



Installer SPF Certification

2021 Handbook Part 2 v1.0



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ABOUT THIS HANDBOOK

This is the second volume in Caliber's series of handbooks that outline the Caliber Quality Assurance Program. This volume outlines the certification process for those interested in becoming a certified spray polyurethane foam (SPF) installer.

WHO IS CALIBER?

Caliber QAP encompasses the processes, procedures and personnel to support the Site Quality Assurance Program (SQAP) for building product manufacturers. Caliber is responsible for all activities related to the certification of installers to provide assurance that they are trained, knowledgeable and skilled to install products.

We are dedicated to improving the quality of installation on sites and supporting confidence from all stakeholders in the construction industry. The majority of our services are provided to the spray polyurethane foam industry.

The certification body services are structured to conform to International Standard ISO/IEC 17024 – Conformity Assessment – General Requirements for Bodies Operating Certification of Persons.

OUTLINE OF THE SPF CERTIFICATION SCHEME

This handbook volume will outline the certification process for the individuals involved in the installation of spray polyurethane foam (SPF).

The National Building Code of Canada and the installation standard for the spray polyurethane foam product mandates that polyurethane foam installers be certified in order to install the product. The requirements to install the SPF consist of successfully completing a training course, a written examination, and a practical evaluation on the product that is being applied.

Spray polyurethane foam is a site-manufactured material that is supplied to the certified installer/contractor as two separate chemical components; the final quality of the product is directly related to the skills of the polyurethane foam sprayer. As the installation of the material is dependent on the installer, a site quality assurance program is required to provide assurance of compliance to installation standards to the property owner, authority having jurisdiction, and design professional or other entity directly involved in the installation of the material.

The process of installation requires specialized knowledge, skills, equipment, and aspects of the SPF

process including safety, an understanding of the related health and safety issues of handling chemicals, and the associated off-gassing of materials during installation and post-installation.

The certified installer is responsible for all aspects of on-site installation of the material including safe handling and storage of the material, proper isolation of the spray area, warning signs when spray is in progress, site housekeeping, and their own personal as well as the crew's health and safety.

This document does not purport to address all the health and safety aspects associated with its use. Anyone using the products has the responsibility to consult the appropriate authorities and to establish health and safety practices, in conjunction with any existing applicable regulatory requirements, prior to their use.

ESSENTIAL LEARNING & SKILLS

The essential learning task list shall be reviewed every five years by the Certification Scheme Committee.

The course content shall take into account a wide range of stakeholder interests including, but not limited to:

- Customers and end users
- Designers and architects
- Current certified candidates
- Spray polyurethane foam system manufacturers
- Equipment manufacturers
- Health and safety agencies
- Inspections and audits
- Feedback from trade associations and quality assurance agencies

IMPORTANT/CRITICAL TASKS PERFORMED

The certified installer has to demonstrate knowledge, skills, and competency in all the following essential learning areas:

- Spray polyurethane foam product knowledge
- Equipment and start-up procedures
- Environmental conditions
- Installation and application
- Job site preparation
- Job site health and safety
- Pre-installation verification
- Troubleshooting
- Building code
- Quality control

PRE-QUALIFICATIONS

Candidates who wish to be certified as a polyurethane foam installer must have a reasonable comprehension of one of the two Canadian official languages, English and French.

WRITTEN EXAMINATION

The written examination covers material from the essential learning task list.

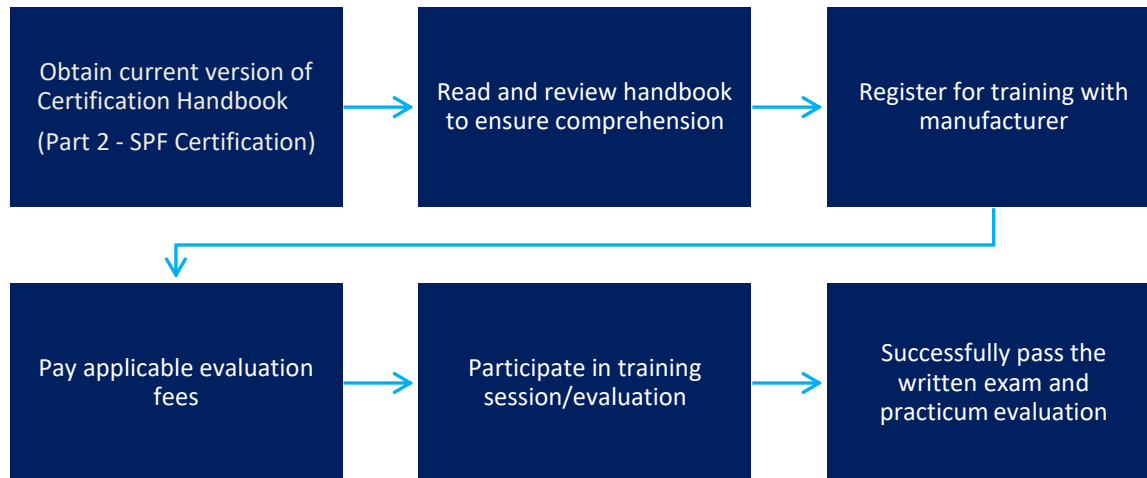
PRACTICAL EVALUATION

Once the polyurethane foam installer is ready to perform the practical evaluation, the polyurethane foam installer shall make arrangements with Caliber. The evaluation will be conducted at an approved training location, at the contractor's shop using a mock-up wall, or at a job site. The practical evaluation is intended to assess whether the installer has the practical knowledge and hands-on skills and abilities to install SPF.

TRAINING

Candidates must attend training programs offered by the product manufacturers.

HOW TO BECOME A CERTIFIED SPF INSTALLER

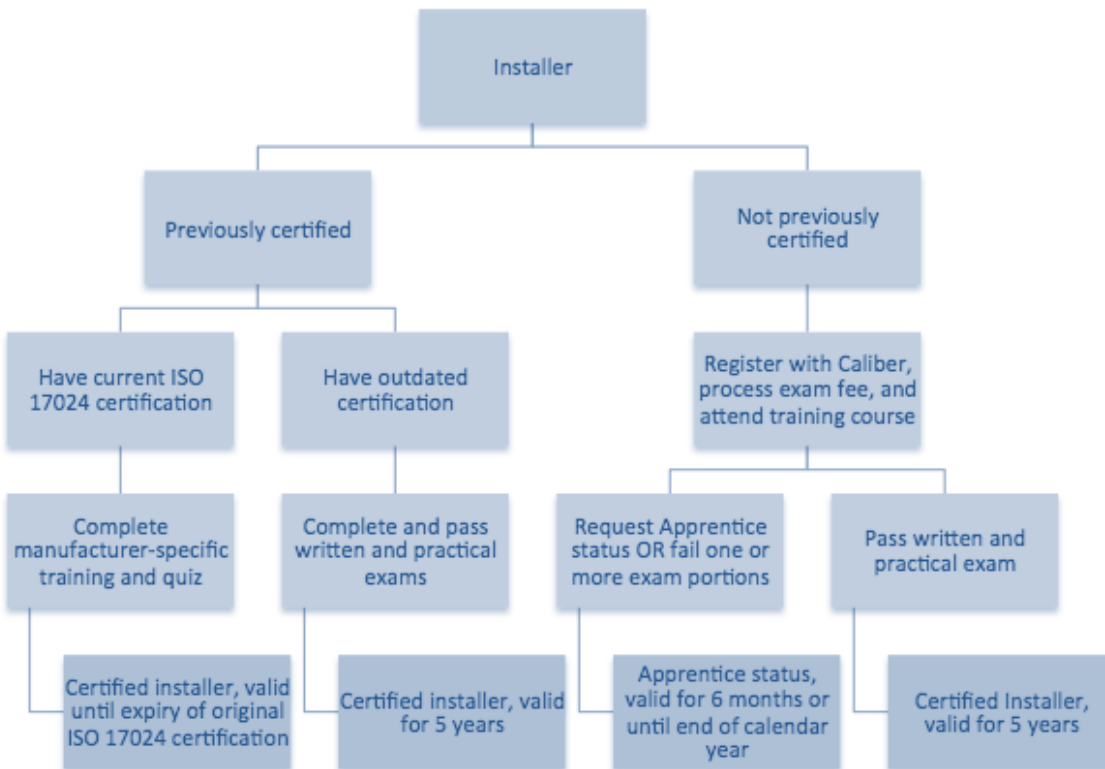


In order to achieve certification, each installer is required to complete the following:

1. Ensure that you have obtained the latest version of the SPF Installer Certification Handbook.
2. Read and review all information provided in the SPF Installer Certification Handbook.
3. Ensure that you understand and are capable of performing the tasks required as a certified SPF installer.
4. Register for training with the relevant spray foam manufacturer.
5. Pay applicable evaluation fees. Fees are as follows (excluding applicable taxes):
 - \$600 for evaluations at training centres or approved distributor locations
 - \$1000 for evaluations at job sites or contractor shops, based on Caliber's travel schedule.Prices do not include tax. Additional fees may apply for remote locations or urgent exams.
6. Attend the training course provided by the manufacturer.
7. Successfully pass the Caliber QAP written and practical examinations.

The manufacturer may send a technical field consultant to follow up with certified installers at the job site following the completion of the in-class training to provide additional hands-on training and/or review site equipment.

The certification path will differ for installers who currently hold certification status with another certification body or are seeking approved status with additional SPF manufacturers within Caliber QAP. See diagram below:



SPF INSTALLER CERTIFICATION

Spray polyurethane foam in Canada is a product that has been approved for use by the Canadian Construction Materials Centre (CCMC). As part of the CCMC approval, the foam manufacturer, as part of their field quality control assurance and training program, must ensure that the product has been installed by qualified, certified installers and that field evaluations are carried out by a third-party certification organization.

The SPF Installer Certification is intended to be an accredited certification compliant with ISO/IEC 17024 – General Requirements for Bodies Operating Certification of Persons. The Air Barrier System Installer Certification is not an accredited certification.

MANUFACTURER TRAINING COURSE

Candidates must attend an approved manufacturer training course consistent with the Caliber QAP certification scheme prior to completing the written exam and practical evaluation. Approved training courses are offered by the listed Caliber QAP SPF manufacturers.

TRAINING COURSE AND EXAMS REGISTRATION

Please check the manufacturer training schedule and register early to get your preferred date. The written exam is presented at the end of the in-class training course.

CANCELLING AND RESCHEDULING A TRAINING COURSE BY THE MANUFACTURER

The manufacturer reserves the right to cancel the training course no later than 10 business days prior to training. In cases of emergencies, the training course may either be delayed or cancelled. An unsafe or inaccessible training location due to severe weather or a natural disaster allows for cancellation of the training course. Individuals will be contacted by the manufacturer to reschedule their training course.

CANCELLING AND RESCHEDULING A TRAINING COURSE BY THE CANDIDATE

The candidate shall notify the manufacturer no later than 10 business days prior to training if they are unable to attend the previously confirmed training session. Cases of emergency will be taken into account and rescheduling permitted without penalty.

FAILURE TO ATTEND A SCHEDULED TRAINING COURSE

Failure to attend a registered training course will result in a penalty unless the training is rescheduled or cancelled according to policy. If the penalty for the previous missed training course is not settled, the individual will be excluded from future training courses.

All individuals seeking excused absences must submit written verification and supporting documents of the situation to the manufacturer within 5 business days of the original training course date.

If in case of an emergency on the day of the training you are unable to attend the scheduled training, you may be excused without penalty for the following reasons:

- Traffic accident
- Natural disaster or circumstances clearly outside the control of the candidate which make it legally or physically impossible for the candidate to attend the examination
- Documented illness for yourself or immediate family member (the candidate must immediately consult a recognized medical authority and obtain a medical note)
- Death in the immediate family
- Jury duty or court appearance
- Military duty

PERSON(S) WITH SPECIAL NEEDS

Caliber supports opportunities for participation by applicants with special needs. If an applicant has a special need that would prevent him/her from proceeding with the training or examination under standard conditions, that person should notify Caliber without delay.

WRITTEN EXAMINATION

ADMITTING THE CANDIDATES

Upon commencement of the written examination, candidates should enter and leave the training room through a single check-in point staffed by one or more proctors. Candidates will be required to present photo identification and sign the attendance sheet.

WHAT TO BRING

You must present a form of photo ID with signature. Be sure to register with the exact same name that will be presented as identification at the training location or you will not be allowed to take the exam. Please ensure that photo ID is not expired or you will not be allowed to take the exam. Examples of acceptable forms of photo ID are:

- Driver's license
- Passport

- Citizenship card
- Government-issued ID

EXAM ARRIVAL TIME

The candidate shall arrive 15 minutes prior to the scheduled exam session. Individuals who arrive at the exam location 30 minutes after their scheduled exam times may be considered absent at the discretion of the exam proctor.

KNOWLEDGE AREAS

The written exam covers critical areas of knowledge that each candidate is required to demonstrate. The written examination acts as documented proof of the polyurethane foam installer's knowledge of installation of the material in accordance with the manufacturer's quality assurance program and as per the CAN/ULC standard.

<i>Knowledge Area</i>	<i>Weighting (%)</i>
<i>Spray Polyurethane Foam Product Knowledge</i>	<i>20%</i>
<i>Equipment and Start-Up Procedures</i>	<i>10%</i>
<i>Installation and Application</i>	<i>30%</i>
<i>Job-Site Health & Safety</i>	<i>20%</i>
<i>Quality Control</i>	<i>10%</i>
<i>Codes & Standards</i>	<i>10%</i>

**The exam is available in English or French only.

EXAM QUESTIONS

Formatted as a multiple choice examination in order to maintain neutrality, the written examination shall consist of multiple choices in which one or more shall be true and the other ones false. The questions shall be in relation to the essential learning task list.

Sample Questions:

- 1 In regards to the spray polyurethane foam manufacturer, what is the role of Caliber?
- A. They provide training
 - B. They are the certification organization
 - C. They represent the manufacturer at the ULC level
 - D. They are the testing firm
- Answer: B**
- 2 If temperature _____ the viscosity of “A” & “B” thickens making it harder to pump (select the best answer).
- A. decreases
 - B. increases
 - C. cavitation
 - D. centipoise
- Answer: A**

TIME LENGTH

The time allotted for the written examination is 1 hour.

PASS MARK

The passing mark for the examination is 62% for the written exam. There are 50 multiple-choice questions on the written exam.

EXAM TYPE

This is a closed book examination. No material will be allowed during the examination.

DURING THE EXAM

All individuals taking the exam are required to remain seated during the examination period except when given permission to leave by the proctor. As you progress through the exam, answer every question presented even if you are unsure of your answer choices. All unanswered questions will be scored as incorrect.

REPORTING A PROBLEM DURING YOUR EXAM

Raise your hand to notify the examination proctor if:

- You encounter a problem during your exam such as bad lighting, excessive noise, uncomfortable temperatures, etc.

- You feel unwell and cannot continue the examination
- You see someone cheating
- You need to take a washroom break (please note that exam time will not be stopped)
- You need to leave the exam room for any other reason

ILLNESS DURING EXAMINATIONS

Candidates who feel that they cannot continue the examination should report this to the proctor and follow the steps below. The proctor will complete an incident report, which will be placed in the candidate's file.

- The candidate must immediately consult a recognized medical authority and obtain a medical note.
- The candidate must submit the medical note the next day, or as soon as possible, to Caliber.

INTERRUPTION OF AN EXAMINATION BY AN EXTERNAL EVENT

If there are any emergencies during an exam, including health issues that require an ambulance or security-related issues, notify the proctor immediately.

If the fire alarm sounds, the building must be evacuated immediately. Candidates must follow the proctor's directives and leave the classroom in a quick and orderly manner. Candidates must leave all examination material on their desk and leave their personal belongings behind.

The proctor will escort the students out of the building and keep the students together a safe distance away from the building until given instructions to return to the classroom. A decision to resume the final examination will be made by the proctor.

WRITTEN RE-EXAMINATION

If a candidate fails the training course written exam it is recommended they attend the training course once again. A training course fee may be applicable. There is no cost for one re-examination of the written exam. However, the candidate must wait a minimum of 10 days between re-examination

AFTER THE EXAM

Individuals who complete the examination and submit the exam paper before the end of the examination period must leave the examination room. You must leave the exam room quietly.

WRITTEN EXAMINATION SECURITY

To ensure the integrity of the certification program, specific measures are enforced during the proctoring of your exam.

- Any material brought into the examination room may be inspected.
- All content of the exams, including questions, answers, and diagrams where applicable, are the exclusive and confidential property of the manufacturer and Caliber.
- The examination questions and answers are protected by copyright law.
- The exam questions may not be copied, reproduced, modified, published, uploaded, posted, transmitted, or distributed in any way without the express authorization of the manufacturer and Caliber.
- You will be observed at all times while taking the exam. This may include direct observation by the examination proctor as well as audio and video recording of your exam session.
- Your participation in detrimental behavior during the training course and the exam may result in invalidation of the results of your examination and termination of your installer certification.
- Eating, drinking, and tobacco use are prohibited in the exam room.
- Unauthorized paper shall not be brought into or removed from the exam room.
- You may not leave the exam room without the examination proctor's permission.
- You must present acceptable photo ID to enter the exam room.

EXAMINATION IRREGULARITIES OR WRONGDOINGS

Although the exams are administered under strict supervision and security measures, examination irregularities may sometimes occur. Candidates and other persons who are directly implicated in an irregularity affecting the validity of examination scores are usually subject to sanctions including: the exclusion from examinations, the withholding or non-reporting of results, and even decertification. For a list of actions that constitute irregular behavior see the next section: Grounds for Dismissal from the Exam Location.

GROUNDS FOR EXAM LOCATION DISMISSAL

Candidates must take no action to compromise the integrity or confidentiality of the exam. The proctor is authorized to dismiss you from an examination room due to misconduct or failure to comply with warnings. In this case, Caliber may cancel your exam scores or take appropriate actions. You may be dismissed or subject to disciplinary action if there is a reasonable basis to conclude that you have engaged in any of the following conduct:

- Engaging in any dishonest or unethical conduct, such as cheating
- Utilizing an unauthorized copy of the exam
- Using or attempting to use someone else to take the exam
- Failing to provide acceptable personal identification
- Having access to notes or unauthorized material
- Giving or receiving unauthorized assistance of any kind during the exam or using any prohibited aids related to the exam
- Creating a disturbance of any kind (disruptive behavior in any form will not be tolerated; the proctor has sole discretion to determine whether specific conduct constitutes disruptive behavior)
- Removing or attempting to remove examination-related materials, questions, answers, scrap notes about the exam, or a portion of the exam in any format from the exam room
- Leaving the exam room without permission
- The use of electronic devices including phones, tablets, PDAs, etc.
- Failure to comply with the proctor's instructions and exam rules set forth in the Handbook

PRACTICAL EVALUATIONS

PURPOSE OF PRACTICAL EVALUATION

The practical evaluation assesses critical knowledge areas and skills that each installer must demonstrate in order to successfully complete the practical examination. The evaluation is intended to verify that the manufacturer's spray polyurethane foam is being installed in accordance with the requirements set forth in CAN/ULC-S705.1-01 and CAN/ULC-S705.2-05, as well as the manufacturer's application guidelines, and as required in the evaluation reports issued by the Canadian Construction Materials Centre (CCMC). The evaluation will include but will not necessarily be limited to:

- a. Documentation: knowledge of administrative requirements
- b. Health and safety including fire safety and spill handling
- c. Environmental conditions
- d. Quality assurance testing requirements including thickness, density, adhesion, and cohesion
- e. Foam application techniques and methodology
- f. Review of the substrate including preparation
- g. Visual inspection including surface finish
- h. Troubleshooting of the application including defects
- i. Installer awareness
- j. Storage and handling of the materials
- k. Waste disposal

An evaluation by Caliber is intended:

1. To assess whether the candidate has the practical knowledge, skills, and abilities to install the manufacturer's spray polyurethane foam (SPF) and obtain certification.
2. To verify that the manufacturer's spray polyurethane foam is being installed in a safe manner and in accordance with the requirements set forth in CAN/ULC-S705.1-01, CAN/ULC-S712.1-10 and CAN/ULC-S705.2-05 as well as the manufacturer's application guidelines, and as required in the evaluation reports issued by the Canadian Construction Materials Centre (CCMC).
3. To ensure that the installer fully understands his/her obligations and responsibilities as part of the Quality Assurance Program.

ARRANGING FOR AN EVALUATION AT A JOB SITE/TRAINING LOCATION

The practical evaluation may be offered concurrently with the manufacturer training course or scheduled directly by the candidate at a later time. If an certification exam session is scheduled directly by the candidate or contractor (i.e. not being completed concurrently at training centre with a training or refresher course):

1. Contact Caliber at QAP@caliberqa.com or 1-888-572-7435 to book your private exam session. Allow a minimum of 21 days' notice to schedule the exam. Full payment is required to secure the booking. Additional fees may apply for urgent exams or remote locations.

2. Prepare for the evaluation: Review training materials, installer certification handbook and manufacturer guidelines prior to the exam. If the practical evaluation will be completed on a live job site, make appropriate arrangements for access and / or readiness. If the practical evaluation will be at a contractor shop or similar location, make arrangements for a mock up wall as outlined in the handbook. Note that the contractor is responsible to provide access to a spray foam rig, testing kit, and appropriate installer PPE for the practical evaluation unless otherwise notified by Caliber.

SPF PRACTICAL EVALUATION KNOWLEDGE AREAS

The evaluation covers critical knowledge areas and skills that each installer must demonstrate in order to successfully complete the practical examination. The evaluation is intended to verify that the manufacturer's spray polyurethane foam is being installed in accordance with the requirements set forth in CAN/ULC-S705.1-01, CAN/ULC-S712.1-10, and CAN/ULC-S705.2-05, as well as the manufacturer's application guidelines, and as required in the evaluation reports issued by the Canadian Construction Materials Centre (CCMC).

<i>Knowledge Area</i>	<i>Weighting (%)</i>
Documentation: knowledge of administrative requirements	5%
Environmental and substrate conditions	10%
Quality assurance testing requirements including thickness	20%
Foam application techniques and methodology	5%
Health and safety	20%
Troubleshooting of the application	20%
Storage and handling of the materials	10%
Waste disposal	5%
Daily machine start-up and shutdown procedures	5%

The passing mark for a practical evaluation is 75%. The practical evaluation is available in English or French only.

PRACTICAL EVALUATION DURATION

The duration of the evaluation period will vary depending on the number of candidates being evaluated. However, the duration per candidate should not exceed one hour. However if extenuating circumstances exist that require extra time for the evaluation, this would be at the discretion of the evaluator. The evaluator may use his discretion to extend evaluation time for such items as:

- Equipment breakdown
- Weather-related issues
- Substrate preparations
- Other construction site issues that affect the evaluation

DOCUMENT REQUIREMENTS

During an on-site evaluation by a Caliber Field Examiner the following documentation must be provided by the candidate during the practical evaluation:

- Daily work records (DWR)
- SDS sheets for all materials
- Technical data sheets for all chemicals on site
- Job site specification (if applicable)
- Job site label
- Any previously issued inspection reports

TESTING EQUIPMENT REQUIREMENTS

During an on-site evaluation by a Caliber Field Examiner, the following testing equipment must be provided by the candidate during the practical evaluation:

- Surface temperature reader
- Depth gauges
- Humidity indicator
- Ability to gauge wind speed for exterior installation
- Infrared surface temperature reader
- Site Test Kit which meets the requirements of the applicable CAN/ULC 705.2 standard

LOCATION OF SPF PRACTICAL EVALUATION

The practical SPF evaluation can take place on a real-life job site or in a mock-up setting at an approved location.

JOB SITE

The installer **MUST** ensure that a minimum of 64 ft² (6 m²) substrate is available to conduct the practical

evaluation or recertification evaluation. This will typically be provided for the candidate by the manufacturer at an approved training location. The evaluation practicum may be conducted on any one of the following applications:

- a) Interior stud walls
- b) Poured concrete
- c) Ceiling
- d) External walls

TRAINING CENTRE

The recertification evaluation can be completed at a job site or approved training centre.

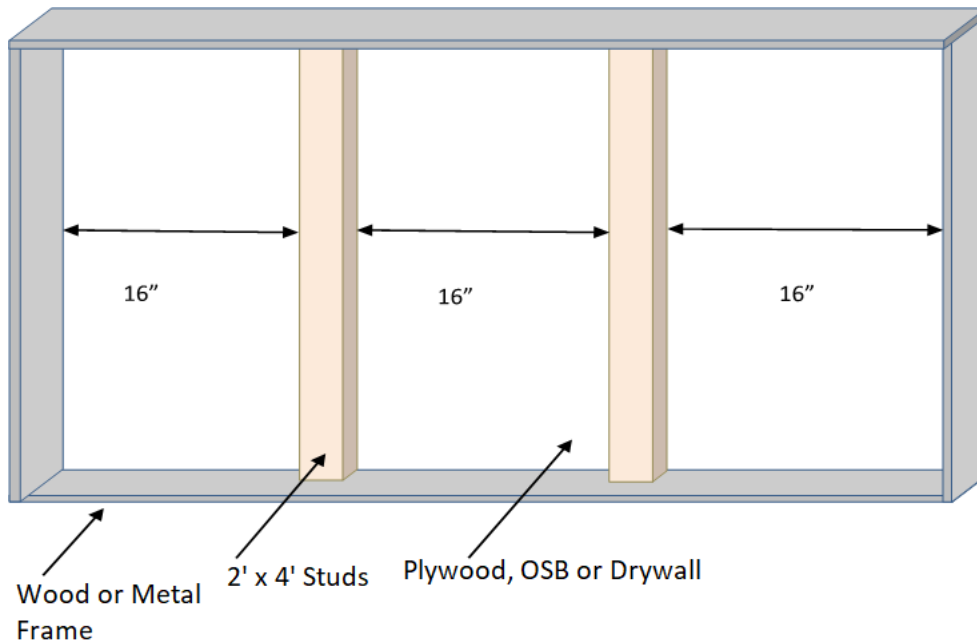
Mock up evaluations can be completed at the contractor's shop or warehouse and will be treated as an actual job site. The requirements of the applicable CAN/ULC standards well as the manufacturer's installation instructions still apply and the appropriate health and safety precautions must be taken.

The mock-up shall consist of the following configuration (*please refer to the diagram in section 17.3*):

- a) At minimum, one 4 ft (1200 mm) wide x 8 ft (2400 mm) high sheet of plywood, drywall, or OSB.
- b) The sheathing shall be enclosed with a metal or wood framing on four sides.
- c) The frame shall have 2' x 4' studs, spaced vertically at 16" apart.
- d) The other side of the sheathing shall be left open to simulate an external wall application.
- e) The installer may be required to spray both sides of the wall during the evaluation.

The preparation and cost of the mock-up is not included in the evaluation fee and is not the responsibility of Caliber. The mock-ups may or may not be provided by the manufacturers—candidates must confirm accordingly. Caliber Field Examiners shall review the prepared mock-up for acceptability prior to starting the examination.

SPF MOCK-UP ASSEMBLY DIAGRAM



SUSPENDING THE PRACTICAL EVALUATION

If at any time the evaluator feels that evaluation needs to be suspended, the evaluator can do so if one or more of the following conditions exists:

- The registered contractor/candidate did not supply or have available personal protective equipment.
- The registered contractor/candidate did not supply or have available SPF equipment.
- Testing equipment is unavailable or does not meet the CAN/ULC-S705.2 standard.
- The health and safety of anyone is being jeopardized.
- Weather/climactic conditions are not acceptable.
- Equipment is unsafe or inoperative.
- Equipment breakdown that will take too long to repair.
- Candidate is suspected of being under the influence of alcohol or drugs.
- Candidate or helper will not cooperate with instructions/requests of the evaluator.

EXAMINATION POLICIES AND PROCEDURES

DELIVERY OF EXAM RESULTS

Exam results are typically delivered immediately to the candidate following the exam session. Pass/fail status of the candidate for the written and practical exams will be released to their contracting company and manufacturer following the exam session.

EVALUATION CANCELLATION POLICY

The exam session booking fee must be paid in full a minimum of 14 days prior to exam date. Cancellations of exam sessions are subject to a cancellation fee. Exam rescheduling requires a minimum of 14 days notice to Caliber. Rescheduling fees may apply. Cancellation or rescheduling is not permitted within 48 hours of the scheduled exam session, and all certification fees will be forfeited. Exceptions may be granted at Caliber's discretion in extenuating circumstances such as death or serious illness, for which written documentation must be submitted to Caliber.

If Caliber cancels an evaluation prior to the evaluation, Caliber shall provide sufficient notice to the candidate. Caliber shall provide a notification identifying the reasons for the cancellation. Caliber shall also inform the candidate of a proposed new evaluation date and time.

If the evaluator is delayed in attending an evaluation, the evaluator shall contact the candidate to inform them of the expected delay and new time of arrival.

INDIVIDUAL CONFIDENTIALITY

Caliber recognizes your right to control personal information. Some of a candidate's certification information is personal, sensitive, and subject to certain privacy act restrictions. Caliber will not release this type of restricted candidate information unless written consent has been received from the candidate. Caliber is required to make your certification status publicly accessible to consumers on our website to comply with regulatory requirements. Additionally, Caliber will release exam results to the contractor and the manufacturer as outlined in the installer application agreement and noted in the Handbook.

CHALLENGING EVALUATION RESULTS

Following completion of the installer evaluation the candidate may challenge the results in writing within 10 days. The correspondence must include the candidate's name, contact information, evaluation date,

and specific concerns regarding the evaluation. Send correspondence to QAP@caliberqa.com.

FEEDBACK

Caliber strives to provide professional customer service experience throughout the evaluation process.

Any feedback on your experience will be greatly appreciated. Please send all comments to

QAP@caliberQA.com or to mail:

Quality Assurance Program Director

2323 Yonge Street, Suite 605

Toronto, ON M4P 2C9

APPRENTICE STATUS

APPRENTICE

A registered apprentice is defined as an individual registered with the Certification Organization who installs spray applied polyurethane foam on the job site under **direct supervision** of a Certified Installer.

“Apprentice” is a temporary status intended to allow the candidate an opportunity to gain experience under a certified installer until they are able to successfully complete their installer certification.

APPRENTICE REGISTRATION

In order to become a registered apprentice with the Caliber QAP program the candidate must, in the following order:

1. Complete a training course approved by Caliber.
2. Process a pre-payment for a future certification exam.
3. Contact Caliber and request apprentice status and an apprentice identification card.

Apprentice status is valid for either 6 month or until the end of the calendar year – whichever period is longer. The apprentice must successfully complete a Caliber QAP certification exam during this period in order to become a certified installer. If certification cannot be achieved within the apprentice period, the certification process must be restarted. Apprentice identification cards are not renewable beyond this period.

Apprentice status is not an accredited installer status.

REGISTERED APPRENTICE OBLIGATIONS

The registered apprentice can only install material under the direct supervision (continuous visual observation) of a certified installer.

CERTIFICATION CARD

Once the candidate has passed both the written exam and practical evaluation, they will be issued an installer certification card showing their photo/certification number and the expiry date of the card. In addition, the installer will also receive an evaluation report with comments. Please note that Caliber QAP installer certification cards are renewed on an annual basis.

MAINTAINING CERTIFICATION

CERTIFIED INSTALLER OBLIGATIONS

The following outlines the requirements for all installers certified through Caliber QAP:

1. The certified installer must comply with all provided requirements of the Site Quality Assurance Program.
2. The certified installer is responsible for applying the material in accordance with the application standard (CAN/ULC-S705.2) and the manufacturer installation guidelines.
3. The certified installer must confirm, using drum labels or other documentation, that the material to be used on site has been declared by the manufacturer to meet the CAN/ULC-S705.1 material standard before commencing installation.
4. The certified installer is responsible for all aspects of on-site installation of the material including safe handling and storage of the material, proper isolation of the spray area, warning signs when spray is in progress, site housekeeping, and their own personal as well as the crew's health and safety.
5. The certified installer must follow all safety, operational, maintenance, and cleaning instructions for the equipment, used for installation, provided by the equipment manufacturer. This equipment may include, but is not limited to, transfer pumps, a proportioner unit, hoses, hose heaters, guns, compressors, generators, and any other applicable items.
6. In cases where an apprentice installer is applying the material, the apprentice installer must be under the direct supervision of a certified installer who is responsible for the application.
7. The certified installer must complete a daily work record in accordance with the Quality

Assurance Program. The daily work record shall be completed at the beginning of each day, each time a material batch is changed, and when the job site is changed within a given day.

8. The certified installer must post a job site label in a prominent location at the job site when the installation has been completed. Locations such as the electrical panels are acceptable.
9. The certified installer must remove all waste from the construction site in a safe and proper manner at the end of each working day and dispose of it in accordance with local, provincial, and federal requirements.
10. The certified installer must remove all empty and partially empty drums or other containers of material from the job site.
11. The certified installer must only install SPF material they are approved to install under the program. Installation of other material is not permitted unless you obtain the required approvals and associated cards from Caliber. You can check an installer's status and product approval online at qap.caliberqa.com.

SPF INSTALLER CODE OF CONDUCT

As a SPF Installer certified with Caliber QAP, you are committing to uphold and advance the honour and dignity of the Quality Assurance Certification Program. You acknowledge that you will:

- Adhere to high standards of ethical conduct;
- Remain impartial in the provision of your installation services;
- Conduct interactions with the public and consumers with a high degree of professional behavior, honesty and integrity;
- Commit yourself to comply with the rules defined by the certification body as outlined in your installer certification agreement;
- Diligently and honestly pursue the requirements of the certification program including compliant installation of SPF to proactively minimize the potential of complaints;
- Keep confidential all information obtained from the certification process such as examination questions, except as required by law.
- Avoid actual and perceived conflicts of interest.

DAILY WORK RECORDS

The certified installer is required to complete a Daily Work Record (DWR) to verify that the installation of the product on a particular job site conforms to the standards and manufacturer's installation guidelines.

The DWR must be completed at the beginning of every day, each time a material batch is changed, and when the job site is changed within a given day. An example of a DWR can be seen in Appendix K. The

DWR must be submitted by the registered contractor to Caliber. The certified installer is responsible for completing the DWR and submitting this documentation to their company.

DAILY SITE TESTING REQUIREMENTS

The certified installer must conduct a daily quality control check of the product installation on all construction projects and on other applications where the testing is practical.

1. Verify that the substrate has been properly prepared;
2. Verify that the environmental conditions are within the approved range for the installation of the polyurethane foam;
3. Ensure that the equipment is set to safe and proper operating parameters for the chemical system of the product;
4. Exercise ongoing visual and physical quality verification, looking at the cell size and structure as well as any change in the spray pattern, color of the foam, or changes in the reaction of the spray foam or the condition of the spray product;
5. Check the thickness of the installation continuously with a depth gauge to provide the minimum thickness specified by the owner in the contract;
6. Apply the spray polyurethane foam so that the surface is reasonably smooth and consistent
7. Conduct density, adhesion, cohesion, and substrate verification at the beginning of each day, each time a material batch is changed, and when the job site is changed within a given day;
8. Complete a Daily Work Record in accordance with the Quality Assurance Program to document the results of the testing and job site condition. The daily work record shall be completed at the beginning of each day, each time a material batch is changed, and when the job site is changed within a given day.

Where the installers are working on very small jobs or small repair jobs, the physical testing is not required when it is not practical. If the certified installer is unsure whether the job requires physical testing, they can contact the manufacturer or Caliber to have the matter clarified.

SURVEILLANCE AUDIT

Surveillance shall be conducted on the certified installer during the certification period by a variety of methods. The certified installer shall comply with requirements of the surveillance audit.

SURVEILLANCE METHODS AND FREQUENCY

Recertification is required every 5 years. Certified installers are also monitored for on-going compliance in a variety of ways including contractor annual renewal, daily work records, requested

project audits, homeowner complaints and periodic surveillance of job sites. Where certified installers are found to be non-compliant with the SQAP requirements, certification status will be suspended and / or withdrawn as outlined in the handbook.

CERTIFICATION CARD RENEWAL

Caliber QAP certification cards are renewed on an annual basis. The installer certification status will be reviewed annually to ensure compliance with the Quality Assurance Program. Once Caliber is satisfied that the certified installer has fulfilled all his/her obligations, the Certification Card will be re-issued.

Caliber QAP annual review activities include but are not limited to the following:

- Ensuring all the requirements of the Quality Assurance Program set out by the manufacturer and the certification organization (CO) are met.
- Confirmation of receipt of fees and confirmation that the account is up to date.
- Confirmation that the certified installer has completed and returned all the required paperwork requested by Caliber or the manufacturer as part of the SQAP.

RE-CERTIFICATION

The re-certification of certified installers is conducted at 5-year intervals and shall include but not be limited to the following:

- Successfully completing and passing a practical evaluation.
- Confirmations that any reported complaints, deficiencies, or non-compliances found in audits have been resolved appropriately.
- Meeting all the requirements of the quality assurance program set out by the manufacturer and the CO.
- Confirmation that the installer has completed and returned all the required paperwork requested by Caliber or the manufacturer as part of the SQAP.
- Confirmation of receipt of fees and confirming account is up to date.

DEMERIT POINT SYSTEM

The demerit point system is used by the certification organization for assessing the certified installer's ongoing commitment to the requirements of the Site Quality Assurance Program. The demerit points system is outlined in the following table:

KNOWLEDGE AREA	WEIGHTING
Environmental Conditions	50 -100
Application Methodology	50
Visual Inspection	50
Testing	50-100
Documentation	5-50
Material Physical Properties	50-100
Safety	50-250
Waste Disposal	25
KNOWLEDGE AREA	WEIGHTING
Storage and Handling of Material	50-100
Substrate	50-100

When the certified installer accumulates 250 demerit points they will be suspended. The certification administrator shall review the file of the certified installer and send a notification to the certified installer and the contractor outlining the violations or complaints that have resulted in the accumulation of the points and include any appropriate corrective or preventative actions that must be taken. The suspension will be lifted when adequate corrective/on-going action has been demonstrated by the installer.

When the certified installer accumulates 500 points within their certification period (5 years), the Certification Committee will convene to review the case and make a decision on the continuation of certification status. If the demerit points are deemed to be accurate after a review of the supporting documentation, the certified installer's certification status will be withdrawn. The installer will be provided a letter outlining the certification withdrawal and the contractor and manufacturer will be notified regarding the status.

SUSPENSION OF INSTALLERS

The installer will be suspended if he/she accumulates 250 demerit points. Suspension will be lifted by Caliber when the installer has completed the required corrective actions. Caliber is not responsible for any actual or perceived damages associated with suspension of certification status such as loss of income.

WITHDRAWAL OF CERTIFICATION

In cases where the certified installer does not maintain or continue to prove their knowledge and competence and/or accumulates 500 demerit points, the certification may be withdrawn. Caliber is not responsible for any actual or perceived damages associated with the withdrawal of certification. In each case the Certification Scheme Committee will meet to review the installer's record history and provide a notification including steps to be taken if the installer's certification can be reinstated.

The following circumstances may result in the withdrawal of certification:

- Accumulation of 500 demerit points
- Failure to comply with CAN/ULC 705.2 and SQAP requirements
- Under suspension for a period of 12 months

APPEALS PROCEEDURE

The review and appeal of suspension, withdrawal of certification, or assessment of demerit points consists of 3 tiers. All appeals will be handled using the most current version of the certification handbook at the time of the appeal.

Tier 1 Appeal – For review of suspension the certified installer can appeal to the Director of Quality for Caliber.

Tier 2 Appeal – Should the certified installer feel that the CO's decision is not satisfactory to them, the certified installer may request that the CO escalate the decision to the Certification Scheme Committee.

Tier 3 Appeal – Should the installer feel that the documented process has not been followed, they may register a written complaint with the relevant manufacturer.

TIER 1 APPEAL PROCESS WITH CO

- a) The appeal for review of exam results, suspension, withdrawal of certification, assessment of demerit points, or any other matter must be made within 10 business days of notice.
- b) The request for review must be in writing and sent by registered mail to:

Quality Assurance Program Director
2323 Yonge Street, Suite 605
Toronto, ON M4P 2C9
- c) The certified installer, registered contractor, and manufacturer will receive notification from Caliber once the appeal has been received.
- d) The certified installer must clearly state the nature of the appeal including why they believe it should be changed or overturned.
- e) The request must provide sufficient detail including new information or documentation that supports the appeal. Caliber will contact the certified installer if further information is required. Once all the supporting information has been provided, the case will be fully reviewed by the CO. A decision in writing will be provided to the certified installer, registered contractor, and manufacturer within 30 business days of receiving the written request for review.
- f) If the CO concludes, after reviewing all the supporting information, that the nonconformance is not justified, the certified installer's demerit points may be removed or the suspension lifted accordingly.
- g) If the CO concludes that the actions taken are valid, the certified installer, registered contractor, and manufacturer will be notified in writing.

TIER 2 APPEAL PROCESS WITH SCHEME COMMITTEE

If the installer is not satisfied with the outcome of the action taken after the completion of the Tier 1 process, the installer may appeal to the Certification Scheme Committee. The process to appeal is as follows:

- a) A Tier 2 appeal for review must be made within 10 business days of the Tier 1 decision.
- b) The request for review must be in writing and sent by registered mail to Caliber for the attention of:

Quality Assurance Program Director

2323 Yonge Street, Suite 605

Toronto, ON M4P 2C9

- c) The certified installer, registered contractor, and manufacturer will receive notification from Caliber once the appeal has been received.
- d) The certified installer must clearly state the nature of the Tier 2 appeal including the reasons why they believe the initial decision should be changed or overturned.
- e) The request must provide sufficient new information or documentation that supports the Tier 2 appeal. Caliber will contact the certified installer if further information is required.
- f) Once all the supporting information has been provided, the Certification Scheme Committee will review the case and provide a decision in writing within 30 business days of receiving the Tier 2 appeal. Caliber may initiate an additional 30-day extension by sending the person a letter identifying the cause of the delay.
- g) If the Certification Scheme Committee concludes, after reviewing all the supporting information, that the non-conformance is not justified, the certified installer's demerit points may be removed or the suspension lifted accordingly.
- h) If the Certification Scheme Committee concludes that the actions taken are valid, the certified installer, registered contractor, and manufacturer will be notified in writing.

TIER 3 APPEAL PROCESS WITH CALIBER LIMITED

If the certified installer is not satisfied with the outcome of the action taken after the completion of the Tier 2 process, the installer may appeal to Caliber, who will review. Notice of appeal must be in writing and sent by registered mail to:

Quality Assurance Program Director

2323 Yonge Street, Suite 605

Toronto, ON M4P 2C9

FREQUENTLY ASKED QUESTIONS

Q1. How do I register for a training course?

You can contact the manufacturer directly to register for the next available training course.

Q2. How do I register for practical evaluation?

To schedule a practical evaluation with Caliber directly, contact Caliber at 1-888-572-7435 or through our online portal at qap.caliberqa.com.

Q3. What is the purpose of the practical evaluation?

The evaluation is intended to assess the installer's knowledge and ability to apply, in a practical way, the information presented in the classroom and will include but will not necessarily be limited to: knowledge of administrative requirements, health and safety including fire safety, environmental requirements including spill handling, quality assurance testing requirements, and foam application techniques.

Q4. Where can I take the written exam?

During the manufacturer-held training course.

Q5. When will I receive my written exam results?

Exam results are generally given immediately following the exam. In cases where this is not possible, results for written examinations will be sent within three weeks after the exam date.

Q6. Does Caliber offer courses to pass examinations?

No. However, training is available through product manufacturers.

Q7. Can I review my written exam that I recently took?

You can review only those questions on the written exam that you marked incorrectly by making arrangements to visit Caliber's office. A review is typically done for the purpose of completing a challenge. There is a \$100 fee for a review session.

Q8. How often can I take the written exam?

You may take the written exam as many times as needed until you pass the exam. You must wait 10 days between each time you take the written exam.

Q9. What happens if I fail my written exam?

If you fail the written exam you may attend the next scheduled training course, subject to the manufacturer requirements, and retake the written exam at no cost. Please note that retaking the practical evaluation is not free of charge.

Q10. Are the examinations open book?

The exam is closed book.

Q11. How long are the written examinations?

The time allotted for the written examination is 1 hour.

Q12. What is considered a passing score?

The passing mark for the written examination is 62% and the passing mark for the practical evaluation is 75%.

Q13. What language is the exam available in?

The exam is only available in English or French.

APPENDIX A – CALIBER OFFICE LOCATION

Caliber Quality Solutions
2323 Yonge Street, Suite 605
Toronto, ON M4P 2C9

APPENDIX B – TERMS AND DEFINITIONS

ACCREDITATION - confirmation that a legal corporation has policies and procedures in place to meet the requirements of a certification scheme.

APPEAL - request by applicant, candidate or certified person for reconsideration of any adverse decision made by the certification organization related to her/his desired certification status.

CANDIDATE - applicant who has fulfilled specified prerequisites, allowing his/her participation in the certification process.

CERTIFICATION ORGANIZATION (CO) – organization licensed to ISO 17024 by a member of IAF/ILAC Multilateral Agreement, possessing the necessary competence and reliability to operate a certification program in compliance with ISO 17024 in which the interests of all parties concerned with the functioning of the system are represented.

CERTIFICATION ADMINISTRATOR - person approved by Caliber, competent to assess and approve an applicant for certification.

CERTIFICATION PROCESS - all activities by which a certification body establishes that a person fulfills specified competence requirements, including application, evaluation, decision on certification, surveillance and recertification, use of certificates and logo/marks.

CERTIFIED INSTALLER – individual (worker), trained, certified and licensed by a Certification Organization, responsible for the actual spray polyurethane foam installation, the site requirements and who is authorized to supervise an Apprentice Installer.

CERTIFICATION SCHEME - specific certification requirements related to specified categories of persons to which the same particular standards and rules, and the same procedures apply (ISO 17024).

CERTIFICATION SCHEME COMMITTEE – group of persons which fairly and equitably represent the interests of all parties significantly concerned with the certification scheme, without any particular interest predominating and who are responsible for the development of the certification scheme in accordance with ISO 17024.

CERTIFICATION SYSTEM – set of procedures and resources for carrying out the certification process as per a certification scheme, leading to the issue of a certificate of competence including maintenance.

COMPETENCE - demonstrated ability to apply knowledge and/or skills and, where relevant, demonstrated personal attributes, as defined in the certification scheme.

COMPLAINT - conformity assessment request, other than an appeal, by any organization or individual to a certification body, for corrective action relating to the activities of that body or to those of any of its customers

EVALUATION - process that assesses a person's fulfillment of the requirements of the scheme, leading to a decision on certification.

EXAMINATION - mechanism that is part of the evaluation, which measures a candidate's competence by one or more means such as written, oral, practical and observational.

EVALUATORS - individuals selected according to their experience and knowledge of the industry and the certification scheme, trained to administer practical evaluations or conduct field evaluations.

KNOWLEDGE ESSENTIAL TASK LIST (KETL) - the comprehensive list of knowledge, skills and tasks an individual is expected to demonstrate mastery of in order to earn Caliber certification.

QUALIFICATION - demonstration of personal attributes education, training and/or work experience.

RECERTIFICATION - process of confirming conformity with current certification requirements.

REGISTERED APPRENTICE – individual registered with the Certification Organization, who installs spray applied polyurethane foam - on the job site, under direct supervision of a Certified Installer.

REGISTERED CONTRACTOR – individual, organization or corporation who is responsible for meeting all requirements and obligations for the installation and who is recognized by a Certification Organization (CO).

SITE QUALITY ASSURANCE PROGRAM (SQAP) – program based which ties the supplier, registered contractor and the installer together, outlines the responsibilities and obligations of each of the three parties and makes them responsible for the installation.

SURVEILLANCE - surveillance is the periodic monitoring, between the periods of certification, of a certified person's performance to ensure continued compliance with the certification scheme.

APPENDIX C – SUBSTRATE PREPARATION

Spray polyurethane foam can be applied to a wide variety of substrates. Good adhesion between the substrate and the insulation is extremely important. It can be achieved by proper surface preparation prior to the application of the insulation. All substrates should therefore be clean, dry, and free of grease, oil, loose scale or rust, solvent-free, and other contaminants that may impair the bond of the foam to the substrate. Each substrate must be prepared in accordance with the directions specified by the chemical manufacturer for the application.

1. **Wood, Gypsum Board and Fibreboard** – The moisture content of wood, gypsum or fiberboard should be less than 19%. Special care should be taken in case of laminates with surface treatment, because the treatment may adversely affect adhesion of the insulation to the substrate.
2. **Concrete** – Concrete must be dry on surface before applying spray polyurethane foam. If the adhesion is suspect because of high moisture content of the concrete, an adhesion test should be performed.
3. **Galvanized Steel** – New galvanized steel should be washed with a mineral spirit, then allowed to dry and finally primed.
4. **Pre-painted Substrates** – The strength of adhesion can vary significantly with the type of paint used. When uncertain, the paint should be mechanically scored or abraded with sand blasting.
5. **Bare Steel** – The surface must be free of any oil, solvent or other foreign materials as it may affect adhesion. Spray polyurethane foam can usually be sprayed directly onto bare steel after the removal of any loose scale and rust. However, steel tanks must be primed before insulation. The surface should be cleaned with xylene or mineral spirits and then primed. In some cases, to achieve adequate adhesion between the primer and the stainless steel, it may be necessary to sand blast.
6. **Aluminum** – Aluminum should be cleaned with a mineral spirit. Do NOT use caustic solution. Aluminum must always be primed prior to the application of the insulation due to corrosion caused by the foam application. After application, acids are formed at the surface between the spray polyurethane foam and the aluminum and they can cause corrosion.
7. **Glass** – Glass must be clean and dry. Except for cleaning, no special preparation is required for glass. However, when the insulation is applied to the interior of a window, an ultraviolet-blocking coating should be used to the glass prior to application to prevent degradation of the foam from sunlight.

8. **Polyvinyl Chloride (PVC)** – Washing with a mild solvent, such as mineral spirits, is sufficient to prepare the surface of PVC.

Take caution when spraying onto Polyvinyl chloride if the plasticizer content is high. The plasticizer may migrate to the surface of the PVC after the application of the spray polyurethane foam and result in loss of adhesion. Flexible PVC contains the highest amount of plasticizer and rigid PVC the least which is used in pipes – check with building code.

9. **Acrylonitrile Butadiene Styrene (ABS)** – ABS surface should be cleaned with mineral spirit and primed.
10. **Asphalt and Tar** – Must be solvent-free when the insulation is applied over it. Must be old enough to assume that there is no solvent present. Spray polyurethane foam should not be applied over fresh asphalt or tar.
11. **Polypropylene and Polyethylene** – Adhesion of spray polyurethane foam to these two plastics is extremely poor. The only practical way to apply the insulation is to provide some sort of mechanical attachment to the substrate, such as chicken wire.
12. **Solvents** – The presence of solvents in the substrate or on the surface of it must be avoided. Solvent cured primers and coatings must be allowed adequate time to cure to allow complete solvent evaporation.
13. **Spray Polyurethane Foam** – Areas that show ultraviolet degradation should be cleaned by wire brushing prior to the application of more insulation.
14. **Earth** – Must be dry and firm. No special requirements are needed when installing spray polyurethane foam in contact with earth. The manufacturer shall be consulted in cases where a hydrostatic pressure will be exerted on the spray polyurethane foam.
15. **Modified Bitumen Membrane** – The membrane must be adhered to the substrate. The installer must confirm with the membrane manufacturer that the product has been installed properly.

APPENDIX D – CLIMATIC FACTORS

1. **Ambient Temperature** – When there is a difference of more than 17°C between the ambient temperature and the substrate temperature (e.g., when spraying in a heated interior during winter), the chemical manufacturer should be consulted prior to the application. Winter formulation is used to spray a heated interior. Extreme ambient temperatures at or above 30°C may cause the blowing agent in the resin to boil. This may cause cavitation in the dispensing equipment. Adequate ventilation or air conditioning may be required.
2. **Substrate Temperature** – Reaction time of the system can be greatly affected by the temperature differences of the substrate between those areas in direct sun versus those in the shade affect reaction times. Following the sun on an exterior project may offer increased yield and consistent product performance.
3. **Wind** – Spray foam should not be sprayed outside when the wind speed exceeds 15 km/h, unless windscreens are used. Without the wind screens the wind increases effect of over spray which results in poor yield. The over spray may also cause the foam to come in contact with items in close proximity such as cars, doors, windows, etc.
4. **Moisture/Humidity** – Care should be taken whenever the relative humidity rises above 80%. High relative humidity could cause blistering problem, weaken foam, poor adhesion and/or poor cohesion.

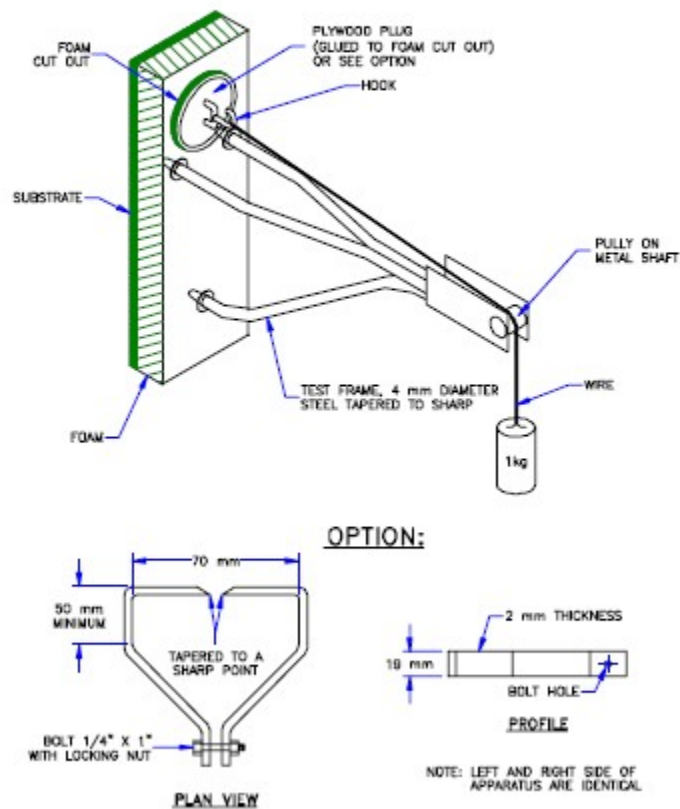
APPENDIX E – TEST KIT

As a minimum, the certified installer site test kit is to contain the following;

- a. analytical balance, accurate to 0.01 g
- b. graduated cylinder of minimum 1000ml size with 10ml maximum graduation
- c. round plywood disk maximum diameter 70mm; thickness 20mm
- d. picture hanging wire 30cm in length with hooks on both ends – these are to be attached to the plywood disc
- e. wire length 600mm
- f. a thin walled tempered pipe or similar instrument to make a 70mm cylindrical cut into the insulation
- g. coring tool made from thin wall tubing 70mm inside diameter
- h. two-component epoxy glue
- i. support frame as per Appendix C
- j. support weight of 1kg
- k. An apparatus that meets the testing methods outlined in ASTM D4541 may also be used.
- l. calculator
- m. thermometer and hygrometer (may be combined or separate units)
- n. thickness gauge
- o. a knife with minimum 180mm blade or a coring tool capable of cutting a sample

APPENDIX F – ADHESION/COHESION STRENGTH TEST APPARATUS

FIGURE 2
ADHESION/COHESION STRENGTH TEST APPARATUS
(Reference: Clauses 6.3.3.1, 6.3.3.2E, 6.3.3.3D, Annex L)



Reference: CAN/ULC-705.2-05

APPENDIX G – ESSENTIAL LEARNING AND SKILLS

The essential learning task listing shall be reviewed every five years by the Certification Scheme Committee. The course content shall take into account a wide range of stakeholder interest including, but not limited to:

- Customers and end users
- Designers and Architects
- Current certified candidates
- Spray polyurethane foam system manufacturers
- Equipment manufacturers
- Health & safety agencies
- Inspections & audits
- Feedback from trade associations & quality assurance agencies

SAMPLE GUIDELINE FOR CERTIFIED INSTALLER TRAINING PROGRAM

Section A: Introduction to Spray Polyurethane Foam

1. What is Spray Polyurethane Foam?
2. History of Spray Polyurethane Foam

Section B: Codes & Standards

1. Building Code
2. Material Standard
3. Application Standard
4. Job Standards

Section C: Health & Safety

1. First Aid Level One
2. WHIMIS
3. WCB / Regulations
4. Personal Protection
 - l. Head
 - m. Respirator
 - n. Eye
 - o. Ear
 - p. Body
 - q. Hands
 - r. Feet

5. Transportation of Dangerous Goods
6. Confined Spaces
7. Electrical Hazards
8. Trenching / Excavation / Shoring

Section D: Site Equipment

1. Ladders
2. Scaffolding
3. Hoisting / Rigging / Swing Stage
4. Fall Protection
5. Fork Lift / Scissor Lift / Cherry Picker

Section E: Fire Protection

1. Fire Extinguishers
2. Warning Signs
3. Smoking
4. Welding
5. Cutting
6. Grinding

Section F: Site Isolation

1. Warning Signs
2. Barriers
3. Protection of Helper
4. Protection of Others
 - a. Trades
 - b. Vehicles
 - c. Building Components

Section G: Environmental Conditions

1. Ambient Temperature
2. Humidity
3. Wind
4. Substrate Temperature

Section H: Material Selection

1. Factors Effecting Material Selection

Section I: Equipment

1. Drum Heaters
2. Transfer Pumps
3. Proportioner
4. Hoses
5. Hose Heaters
6. Guns

7. Compressor
8. Generators

Section J: Start Up Procedure

1. Check Equipment
 - a. Pressures
 - b. Temperature
 - c. Conditions
2. Check Material Supply
3. Test Pattern
4. Checklist
5. Work Order / Job Requirements
6. Manufacturer Instructions

Section K: Substrate Preparation

1. Material
2. Moisture
3. Cleaning
4. Priming
5. Masking

Section L: Application Methodology

1. Distance
2. Angle of Spray
3. Cross Hatching
4. Thickness
5. Finish
6. Coverage
7. Hot / Cold Weather Application
8. High Wind Application

Section M: Air Barrier Requirements

1. Material Requirements
2. Transition Membrane
3. Testing Requirements

Section N: Thermal Barrier Requirements

1. Building Code Requirements
2. Contractor's Responsibility
3. Installer's Responsibilities

Section O: Heating & Hording

1. Heater Requirements

Section P: Troubleshooting

1. Blisters
2. Resin Rich
3. ISO Rich
4. Thermal Cracks
5. Scorching
6. Friability
7. Tackiness

Section Q: Quality Control

1. Site Testing
 - a. Visual
 - b. Density
 - c. Adhesion
 - d. Cohesion
 - e. Temperature
 - f. Adhesion to Failure
 - g. Air Barrier Testing
2. Documentation
 - a. Checklist
 - b. Daily Work Records
 - c. Job Site label

Section R: Storage & Handling

1. Proper Storage of material
2. Handling of Drums
3. Water Seepage

Section S: Maintenance

1. Equipment

Section T: Isolation & Ventilation

1. Isolation Requirements
2. During Spraying
3. Post Installation Ventilation

Section U: Drum Decontamination

1. ISO Drums
2. Resin Drums

Section V: Spill Handling

1. Spill Containment
2. Spill Clean Up
3. Decontamination
4. Disposal

Section W: Housekeeping

1. Removing Excess Foam
2. Clean Up
3. Site Waste
4. Buns of Foam
5. Disposal

Section X: Job Management

1. Customer Relations
2. Time Management
3. Selling Your Company
4. Communications

Section Y: Installer Ethics

1. Work Habits
2. Attitudes

APPENDIX H – CRITICAL TASKS

The Certified Installer has to demonstrate knowledge, skills and competency in all the following essential learning areas:

- Spray Polyurethane Foam product knowledge
- Equipment and start up procedures
- Environmental Conditions
- Installation & Application
- Job site Preparation
- Job Site Health & Safety
- Pre-installation verification
- Trouble shooting
- Building Code
- Quality Control

APPENDIX I – VERIFICATION OF INSTALLER’S COMPETENCE

The registered contractor shall ensure the certified installer:

- Has completed a training course developed from the essential learning & skills provided in Annex A. This training course shall be approved by both the manufacturer and the CO.
- Has the knowledge, skills and abilities required to install the specific material in the different applications by successfully completing the certification process outlined in a certification scheme developed in accordance with ISO 17024.
- Has passed both a written test and a practical evaluation in accordance with the certification scheme.
- Successfully completes all certification requirements.
- Is re-certified every five years by passing a practical evaluation in accordance with the certification scheme carried out by the inspection body.

APPENDIX J – JOB-SITE SET-UP

1. General

The *registered contractor* and the *certified installer* must be familiar with all local, provincial and federal requirements and regulations, and use necessary construction, public and employee safety procedures such as those given in this standard.

2. Outdoor Spraying

Any outside spraying is influenced by wind. When the wind speed exceeds 15 km/h, precautions should be taken to rope off the site. Tarps or plastic sheets should be used to cover possible problem areas. Posting of signs explaining why the area is roped off is a good practice.

3. Warning Signs

Installers should have warning signs made available for job sites, such as “No Smoking”, “Breathing apparatus must be worn when entering this work area”, “Do not enter while spraying”, and “Stay clear, overspray possible”.

4. Garbage Disposal

The work site should be kept clean of debris. Proper sized garbage containers with lids for the job should be provided.

5. Fire Extinguisher

A properly charged fire extinguisher shall be available at all times in trucks and on job sites. The fire extinguisher shall meet the minimum rating and classification requirements 4-A, 40-B, C of the Standard CAN/ULC-S508. The net content of the extinguisher shall not be less than 4.5 kg.

6. Masking

Masking shall be securely fastened to those areas that must be protected from over-spray.

7. Requirements When Installing Spray Polyurethane Foam in Inhabited Buildings

- a) **Isolation During Spraying** – In applications where spray polyurethane foam is to be installed in inhabited buildings, the *certified installer* must isolate the area of the building that is being sprayed. Acceptable means of isolation is to drape polyethylene sheet over openings to separate the occupied space from the application area. Intakes to mechanical systems that circulate air to other parts of the building must be blocked. At no time shall the *certified installer* allow any person into the application area during spraying without proper personal protection.
- b) **Ventilation of Spray Area During Spraying** – The *Certified installer* must provide mechanical ventilation of the spray area during application. The ventilation rate must be 0.3 air changes per hour or greater.
- c) **Ventilation of Spray Area After Spraying** – The *Certified installer* must provide ventilation of the spray area for the time period declared by the manufacturer. The ventilation rate must be 0.3 air changes per hour or greater.
- d) This does not apply to new construction or uninhabited buildings.

APPENDIX K – DAILY WORK RECORD

INSULATION SYSTEM DAILY WORK RECORD EMAIL TO DWR@CALIBERQA.COM WITHIN 1 MONTH



Contractor:		Date:	Y	Y	Y	Y	M	M	D	D
Installer:		Card #:								
Apprentice:		Appr. Card #								

PROJECT INFORMATION

Customer Name:		Construction:	Unoccupied <input type="checkbox"/>	Occupied <input type="checkbox"/>
Project Name:		Ventilation 0.3 ACH:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Project Address:		Spray Area Isolated:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
City:		Warning Sign Posted:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Prov.: AB BC MB NB NL NS NU ON PE QC SK OTHER		Type: Residential <input type="checkbox"/>	Commercial <input type="checkbox"/>	Other <input type="checkbox"/>
Project Description:		Building Permit Posted:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Total Project Wall Area:	sq. m <input type="checkbox"/> sq. ft. <input type="checkbox"/>	Building Permit #:		
Person/Company responsible for thermal barrier:				

MATERIAL INFORMATION

BASF <input type="checkbox"/> Carlisle <input type="checkbox"/> Demilec <input type="checkbox"/> Icynene <input type="checkbox"/> JM <input type="checkbox"/> SWD <input type="checkbox"/> Other <input type="checkbox"/>	Product
Isocyanate Resin	
Lot number:	CCMC #
Expiry Date:	Formulation
Manufacturing Date:	Density: <input type="checkbox"/> Light <input type="checkbox"/> Medium <input type="checkbox"/> Other
Drum Temperature:	Color:
Quantity of Cycles Used:	Kg <input type="checkbox"/> Pounds (lb.) <input type="checkbox"/>

EQUIPMENT

Manufacturer of Machine:	Model:
Mixing Chamber Size:	Hose Length: m <input type="checkbox"/> ft <input type="checkbox"/>
Isocyanate psi:	Resin psi:
Primary Heater Temperature:	Hose Temperature: °F <input type="checkbox"/> °C <input type="checkbox"/>

ENVIRONMENTAL CONDITIONS

Time (hhmm) 24h format	Ambient Temperature °F <input type="checkbox"/> °C <input type="checkbox"/>	Relative Humidity (%)	Wind Velocity Mph <input type="checkbox"/> Km/h <input type="checkbox"/>	Substrate Temperature °F <input type="checkbox"/> °C <input type="checkbox"/>

SUBSTRATE CONDITIONS

Type:					Details:
CONDITIONS	SPECIAL CONDITIONS				
Clean:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Primer Required:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Dry:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Protection Required:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Properly Fastened:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Exterior Coating:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Proper Adhesion:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Interior Thermal Barrier:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
					Moisture Content (MC):

TEST RESULTS

Density Calc: Open cell: $g + cm^3 = Kg/m^3$ Closed cell: $g + mL \times 1000 = Kg/m^3$ + 16 = pcf

Mass	Volume <input type="checkbox"/> cm ³ (open cell) <input type="checkbox"/> ml (closed cell)	Calculated Density
Weight of Sample #1(g):	Volume of Sample #1:	
Weight of Sample #2 (g):	Volume of Sample #2:	
Weight of Sample #3 (g):	Volume of Sample #3:	
Thickness Pass #1:	mm	inches
Thickness Pass #2:	mm	inches
Thickness Pass #3:	mm	inches
Number of Passes: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>	Total Thickness	mm / inches
Adhesion Test #1:	Pass <input type="checkbox"/> Fail <input type="checkbox"/>	Cohesion Test #1: Pass <input type="checkbox"/> Fail <input type="checkbox"/>
Adhesion Test #2:	Pass <input type="checkbox"/> Fail <input type="checkbox"/>	Cohesion Test #2: Pass <input type="checkbox"/> Fail <input type="checkbox"/>
Adhesion Test #3:	Pass <input type="checkbox"/> Fail <input type="checkbox"/>	Cohesion Test #3: Pass <input type="checkbox"/> Fail <input type="checkbox"/>

CORRECTIVE ACTIONS (List corrective action taken as a result of test failures)

Signature

Updated: 2020-06-02

APPENDIX L – JOB SITE LABEL



JOB SITE LABEL

This job site label confirms that the installed spray applied rigid polyurethane foam insulation meets the CAN/ULC S705.1 Medium Density Material Standard.
This product has been installed according to the CAN/ULC S705.2 Installation Standard

Job Site Address: _____
Product Names: _____ CCMC# _____
Licensed Contractor: _____
Address: _____
Phone: _____ Email: _____
Certified Installer(s) _____
License No(s) _____
Signed: _____ Date: _____

REVISION CONTROL LOG

Modified by	Approved by	Revision Date	Version #	Revision Summary