial, or institutional buildings.

The objective of the *Blower Door Technician* certification scheme is to ensure that a person has the knowledge, skills and abilities conduct whole building airtightness testing by following appropriate test standards, building code requirements, and project specifications.

The *Blower Door Technician* certification will also assist the air barrier industry in providing a means to measure the current air leakage rate of an existing building and document the reduction in the measured air leakage rate after air leakage improvements have been implemented.

The *Blower Door Technician* is required to have appropriate knowledge of test methods for blower door testing and the impact that air leakage can have on a building.

5.2 Certified Blower Door Technician Responsibilities

A *Blower Door Technician* is an individual who personally conducts a blower door test or who supervises others during the test. The person will be responsible for meeting applicable contract documents and testing methods referenced for conducting whole building airtightness testing.

5.3 Scope of Certification

The *Blower Door Technician* is responsible for the tasks associated with creating a test plan, organizing the equipment, staffing, security, and safety issues for the team, preparing the building, conducting the blower door tests, notifying the contractor to return mechanical systems to pretest conditions, removing temporary masking, cleaning site and reporting the results. The technician will be able to conduct various types of blower door testing, including whole building, guarded unit testing, unguarded unit testing, zone testing, partial construction testing, and other applicable blower door test set ups.

5.4 Job/Task Description

The job is to carry out tasks required to conduct a whole building airtightness test on a building from planning the test, organizing the work, scheduling the test, preparing the building, communicating with involved parties, ensuring health and safety requirements are met, setting up the equipment, ensuring that the building is properly prepared, checking that testing equipment is working properly, conducting the air leakage test, determining the reason for abnormalities in the results, interpreting the results, and preparing the report.

5.5 Required Competence

The candidate needs to have knowledge of building construction relating to both the building enclosure and mechanical systems, understand the different building construction types, have building science knowledge, and be able to plan and execute a blower door test. This includes being able to set up the equipment, run software programs, complete a test, troubleshooting equipment and software, and reporting the results.

5.6 Abilities

The candidate will possess the ability to prepare the building, set up the equipment, run the test, determine, and correct abnormalities in test procedure or data, and complete a test report.

5.7 Recommended Knowledge and Skills

The candidate will need knowledge, skills, and education in the following areas before registering for certification or taking the exam.

A. Building science.
B. Construction of the common building envelope assemblies.
C. Operation of mechanical and distribution system and how they could impact the air leakage test.
D. Blower door equipment.
E. Whole building testing experience or related experience.
F. Blower door software.
G. Understanding of electrical / network / communication requirement for the equipment and software used for testing.
H. Problem solving skill to trouble shoot both the equipment and the building test configuration.

5.8 Certification Requirements and Pre-requisites for Written Exam

Prior to taking the written exam, the candidate needs to supply the following documentation, depending on which level of certification they are looking to achieve.

The certification requirements include more than just the examination process.

Level I – Blower Door Technician

The candidate needs to submit the following documents:

- A certificate of attendance for the ABAA Blower Door Technician training program. **OR**

- Provide a certificate of training from the blower door manufacturer AND submit five (5) whole building airtightness test reports (based on ASTM 779, ASTM 3158, ASTM 1827 or equivalent) within the past two (2) years with a minimum enclosure area of fifty thousand (50,000) sq. ft. for each building.

Candidate must identify what role or roles were performed by the candidate. The roles have been defined as:

- Test planning
- Building preparation
- Equipment set-up
- Test data collection
- Report generation

Level II – Blower Door Technician

The candidate needs to submit the following documents:

- A certificate of attendance for the ABAA Blower Door Technician training program **OR**

- Provide a certificate of training from the blower door manufacturer.

- Submit fifteen (15) whole building airtightness test reports (based on ASTM 779, ASTM 3158, ASTM 1827 or equivalent) within the past three (3) years with a minimum enclosure area of fifty thousand (50,000) sq. ft per building.

  The test reports are required to indicate the candidate's role (or roles), for example:

  - Test Planning
  - Building preparation
  - Equipment set up
  - Test data collection
  - Report generation

As an example, the candidate would indicate the following for each test report submitted.

Test #	Test Planning	Building Preparation	Equipment Set-up	Test data collection	Report Generation
1	X	X			X
2		X	X	X	
3	X	X	X	X	X
4	X		X		X
5	X				X
6			X		
7			X		
8		X			X
9		X		X	
10			X	X	X
11	X			X	
12		X	X		X
13		X			
14			X		X
15	X				
Total	6	7	8	5	8

The test reports submitted must have a ***minimum of five (5) reports per responsibility.*** In several cases, the candidate may have performed multiple roles on a single test and would indicate as such.

These test reports are required to show the reporting requirements outlined in the applicable standard.

Items such as address, building location and other non-pertinent information would not be required. If approval from the client cannot be obtained to share a test report, the candidate would be able to transpose the information into an ABAA template and exclude items that would identify the building or other sensitive information. A copy of the ABAA report template can be found in Appendix A.

If the candidate does not have the minimum of fifteen (15) reports or does not have five (5) roles per option, they can elect to have a practical evaluation performed in lieu of this requirement.

Details on what is assessed and the weighting for the practical examination can be found in Section 6.5

5.9 Job Task Analysis

The written exam (and practical) is based on a Job Task Analysis of the air barrier and blower door testing industry. The critical tasks performed by individuals consist of:

Function A – Reasons for blower door testing

A.1.1 Explain reasons for conducting whole building testing.
A.1.2 Determine the purpose of a building envelope test.
A.1.3 Show what information is provided by an operational envelope test verses a building envelope test.
A.1.4 Provide a reason to conduct each of the several types of tests.

Function B – Types of blower door testing

B.1.1 State why a multipoint regression test is conducted.
B.1.2 Evaluate the benefits of a single point test.
B.1.3 Detail a repeated two-point test.
B.1.4 Determine test pressures.
B.1.5 Recall the pressures across the building envelope used when conducting a test.
B.1.6 Give the reported results at the specified test pressure.
B.1.7 Identify what can be used as air-moving equipment for performing blower door testing.
B.1.8 Relate the purpose and requirements for pressure gauges.
B.1.9 Express the purpose and requirements for airflow measuring devices.
B.2.0 Select an appropriate temperature measuring device.
B.2.1 Defend the requirements for calibration.
B.2.2 Contrast the difference between an operation envelope versus a building envelope test.
B.2.3 Compare different test types (whole building, unguarded unit, guarded unit test, full building multizone (garden style units).

B.2.4 Provide a reason to conduct a pressurization test, a depressurization test, or to conduct both tests. Compare and contrast the reasons for the test including why the results would be different.
B.2.5 Differentiate between regression, single point, and two-point test methods.
B.2.6 List the several types of tests required based on code compliance, programs, test standards, or contract specifications.
B.2.7 Identify air barrier boundaries on architectural drawings and calculate envelope area.
B.2.8 Characterize how mechanical system operation will impact the test.
B.2.9 Show location of boundaries on floor plan.
B.3.0 List ancillary spaces.
B.3.1 Identify type and location of HVAC equipment.
B.3.2 Locate intentional mechanical openings and determine if they should be sealed off for the test.

Function C – Preparation for blower door testing

C.1.1 Cite what needs to be coordinated with the building owner/representative.
C.1.2 Calculate number of fans required.
C.1.3 Determine the best location for blower door fans.
C.1.4 List equipment requirements and quantities (fan units, materials for sealing intentional openings, etc.)
C.1.5 Study expected test day weather conditions.
C.1.6 Characterize building readiness.
C.1.7 Detail mechanical equipment operational status.
C.1.8 Compile building preparation requirements.
C.1.9 Detail health and safety considerations when conducting a test.

Function D – Conducting the blower door test

D.1.1 Describe setting up the equipment to conduct a test, including, but not limited to tubing layout, network connections between test equipment and computer, manometer locations, testing software configuration.

Function E – Results of the blower door test

E.1.1 Calculate and interpret the results for a single point test and a two-point test.
E.1.2 Demonstrate use of software application to complete a multipoint test and create a report that includes timestamp, and pass/fail results.

Function F – Report on the blower door test

F.1.1 Complete a test report accurately and according to the applicable testing standard(s), such as ASTM 3158.

6.0 Written and Practical Exams

Each Level will have its own exam. The number of questions and the main functions candidates will be assessed on is based on a critical task review.

6.1 Level I Exam Weighting:

The critical tasks that are required to be performed have been determined and a level of importance has been established. The written exam will be weighted in accordance with the table below. The Level I exam is knowledge based.

Knowledge and Skill Area	Weighting
Reasons for blower door testing	2%
Building science	5%
Understanding project specifications and requirements	5%
Regional and industry standards for whole building blower door testing and air leakage	5%
Building codes for whole building testing and air leakage	3%
Construction site safety and testing logistics	5%
Understand how whole building airtightness testing part of a commissioning program for the building envelope	5%
Types of blower door testing	7%
Preparation for blower door testing	15%
Conducting the blower door test	35%
Determining and interpreting the results of the blower door test	8%
Report writing	5%

6.2 Level II Exam Weighting:

The critical tasks that are required to be performed have been determined and a level of importance has been established. The written exam will be weighted in accordance with the table below. The Level 2 exam is knowledge and skill based.

Knowledge and Skill Area	Weighting
Building science	10%
Regional and industry standards for whole building blower door testing and air leakage	5%
Advanced Construction site safety and testing logistics	5%
Types of blower door testing	15%
Advanced Planning for blower door testing	15%
Preparation and conducting the blower door test	25%
Determining and interpreting the results of the blower door test	10%
Report writing	5%

6.3 Written Exam Details

The written exam is delivered online and is proctored.

The examination is currently delivered in English only. Other languages will be available in the future.

Individuals wishing to have the exam administered orally are required to arrange this with ABAA as a special request.

The types of questions/tests include the following.

a. **Knowledge**
   Knowledge questions will be multiple choice with one right answer and three wrong answers.

b. **Skills**
   Skill questions will be in written form on an exam and will pose a problem. An example is “Determine the envelope area of a building and determine the number of fans required for the test”. Information on the size of the building and the flow rate of the fans will be provided in the question.

c. Abilities

Abilities are determined through a practical exam. For a Blower Door Technician, the practical test is to conduct a whole building airtightness test. Once the test starts, there is no communication between the applicant and the proctor. The exam is set up to remove subjectivity with responses on whether a task is completed being limited to only Yes or No.

The questions in the written exam have been developed at a Grade 12 English language level.

The number of questions for each subject will be based upon the criteria established for the certification.

The Level I exam will have 200 questions. The time allowed to take the exam for Level I will be 4 hours.

The Level II exam will have fifty (50) questions. The time allowed to take the exam for Level II is four (4) hours.

The passing mark for written examinations (Level I and Level II) is eighty percent (80%). The exam is closed book and candidates are not allowed to use training manuals, notes, presentations, or documents when writing the exam.

The written exam is administered via an online Learning Management System proctoring platform and proctored through a 3rd party vendor called Integrity Advocate. The web-based program determines whether the answers are correct or not and candidates will be advised whether they have passed or not at the end of the exam.

Prior to taking the online exam with Integrity Advocate, it is suggested candidates review our website to understand the process and expectations.

Click here: Exam Day - What to Expect

There is **no limit** to the number of times individuals may take the exam. To retake the written exam, the candidate will simply need to pay an exam retake fee to obtain a new code. There is no wait time before taking the exam again.

A bank of questions will be used for each of the exam sections. Each question will be assigned a unique number in the question bank. The exam questions will be

rotated on a regular basis. Each section will have the questions changed and/or the answers rotated on a regular basis.

New questions developed for the exam are added to the question bank on a regular basis.

6.4 Exam Integrity

To ensure the integrity of the *Blower Door Technician* certification program, specific measures are enforced during the administration of the exam.

Exam questions and answers are the exclusive property of the ABAA certification program.

The examination and the items (questions and answers) are protected by copyright law. The exam may not be copied or reproduced in part or in whole, by any means whatsoever.

Discussion or disclosure of the content of the exam, orally or in writing, or by other means, is prohibited.

As part of the process that is required before the candidate takes the exam, they agree to a confidentiality statement, which prohibits disclosure of the exam contents. Failure to comply with the agreement will void the candidate's certification, and they may be barred from retaking the exam. Candidates will be required to have a government issued ID available as part of a verification process to start the exam.

Theft or attempted theft of exam items is fully punishable by the law.

Fraud, deceit, dishonesty, or other irregular behavior in connection with taking the exam is strictly prohibited. Irregular behavior includes, but is not limited to, copying or allowing the copying of examination content, failing to work independently, possessing unauthorized devices or source materials, surrogate testing or other dishonest conduct, disrupting other examinees, and possessing, reproducing, or disclosing exam questions, answers, or other information regarding the content of the examination.

Communication with other people or with outside sources by way of telephone, personal computer, internet, or other means during the exam is prohibited.

6.5 Practical Exam

For candidates that wish to take the practical examination as an option, the following outline summarizes the requirements, time limits, location and passing rate:

Exam Weighting for Practical Exam

The critical tasks that are required to be performed have been determined and a level of importance has been established. The practical exam will be weighted in accordance with the table below. The practical exam is knowledge, skills and abilities based.

Exam weighting for practical evaluation:

Knowledge and Skill Area	Weighting
Develop the test plan and it is correct for the building being testing	30%
Proper safety	2%
Document weather conditions	2%
Reviewed and confirmation that Combustion safety has been addressed and HVAC related items are addressed	8%
Verify enclosure readiness	2%
Equipment setup	20%
Envelope / mechanical preparation – materials and installation	20%
Data entry as per test plan and pertaining to test site and site conditions	2%
Pressure test	5%
Depressurization test	5%
Evaluation of Data	2%
Return building to operation	1%

Candidates will have a six (6) hour time limit to complete the practical evaluation. These exams will be conducted at a specific building at an ABAA approved location. Other buildings may be options but would require the proposed building to be approved in advance. Contact ABAA for additional details.

The passing rate for the exam will be 80%.

The practical evaluation will be conducted by ABAA approved proctors who have experience in performing large building testing in accordance with various test

standards. These proctors will undertake training to perform the practical evaluation and will be overseen by the Director of Certification. Practical evaluation reports submitted by approved proctors will go through a quality control review by ABAA for acceptance.

Candidates will have an option to choose which test standard they will use when conducting the test on the building. Equipment will be available on-site by ABAA when the evaluation is done at the South Seattle Community College and the candidate can choose whichever equipment they would like to use for the test.

6.6 Preparing for the Exams

Exam preparation: keys to success

a. Review the learning essentials

The candidate should review the full outline of the *Critical Tasks Performed* and determine if they understand each of them. Candidates for certification should take a close look at the recommended qualifications and review the content areas of the exam and the sample questions to determine whether they feel they are ready to take the exam.

Individuals need to understand and be familiar with the requirements, submittals, technologies, and strategies before taking the written examination.

Individuals should assess if they should take the ABAA Blower Door Training Program or blower door manufacturers training.

Individuals should determine if they wish to purchase the ABAA *Blower Door Technician* Training Manual to assist in their study and exam preparation.

Written examination sample questions:

Level I exam samples:

Q1: When conducting a pressurized whole building test, what may happen to dampers and louvers?

a. They are pushed open.
b. They change the turbulent flow of air.

c. They are drawn closed.
d. They decrease the air leakage rate.

Q2: On a cube shaped building, where is the highest indoor/outdoor pressure differential caused by the wind?

a. Top, leeward side, at the corner.
b. Leeward side at ground level.
c. Windward side at ground level.
d. Top, windward side at the corner.

Level II exam samples:

Q1: Based on the attached set of architectural plans, identify the total enclosure area.

Q2: In ASTM E3158, for the multi-point regression test, if r^2 is specified, the value needs to be equal to or greater than what value?

a. 0.98
b. 0.95
c. 0.93
d. 0.90

b. Reference materials

ABAA offers a *Blower Door Technician* training manual to assist in candidates learning. It is available for purchase when a candidate registers. If the candidate attends the ABAA training program, a copy is provided to the candidate as part of the course. Everyone can make the decision whether they would like to obtain the study guide when they register if they do not intend to take the ABAA training program. The manual will be available as a digital download.

While obtaining a training manual can be helpful, this does not guarantee a passing score on the exam and the training manual is not a review of the questions that are on the exam. It can help the candidate to learn more about the fundamentals of whole building airtightness testing.

Individuals need to possess a copy of *ASTM E3158 - Standard Test Method for Measuring the Air Leakage Rate of a Large or Multizone Building* as a minimum

regarding testing standards. Other test methods such as *ASTM E779 - Standard Test Method for Determining Air Leakage Rate by Fan Pressurization* and ASTM E 1827 *Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door* would be helpful as well.

7.0 Certification Process

7.1 Before Registration

Step 1 - Ensure the candidate has the latest version of this Handbook by downloading it from the ABAA website. Click here to main page: Certification Page

Step 2 - Read information contained in this Handbook in its entirety.

Step 3 - Refer to the job task listing and exam weighting to be sure that the candidate understands and can perform the critical tasks required of *Certified Blower Door Technician.*

Step 4 - Obtain reference materials required for the examination and study these references well in advance of taking the examination.

Step 5 – Assess if further training is required.

7.2 Registration

Once a candidate has made the decision to apply for certification to be a *Certified Blower Door Technician,* they will need to complete the registration process. The ABAA website has program information and a registration page. Candidate can click here to be directed to page: Registration

7.3 Certification Agreement

Part of the registration process includes candidates signing a certification agreement. This agreement outlines the candidates' obligations for certification and for the use of the ABAA registered trademark. The candidate agrees to the requirements set forth in the agreement, so read it carefully.

7.4 Digital color photo

A digital photograph is required so that the candidate can be provided with a digital certification card. The candidate should provide a headshot from the shoulders up, use clear lighting, in front of a plain background (i.e., passport-style photo) with no obstructions to the face. The candidate can upload their headshot to ABAA's learning management system or email it to ABAA directly.

7.5 Level I certified individuals that wish to obtain Level II

If a candidate is currently certified as a Level I, to obtain Level II status, the candidate will be required to submit either:

15 whole building airtightness reports as outlined in SECTION 5.8 OR complete and pass a practical evaluation.

AND

Complete and pass a Level II exam.

7.6 Costs

The *Blower Door Technician* certification fee must be paid in advance of taking the exam. The certification fee covers the initial registration, a proctored written exam for the knowledge and skills and a practicum exam at a set location.

	Level I		Level II			
	Track A	Track B	Track A	Track B	Track C	Track D
	Member (Non-Member)	Member (Non-Member)	Member (Non-Member)	Member (Non-Member)	Member (Non-Member)	Member (Non-Member)
Program Certification	$495 ($695)	$495 ($695)	$595 ($895)	$595 ($895)	$595 ($895)	$595 ($895)
Training Manual	$195 ($250)	$195 ($250)	$195 ($250)	$195 ($250)	$195 ($250)	$195 ($250)
Exam Re-write	$200 ($250)	$200 ($250)	$200 ($250)	$200 ($250)	$200 ($250)	$200 ($250)
Annual Maintenance Renewal	$150 ($175)	$150 ($175)	$150 ($175)	$150 ($175)	$150 ($175)	$150 ($175)
Recertification	$250 ($300)	$250 ($300)	$250 ($300)	$250 ($300)	$250 ($300)	$250 ($300)
Practical Evaluation	Contact ABAA for Pricing					

In cases where the written exam needs to be retaken, there is a fee of **$200 ($250 for non-members)** for each additional time the exam is taken.

Examination fees cover the costs of certification administration, exam development, the exam improvement process in accordance with ISO 17024, documentation, and the ISO 17024 delivery platform.

For practical evaluations, the cost will have various factors and we ask that candidates please contact the ABAA office for an estimate. The costs will cover fees for a 3rd party approved proctor, along with the related costs for a facility, providing blower door test equipment and program administration.

7.7 Process Completed

Once the candidate has completed the process the candidate will receive a certificate and digital identification card. The candidate may indicate *Whole Building Airtightness Testing - Blower Door Technician* credentials by displaying ***WBAT-BDT*** on business cards or other such documents.

7.8 Duplicate Certificates

Certificates will be provided approximately four to six weeks after the exam date. If a certificate arrives damaged, with an incorrect name or spelling or does not arrive, the certificate or card will be replaced free of charge.

Please email ABAA at abaa@airbarrier.org to request a certificate.

In the event a certified individual loses the certificate, needs a replacement, or would like a duplicate certificate, the certified individual should forward this request by email to abaa@airbarrier.org.

There is a **$50 fee** for processing the replacement certificate. The fee is to be submitted with the candidate's request. Replacement certificates are processed monthly.

8.0 Withdrawal of Certification

Should the *Certified Blower Door Technician* not maintain or not continue to prove competence to the satisfaction of the certification program, the certification is withdrawn. In the event the certification is to be withdrawn, the Certification Manager reviews the individual's record and provides a written statement on steps that are required for the certification to be reinstated.

Reasons for withdrawal of an individual certification include, but are not limited to:

1. Failing an exam.
2. Misuse of the certification.
3. Not completing annual maintenance.
4. Not completing recertification process.

9.0 Annual Maintenance Renewal and Criteria

The *Certified Blower Door Technician* is required to maintain their certification every year.

9.1 Level I renewal process:

The **renewal** process includes, but not be limited to, the following items:

a. File review by ABAA for complaints, ensure information is up-to-date and requirements are being met.

b. Obtain two (2) ABAA or ABAA-approved education providers courses or continuing educational units (CEUs) that focus on airtightness testing OR the building envelope and provide proof (copy of the attendance certificate or other means acceptable to ABAA) that they were obtained during the past year.

c. Provide one (1) copy of a multi-point whole building airtightness test report (based on ASTM 779, ASTM 3158, ASTM 1827 or equivalent) for a building with a minimum twenty thousand (20,000) sq.ft. of building envelope area completed within the past year. In the test report, the candidate must be executing or overseeing each of the following tasks:

- Test Planning
- Building preparation
- Equipment set up
- Test data collection
- Report generation

d. Pay the $100 maintenance renewal fee ($150 non-member fee).

9.2 Level II renewal process

a. File review by ABAA of complaints, ensure information is up-to-date and requirements are being met.

b. Obtain two (2) ABAA or ABAA approved education providers courses or continuing educational units (CEUs) that focus on airtightness testing OR the building envelope and provide proof (copy of the attendance certificate or other means acceptable to ABAA) that they were obtained during the past year.

c. Provide a copy of a multi-point whole building airtightness test report (based on ASTM 779, ASTM 3158, ASTM 1827 or equivalent) for a building with a minimum fifty thousand (50,000) sq.ft. of building envelope area within the past year. In the test report, the candidate must be executing or overseeing each of the following tasks:

- Test Planning
- Building preparation
- Equipment set up
- Test data collection
- Report generation

d. Pay the $150 maintenance renewal fee ($175 non-member fee).

10.0 Reinstatement of Lapsed Certification

If a certified individual neglects to renew, the certification is considered lapsed. When this occurs, the individual must stop using the certification or the certification mark and references to being certified. A lapsed certification is a null and void certification.

Reinstatement of the individual's certification after it has lapsed is permitted by paying a reinstatement fee and providing proof of the CEUs obtained and a copy of the test reports required for each year they were not renewed. If a person has not renewed their certification for a period of five years, they are considered uncertified and must start the certification process again.

11.0 Recertification

The Certified *Blower Door Technician* needs to be recertified by the end of every fifth (5th) year. The purpose of recertification is to confirm the continued competence of the certified person. Recertification considers changes to normative documents, changes in the certification scheme, the maturity of the industry, and the ongoing changes in technology.

The **recertification** process includes but will not be limited to the following items:

a. File review for complaints, ensure information is up-to-date and requirements are being met.

b. Individual obtaining ten (10) continuing education units that focus on airtightness testing OR building envelope (provide certificates for two (2) CEUs for each of the five renewal periods).

c. Provide a copy of reports for five blower door tests conducted by the person within the past five (5) years (Note: conducting a test means more than just data collection and analysis).

d. Attend an ABAA recertification course.

e. Successfully completed a written exam.

f. Pay a recertification fee ($250 members $300 for non-members).

If yearly renewals have been completed for the previous 5 years, only the examination, recertification course and fees will be required to recertify.

The recertification requirements for individuals must be completed prior to re-issuance of the certification. For individuals that do not meet the recertification requirements, the certification is withdrawn immediately, and they are notified.

12.0 Complaint Resolution

Complaints on the certification process are to be submitted in writing. Such complaints need to be regarding non-compliance with the certification program as outlined in this handbook. Complaints about issues outside the certification procedures or the exam will not be responded to or addressed.

When a complaint is received, the certification director reviews the complaint, gathers the facts on the complaint, and tries to resolve the complaint. The complaint and the response are documented.

A written response is provided to all properly filed complaints.

Should an individual disagree with the written response by the certification director, the individual has the right to request a review. This request must be made in writing. The certification director will provide documents on the review board for consideration and decision.

If the individual does not agree with the review board's decision on the complaint, a request in writing can be made to have the complaint reviewed by an independent commissioner. A deposit of $2,000 is required from the individual for the independent commissioner's hearing. Should the independent commissioner rule in favor of the individual, the $2,000 deposit is returned; however, if the independent commissioner does not rule in favor of the individual, then the $2,000 deposit is kept by the certification body to offset the costs of the hearing.

The individual also has the right to lodge a complaint with the certification accreditation organization. The complaint can only deal with a failure to follow this certification handbook.

Send correspondence via email **abaa@airbarrier.org** or via mail to:

Air Barrier Association of America
1600 Boston-Providence Hwy
Walpole, MA 02081

13.0 Persons with Disabilities

For a person who has a disability, please contact the ABAA office to determine the most efficient way of taking the exam.

14.0 Examination Statistics

Data regarding the certification examination, including performance data, individual data, and demographic data, is held confidential unless officially released by the certification body. Individual scores are always confidential and only provided to the examinee. However, information on whether an individual is certified, and the type of certification is made available upon request and displayed on a website.

15.0 Individual Confidentiality

The ABAA recognizes candidates' rights to control personal information and, as such, will safeguard this information from unauthorized disclosure. To protect candidates' rights to control score distribution, examination scores are released only to the candidate and authorized staff of the certification body.

16.0 Hours of Operation

The certification program office business hours are between **8:00 am and 5:00 pm Central Standard Time, Monday to Friday (excluding holidays)**.

17.0 Frequently Asked Questions

A full list of FAQs can be found on the ABAA website. Please click here to access: Frequently Asked Questions

APPENDIX A – SAMPLE REPORT TEMPLATE

Sample Test Report A

Ryan Dalgleish
rdalgleish@airbarrier.org
Air Barrier Association of America
1600 Boston-Providence Hwy
Walpole MA 02081

DATE July 24, 2019

ABAA Training Facility Whole-Building Air Leakage Test Report

Dear Mr. Dalgleish,

We are pleased to provide you with this report for whole-building air leakage testing for the building known as ABAA Training Facility, located at 123 Olive Ave, Seattle, WA.

Summary

The building was tested to confirm conformance with 2015 Seattle Energy Code (2015 SEC). Testing was performed in general conformance with ASTM E3158-18, following the multipoint regression method with a reference pressure of 75Pa. The test was performed on July 17, 2019, and the weather at the time of the test was sunny with a temperature of 80°F and a maximum wind speed of 9 mph. The test was performed in both the depressurization and pressurization directions. The average air leakage rate of the two tests was 0.261 cfm/sf, which is below the maximum air leakage rate (0.30 cfm/sf) allowed by the 2015 SEC.

Building and Air Barrier System Description

The building consists of an existing four-story concrete and steel framed structure. The air barrier at vertical assemblies consists of a fluid-applied air/weather barrier with flashing membrane & sealant around penetrations and fenestration. The air barrier at roof assemblies consists of a torch-applied roof membrane on concrete decks. Fenestration consists of wood windows and aluminum skylights, and new curtain wall and point supported glazing. Diagrams describing the air barrier boundaries are included in Appendix A. A summary of the key building parameters for the air leakage test are provided in the Table below.

TABLE 1 BUILDING PARAMETERS	
Building Address	123 Olive Ave, Seattle, WA 98103
Building Elevation Above Sea Level	444 ft
Building Height Above Ground	48 ft - 8 in
Total Enclosure Volume	10,578,450 ft^3
Total Enclosure Surface Area	92,000 ft^2

Building Preparation and Test Procedure

The intentional openings were prepared in accordance with the Building Envelope test method in shown in Table 1 of ASTM E3158-18, with all HVAC systems shut off and exterior air supply and exhaust dampers closed.

All interior doors were opened to allow for testing the entire building as a single-zone, and the pressure uniformity throughout the building was verified to be within 10% of the average induced pressure at the following locations: Level 1, Level 2, and Level 3.

The test followed the procedure outlined in section 10.1 of ASTM E3158-18, which is a multi-point test procedure. The test was performed in both the depressurization and pressurization directions

Sample Test Report A (cont.)

using computer-controlled fan-door systems manufactured by Retrotec. The fans are dispersed for even pressure distribution throughout the building. The interior pressure was measured at 3 different locations throughout the building. Exterior pressure was measured at Level 1 at the east elevation. Adequate pressure (80 Pa) was achieved throughout the building. Further information regarding the test methodology is provided in Appendix B. Further information regarding the equipment used and the calibration information for the equipment is provided in Appendix C.

Test Results and Discussion

The test was performed on July 17, 2019. The staff involved in the test are provided below:

- Test Lead: [redacted]
- [redacted], [redacted], [redacted]

The weather during the test was sunny with a temperature of 80°F and a maximum wind speed of 9 mph. The weather conditions are within the recommended limitations of the standard.

A total of 12 baseline points before and after the test were taken for 10 seconds each. The baseline pressures were all within the limitations of the standard. A total of 12 induced pressure points were taken for 20 seconds for the depressurization test and 11 points were taken for the pressurization test. A summary of the test results is provided in the Table below. Full details of the test results are provided in Appendix B.

TABLE 2 - SUMMARY OF AIR LEAKAGE TEST RESULTS CFM/FT2

Test Condition	Enclosure Airtightness cfm/ft^2@75Pa	Equivalent Leakage Area ft^2 @ 75Pa	Air Leakage Test Coefficient (C) cfm/Pa^n	Flow Exponent (n)	Test Data Correlation (R^2)
Depressurize:	0.255	17.5	1651.3	0.61	0.996
Pressurize:	0.267	18.3	1900.2	0.592	0.993
Average:	0.261	17.9			
Referenced Performance Requirements & Standard Values:	< 0.40	N/A	N/A	0.45 to 0.85	> 0.98

Overall, the test results indicate a high level of airtightness has been achieved (0.261 cfm/ft^2 at 75 Pa), which is lower than the code maximum of 0.3 cfm/ft^2 at 75 Pa.

Yours truly,

[redacted]
Airtightness Test Technician
[redacted]@[redacted].com
555-555-5555
[redacted]

List of Appendices

A - Air Barrier Boundary and Test Equipment Locations

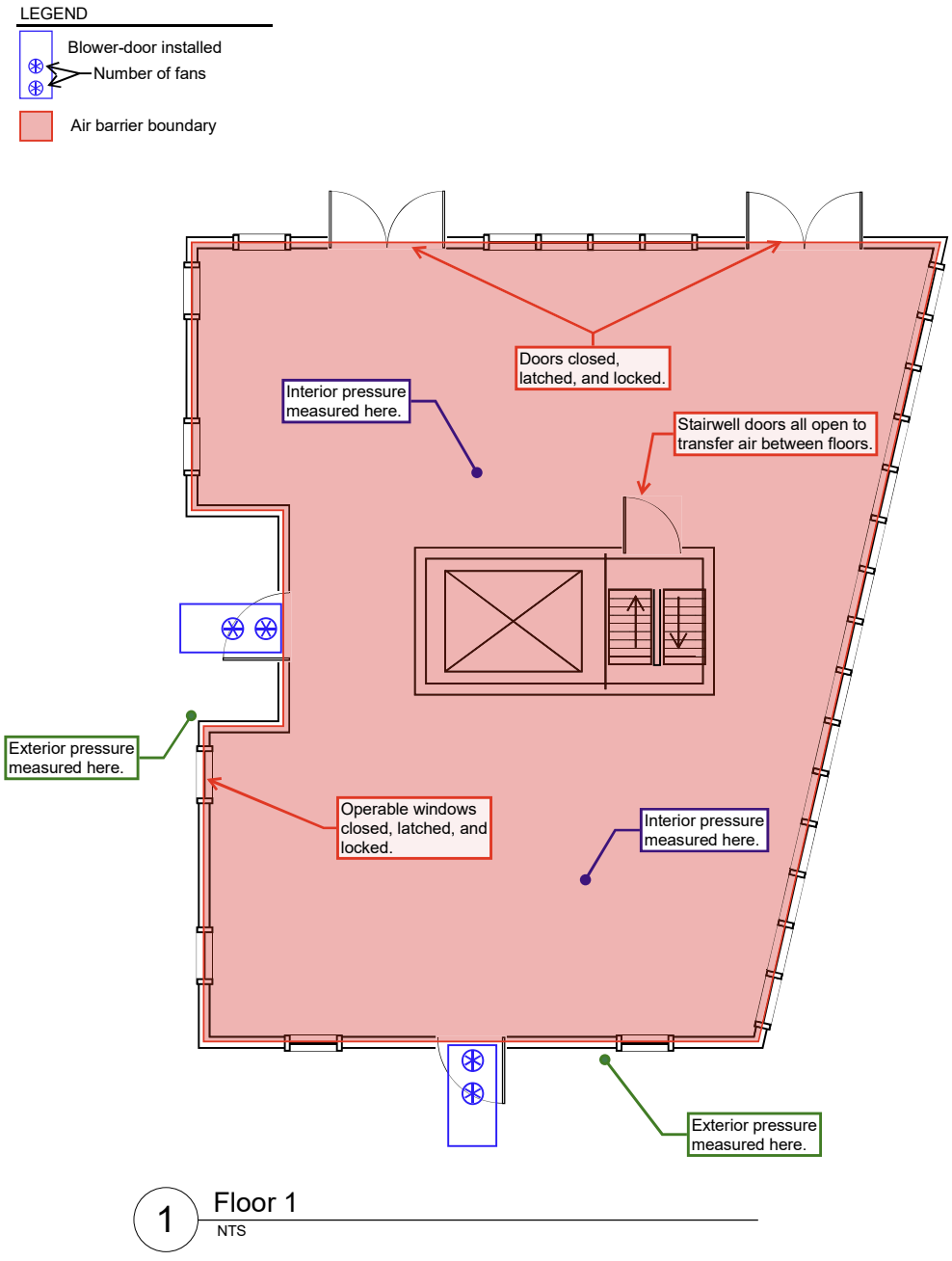
B – Description of Test Methodology and Test Data

C – Equipment and Calibration Information

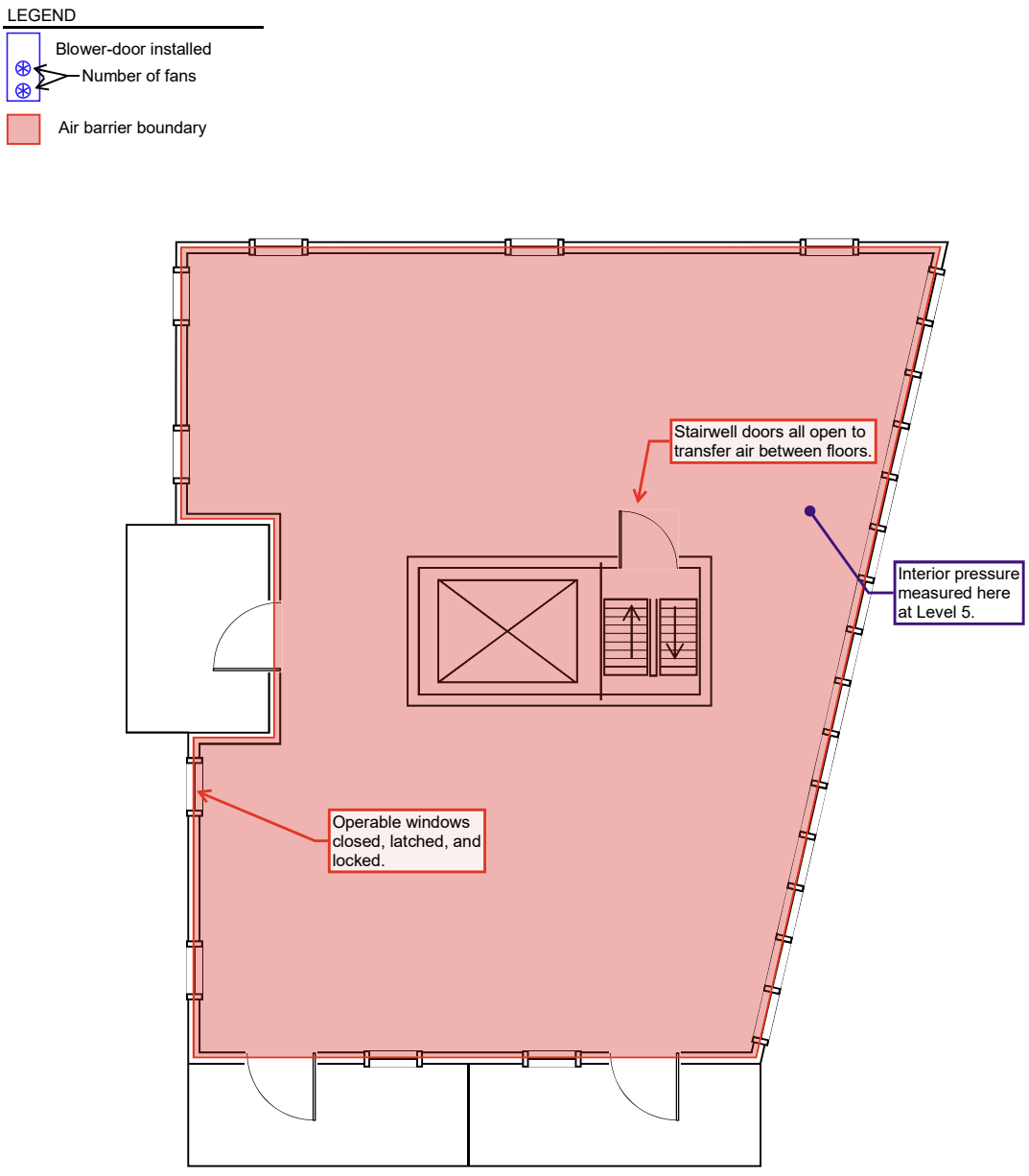
Sample Test Report A (cont.)

Appendix A

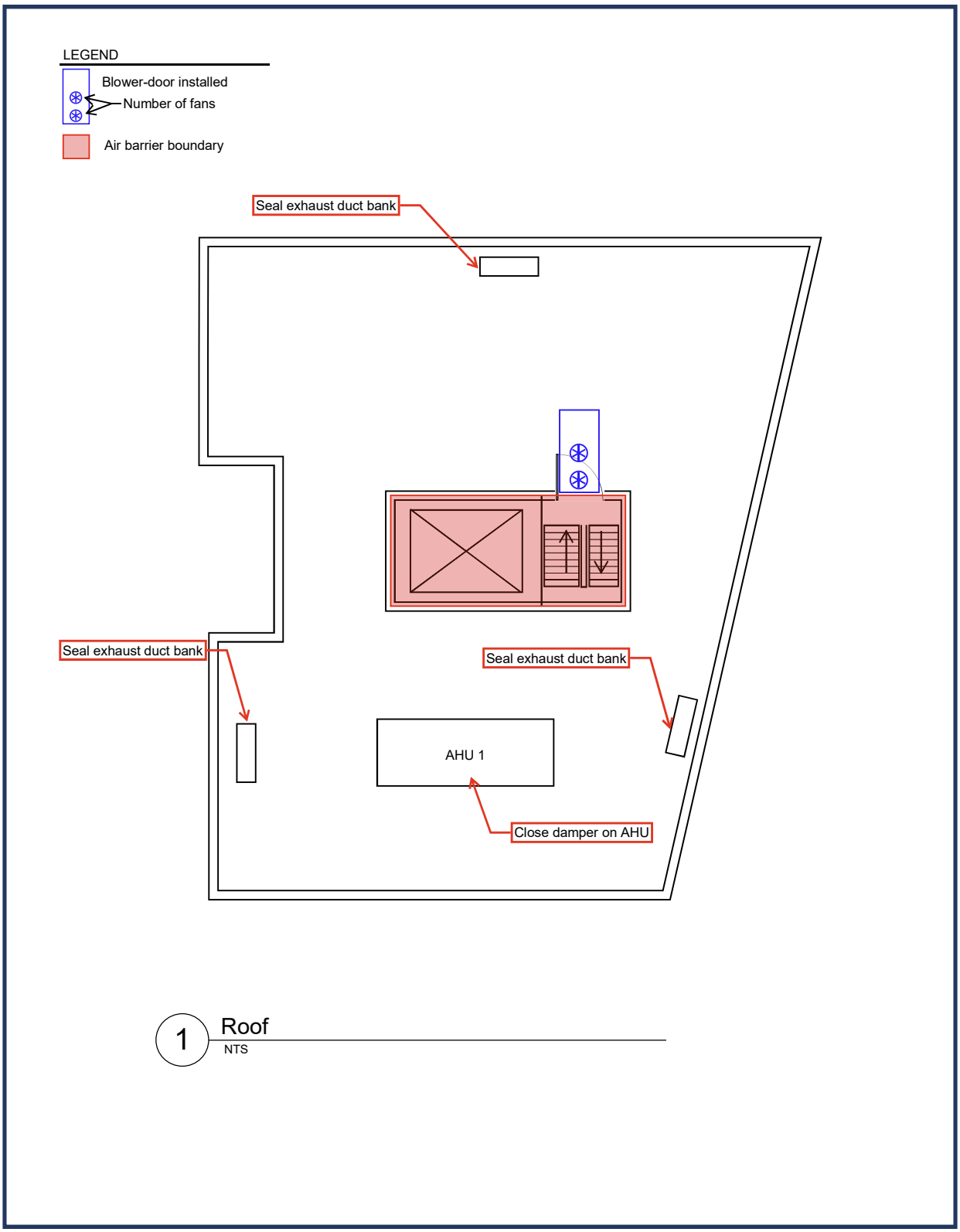
Air Barrier Boundary and Test Equipment Locations



Sample Test Report A (cont.)



Sample Test Report A (cont.)



Appendix B

Description of Test Methodology and Test Data

Building Preparation

The building air barrier system is substantially complete at the time of the test. The interior finishes/partition walls are generally complete with drywall installed, and the interior doors are opened to allow for airflow between spaces.

The intentional openings in the building enclosure were prepared as specified in Section 4.8.2 of the USACE test protocol, with all HVAC systems shut off and exterior air supply and exhaust dampers closed. The plumbing traps were filled. No masking was required, as the dampers sufficiently sealed all intentional openings through the building envelope.

Test Procedure and Results

The test procedure followed the USACE protocol, which is a multi-point test. The test involves taking 12 baseline points before and after the test, as well as a minimum of 10 points during both the depressurization and pressurization tests. The minimum induced pressure is to be 40 Pa and the highest measured pressure is to be greater than 75 Pa. The data from the test performed is provided in the tables below.

Weather: 80°F/C, 9 mph, Sun

Building Elevation Above Sea Level: 444.3 ft

Note: the fans were located on Levels 1, 2, and 3, and the “Variation from building average fan # [%]” row is the verification of pressure uniformity.

Building Preparation

The building air barrier system is substantially complete at the time of the test. The interior finishes/partition walls are generally complete with drywall installed, and the interior doors are opened to allow for airflow between spaces

The intentional openings in the building enclosure were prepared as noted in Table 1 in ASTM E3158-18 for a “Building Envelope” test with the exceptions noted in the Building Preparation section of this report. The location of the masking for the intentional openings where masking was required and additional comments regarding the preparation of the intentional openings is provided in the Table below.

TABLE B1 MASKING AND ADDITIONAL PREPARATION NOTES

Item	Installation Status	Masking Location	Comments
Bathroom Vents	Complete	Interior	Masking installed over fan in the bathroom.
Kitchen Range Hoods	In-progress	Interior	Masking installed over the interior side of the incomplete duct.
Dryer Vents	In-progress	Interior	Masking installed over the interior side of the incomplete duct.
Fitness Room Vent	In-progress	Exterior	Masking installed over louver at the exterior.

Sample Test Report A (cont.)

Test Procedure and Results

The test procedure follows the multi-point test procedure outlined in ASTM E3158-18. The test involves taking baseline readings for at least 120s before and after the test, as well as a minimum of 10 induced pressure points for 20s each during the depressurization and pressurization tests. The lowest induced pressure must be at least 25Pa per the 2015 SEC, and the highest induced pressure must be at least 50Pa. The data from the test performed is provided in the tables below.

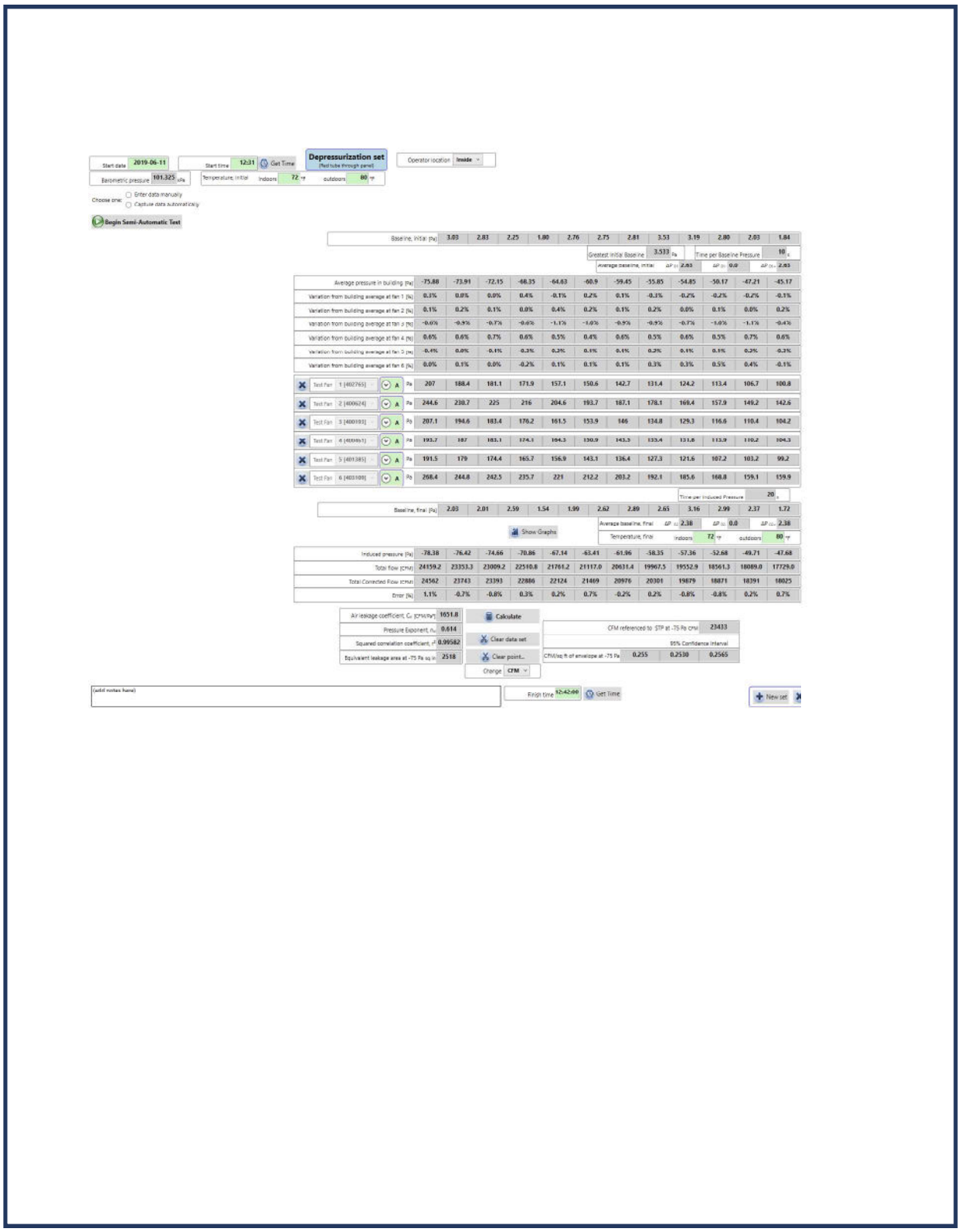
Weather: 80°F, 9mph, Sun

Building Elevation Above Sea Level: 444ft

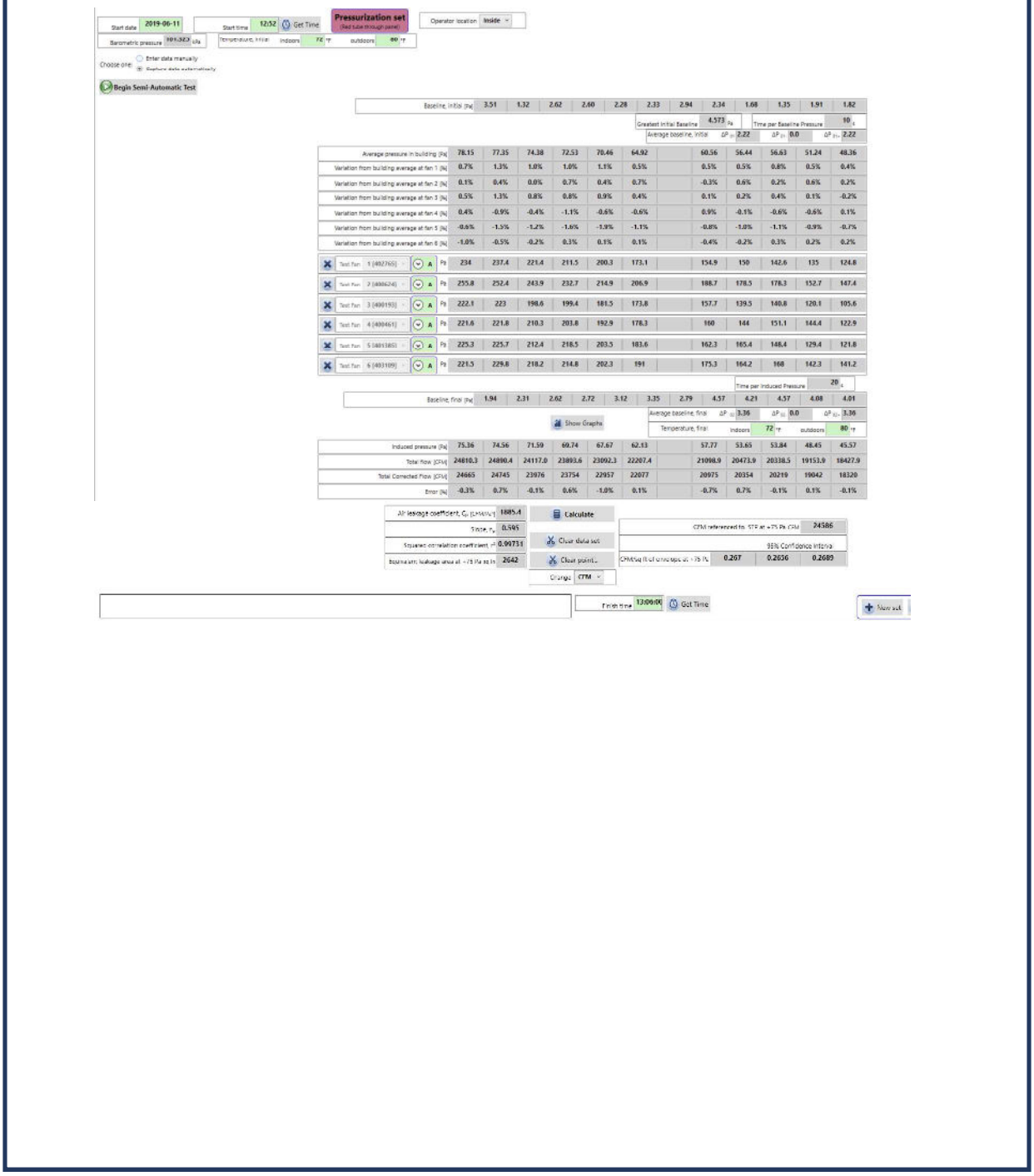
Note: the fans were located on Levels 1, 2, and 3, and the “Variation from building average fan # [%]” row is the verification of pressure uniformity.

Sample Test Report A (cont.)

Sample Test Report A (cont.)



Sample Test Report A (cont.)



Sample Test Report A (cont.)

Combined Test Data (Average Values)

	Mean	95% Confidence Interval lower	upper
Average CFM/sq ft of envelope at 75 Pa, CFM/sq ft @75Pa	0.261	0.259	0.263

Compliance Statement	
Min of 12 valid bias points before/after each dataset AND all less than 30% of min induced pressure	Yes
Minimum test pressure >=40 Pa AND highest >= 75 Pa and > 25 Pa over the minimum induced.	Yes
More than 10 test points over at least 10 seconds each per dataset	Yes
Correlation and slope within acceptable range per data set	Yes
Induced pressure variation does not exceed +/ -10 % of average of all fans	Yes

Average equivalent leakage area at 75 Pa	2570	sq in
Flow at 75 Pa, Q_{75} [CFM @ 75]	24000	

Appendix C

Equipment and Calibration Information

Fans

TABLE C1 LIST OF FANS USED FOR THE TEST		
Manufacturer and Model	**Serial Number**	**Calibration Date**
Retrotec DM32	123456	February 2012
Retrotec DM32	123457	February 2012
Retrotec DM32	123458	February 2012
Retrotec DM32	123459	October 2012
Retrotec DM32	123460	November 2012
Retrotec DM32	123461	January 2012

Note: Calibration is checked every 6 months in accordance with the manufacturer's recommendations. Documentation is available upon request.

Manometers

TABLE C1 LIST OF MANOMETERS USED FOR THE TEST		
Manufacturer and Model	**Serial Number**	**Calibration Date**
Retrotec 3000SR	FN1235	January 2017
Retrotec 3000SR	FN1236	February 2017
Retrotec 3000SR	FN1238	January 2017
Retrotec 3000SR	FN1345	November 2018
Retrotec 3000SR	FN1789	December 2018
Retrotec 3000SR	FN2357	December 2018

Note: Calibration is checked every 6 months in accordance with the manufacturer's recommendations. Documentation is available upon request.

Temperature-Measuring Device

TABLE C1 TEMPERATURE MEASURING DEVICE USED FOR THE TEST		
Manufacturer and Model	**Serial Number**	**Calibration Date**
Extech Environmental Meter 45170	793950451700	March 2019

APPENDIX B – PRACTICAL EXAMINATION FORM

air barrier
abaa
association of
america

ABAA Blower Door PRACTICAL EXAMINATION

1	Date:	
2	Candidate Name:	
3	Candidate Email:	
4	Company Name if employed:	
5	Company Contact Email if employed:	
6	ABAA Approved Evaluator:	
7	Time Started:	
8	Time Finished:	
9	Location:	

NOTE: DO NOT PROCEED WITH THE EVALUATION UNTIL THE FOLLOWING HAS BEEN COMPLETED:

1. VERIFY CANDIDATE BY PHOTO ID (DRIVER'S LICENSE/MILITARY ID/PASSPORT)

2. TAKE DIGITAL HEADSHOT PHOTO OF CANDIDATE (NO SUNGLASSES AND HATS ALLOWED)

NOTE: DO NOT SUBMIT COMPLETED PRACTICAL EVALUATION UNLESS ACCOMPANIED BY THE FOLLOWING ITEMS:

1. DIGITAL HEADSHOT PHOTO OF VERIFIED CANDIDATE

2. CANDIDATES TEST PLAN

3. CANDIDATE TEST REPORT RESULTS

4. PHOTO'S OF EVALUATION THAT ARE REQUIRED

Please answer Yes (Y) No (N) or not applicable (N/A) to the following questions during the practicum evaluation.

A) Development of Test Plan for Test Building (30% weighting)

SCOPE: Candidate's ability to develop a proper test plan

Photo Taken			Y	N	N/A
	1	Did the candidate calculate the enclosure area take-off correct?			
	2	Did the candidate identify the proper blower door equipment locations and the amount of fans required?			
	3	Did the candidate identify proper tubing layout for interior pressure uniformity and enclosure pressures?			
	4	Did the candidate identify HVAC system and how each one will be handled (masked vs damper closed versus left as is?			
N/A	5	Did the candidate identify power sources and the ability to handle the loads of the fans (volts/amps/circuits)?			

B) Proper Safety (2% weighting)

SCOPE: Candidate's ability to work in a safe manner

Photo Taken			Y	N	N/A
	1	Did the candidate secure doors and ensure fans equipment was stable?			
	2	Did the candidate identify fall hazards and use ladders safely?			

C) Weather Conditions (2'% weighting)

SCOPE: Candidate's ability to check and identify what is required prior to test

Photo Taken			Y	N	N/A
	1	Did the candidate check appropriate thermometer and allow it to read accurately?'			
	2	Did candidate take indoor and outdoor temperature readings?			
	3	Did candidate check wind speed and ensure it is within the parameters of the test standard?			

D) Combustion Safety (8% weighting)

SCOPE: Confirm HVAC and combustion safety are coordinated prior to the test

Photo Taken			Y	N	N/A
	1	Did the candidate coordinate with building maintenance staff and convey what dampers need to be closed off for mechanical and HVAC controls?			
	2	Did the candidate verify that building maintenance have completed required preparation?			
	3	Did candidate review mechanical drawings?			
	4	Did the candidate determine if it is sealed combustion or not?			

E) Verify enclosure readiness (2% weighting)

SCOPE: Candidate's ability to determine if building is prepared properly for testing

Photo Taken			Y	N	N/A
	1	Did the candidate wall the building and determine is items are missing or items are broken?			
	2	Did the candidate review all exterior doors, windows and air barrier completeness?			

F) Equipment Set-Up (20% weighting)

SCOPE: Candidate's ability ensure all equipment is set-up properly and is consistent with the test plan

Photo Taken			Y	N	N/A
	1	Did the candidate check calibration or indicate where to locate the certificate for both manometers and fans and ensure they are valid??			
	2	Did the candidate ensure the software configuration matches the equipment configuration?			
N/A	3	Did the candidate place the tubes in accordance with the test plan?			
	4	Did the candidate place the reference pressure tube in a proper location?			
	5	Did the candidate obtain individual reading from all the gauges?			

Photo Taken

G) Envelope and mechanical preparation (20% weighting)

SCOPE: Candidate's ability prepare the mechanical system and building envelope according to envelope test strategy

		Y	N	N/A
	1 Did the candidate ensure all exhaust fans and shut-off and sealed?			
	2 Did the candidate verify if the air handlers are shut-off and sealed			
	3 Did the candidate ensure all interior doors are propped open that were identified in the test plan?			
	4 Did the candidate ensure all exterior doors and windows are closed that were identified in test plan?			
	5 Did the candidate move drop ceiling panels to ensure uniform pressure throughout the building?			

Photo Taken

H) Data entry in accordance with test plan, test site and site conditions (2% weighting)

SCOPE: Candidate's ability to document data entry required based on test plan

		Y	N	N/A
	1 Did the candidate have the data required for the test plan that included: enclosure area, weather, indoor/outdoor temperate, wind speed and elevations?			

Photo Taken

I) Pressure Test (5% weighting)

SCOPE: Candidate's ability properly conduct a pressure test

		Y	N	N/A
	1 Did candidate collect sufficient base line readings (both pre and post) per the test plan?			
	2 Did the candidate ensure the minimum test pressure large enough, based on baseline ready per test standard?			
	3 Did the candidate ensure the number of data point are sufficient for test standard?			
	4 Did the candidate ensure the maximum test pressure is large enough for the test standard?			
	5 Did the candidate ensure the pressure uniformity is maintained at the highest pressure?			

J) Depressurization test (5% weighting)

SCOPE: Candidate's ability properly conduct a depressurization test

		Y	N	N/A
1	Did candidate collect sufficient base line readings (both pre and post) per the test plan?			
2	Did the candidate ensure the minimum test pressure large enough, based on baseline ready per test standard?			
3	Did the candidate ensure the number of data point are sufficient for test standard?			
4	Did the candidate ensure the maximum test pressure is large enough for the test standard?			
5	Did the candidate ensure the pressure uniformity is maintained at the highest pressure?			

K) Evaluation of Data (2% weighting)

SCOPE: Candidate's ability to properly evaluate the data

		Y	N	N/A
1	Did the candidate identify if the test passed or failed, based on the performance requirement?			
2	Did the candidate correlate the data			

L) Returning building to operation (2% weighting)

SCOPE: Candidate's ability to properly return building to pre-test operation

			Y	N	N/A
1	Did the candidate take down all the masking?				
2	Did the candidate coordinate with building maintenance to return HVAC to normal operating conditions?				
3	Did the candidate remove door stops used in test?				
4	Did the candidate return ceiling panels (if applicable)?				
		TOTAL	**0**	**0**	**0**

General Comments regarding the evaluation:

Evaluator: Please forward this form to the ABAA office for assessment.

Evaluation Declaration in regards to training: (Please check the appropriate box)

	I have not provided private or individual training to the person
	I have provided private or individual training to the person

If training was provided within the last 24 months, please provide additional information such as when the training took place, where the training took place, what exact training was provided and what steps did the evaluator take to manage the conflict

I confirm that I have conducted the practicum evaluation as per the Practicum Evaluation Process developed by ABAA (as updated from time to time) and do not have conflict of interest with the candidate.

ABAA Evaluator name:	
Date:	
ABAA Evaluator signature:	