



Installer Certification Handbook

UFC Site Quality Assurance Program

1. Scope

Urethane Foam Consultants (UFC) Site Quality assurance program (SQAP) for spray polyurethane foam has been designed to provide a certification system to certify professional and competent installers of spray polyurethane foam. The UFC SQAP manual outlines the responsibilities of all of the parties involved. UFC is an IAS accredited personnel certification body in compliance with ISO 17024.

The intent of this program is to have sprayed polyurethane foam properly and professionally manufactured and installed in the field. This is accomplished by having a qualified, competent and professional installer meeting the precise requirements for the proper installation of spray polyurethane foam as outlined in the CAN/ULC S705.2, CAN/ULC S712.2 national standards and the manufacturer's instructions contained in the Manufacturers training manual. The UFC SQAP program has been designed in accordance with CAN/ULC S718. The obligations of the manufacturer and the installer are also identified. This handbook serves to summarize the pre-requisites, on-going requirements and re-certification steps required in order to maintain certification with UFC.

1.1 Fee Structure

The costs associated with completing UFC Certification are subject to HST (13%) and are outlined below:

Registration Cost	\$275
Written Test	\$330
Practical Test	\$220
Yearly Renewal*	\$140

*Please note installers must pay a yearly renewal fee in order to maintain good standing in the UFC SQAP. At the time of renewal, installers must be in good standing with UFC, with valid \$2 million commercial liability insurance.

2. 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 administrator

Person approved by UFC, competent to assess and approve an applicant for certification.

Certification Process

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



Certified Polyurethane Foam Sprayer

Person who successfully passes the UFC written and field examination requirements for certification.

Certification scheme

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

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 written examinations and practicum evaluations.

Qualification

Demonstration of personal attributes, education, training and/or work experience

Recertification

Process of confirming conformity with current certification requirements.

Scheme committee

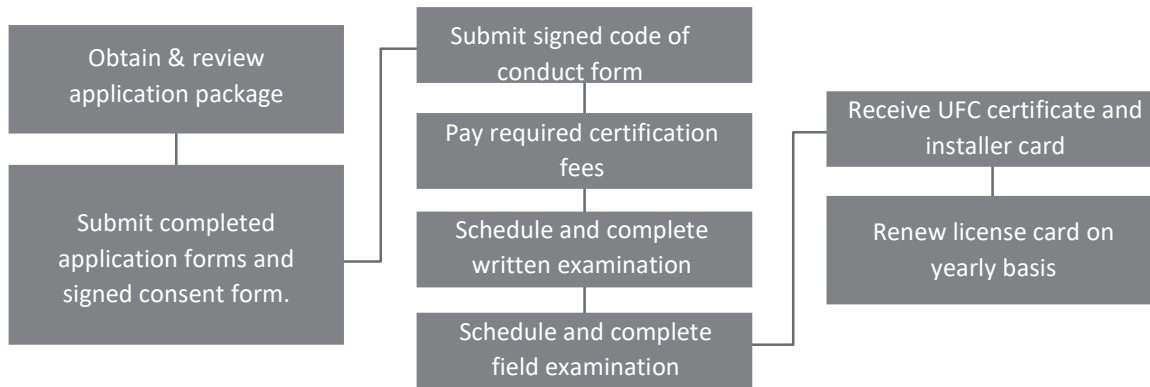
A group of stakeholders that provide input, recommendation, guidance and reviews of the certification scheme.

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.

3. Certification Process

UFC uses product and installation standards along with installation specifications and combines these with the ISO 17024 quality standard to develop the requirements in the SQAP. The standards and specifications are used to form the structure of the quality assurance program.



3.1 Summary of Qualifications

Installers wishing to achieve UFC Certification must demonstrate through written and practical evaluations, competency and knowledge of the following categories:

- Spray polyurethane product knowledge
- Equipment start-up, maintenance and adjustment procedures
- Job site setup and best-practices
- Health & Safety (Material Handling, PPE, Job Site, Regulatory Requirements)
- Field testing and quality control

An installer must successfully complete both written and practical evaluations in order to achieve a UFC certification. Should a failure be incurred in one of the evaluations, only the failed evaluation will have to be retaken. In the event of a failed written evaluation, the candidate will be provided a different test version to what was previously completed.

Required Documentation

- Applicant must submit a completed and signed application form and code of conduct.
- Applicant must submit payment of certification and evaluation fees.

The items above can be sent via email to info@foamexperts.ca

3.2 Written Examination Procedures

The written test will be a multiple-choice format test evaluating knowledge and skills in the following areas: material properties, equipment application and quality. The test area provided will include all supplies needed to complete the exam. The area will have adequate lighting, seating and working space to complete the test comfortably. Installers are required to achieve a minimum score of 76 out of 100 questions. A 3-hour time duration has been allocated. Below is a break-down of the content of the UFC written evaluation:

<u>Category</u>	<u>Weighting %</u>
Spray foam product knowledge	10%
Equipment knowledge	15%
Application knowledge	35%
Quality control	20%
Daily work recording	10%
Identification of sub-standard foam.	10%



3.2.1 Test Results

The applicant will receive test results within 5-7 business days of completing the examination. Your scores will be based on out of 100 questions provided. A passing grade will be 76 questions correct out of the 100. The minimum passing requirement will be monitored and reviewed every two years by the scheme committee.

3.2.2 Retesting

The applicant will be eligible to retake the test within 20 days; however the candidate / installer must present a letter from the manufacturers training provider stating that additional training has been given. In the event of a failed written evaluation, the candidate will be provided a different test version to what was previously completed.

3.2.3 Scheduling

Installer written evaluations are scheduled by UFC on a first-come, first-serve basis. We will endeavour to “batch” evaluations by geographic areas in order to minimize travel costs to installers. In order to secure your evaluation, please contact info@foamexperts.ca or 905-702-2555.

3.2.4 Written Exam Fees

The written examination fee of \$330 (plus applicable taxes) covers the cost of test delivery, provision of an appropriate location, review, production and scoring.

3.2.5 Allowed Documents during Examination

The following is a list of items you are permitted to have with you and review during your examination:

- Spray Foam Manufacturers Training Manuals
- CAN/ULC S705.1 and S712.1 Standards
- CAN/ULC S705.2 and S712.2 Standards
- Manufacturer Instructions, guidelines and technical data sheets
- Equipment Manufacturer Operating Guidelines
- Light Density Installer's Manual

The following is a list of items you are not permitted to have during your examination:

- Papers or books other than the materials listed above.
- Food, beverages, bags (including pocketbooks and purses), or electronic devices
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3.3 Field Test Evaluation

The installer will be required to demonstrate and provide documentation proving a minimum required set of skills and understanding in order to obtain an installer certification.

The Practicum evaluation can be done in a mockup situation or in the field (surveillance Audit). The installer will be observed and the evaluator will record whether the installer was installing the product correctly. The field exam will also include a series of major and minor skills. The installer will need to show compliance to all major skills in order to pass the examination. The installer must also show compliance with the minor skills. During the examination should the installer receive more than 100 demerit point from minor skills the examination will also be deemed a failure. The installer can inquire about major and minor skills by contacting the manufactures training provider. Installer will be required to show compliance with all of the CAN/ULC S705.2 and CAN/ULC S712.2 installer requirements.



3.3.1 Required Documentation and Equipment

As part of the UFC practical evaluation, the following items must be available:

1. Daily Work Records
2. MSDS for all materials
3. Technical Data Sheets
4. Job Site Label
5. Site test kit, meeting the requirements of CAN/ULC S705.2 and S712.2
6. Temperature (ambient and surface) meter, humidity meter and anemometer.

Should the candidate not have the above materials available, UFC can arrange to provide the required items. The candidate should inform UFC, in writing, at least 14 days prior to the evaluation, of what items that are unavailable.

3.3.2 Suspension of Evaluation

The UFC evaluator may choose to suspend the practical evaluation on the basis of the following factors:

1. The health and safety of the installer, evaluator or bystander is in jeopardy.
2. The required PPE, equipment or suitable work area is not available.
3. The equipment has suffered a catastrophic failure that cannot be repaired in a reasonable time frame.
4. The environmental conditions are not suitable for application of spray foam.

3.3.1 Test Results

The applicant will receive test results within 5-7 business days of completing the examination. The failure point for the practical evaluation is 100 demerit points. The minimum passing requirement will be monitored and reviewed periodically by the scheme committee.

3.3.2 Retesting

The applicant will be eligible to retake the test within 45 days; however the candidate / installer must present a letter from the manufacturers training course stating that additional training has been given. The candidate is responsible for paying the associated costs (testing cost, travel expenses) in order to retake the evaluation.

3.2.3 Scheduling

Installer practical evaluations are scheduled by UFC on a first-come, first-serve basis. We will endeavour to "batch" evaluations by geographic areas in order to minimize travel costs to installers. In order to secure your evaluation, please contact info@foamexperts.ca or 905-702-2555.

3.2.4 Practical Exam Fees

The practical examination fee of \$220 (plus applicable taxes) covers the cost of test delivery, review, production and scoring. UFC is not responsible for the provision of a spray rig, provision of chemical or mock-up assembly for the delivery of the practical evaluation.

3.3 Travel Expenses

The evaluation costs detailed above do not include the expenses associated with delivery. UFC will be the installer directly for the costs associated with test delivery and travel. Should multiple installers be present at an evaluation, UFC will evenly divide the travel expenses amongst the installer who attend. Travel expenses must be paid prior to the installer receiving their certification card.



4. Certification Maintenance

Upon successful completion of the UFC certification requirements, the installer will be granted a certification valid for 5 year period. In order to maintain the certification in good standing, the installer must agree to meet the following requirements:

1. Comply with all regulations and process set forth in the UFC certification scheme (i.e. surveillance audits, inspection and re-certification).
2. Install the product according to the relevant application standard (CAN/ULC S705.2, CAN/ULC S712.2) or specification that is relevant.
3. To make claims regarding certification only with respect to the scope for which certification has been granted (application of spray-applied polyurethane foam insulation).
4. Not to use the certification in such a manner as to bring the certification body into disrepute, and not to make any statement regarding the certification which the certification body considers misleading or unauthorized;
5. To discontinue the use of all claims to certification that contain any reference to the certification body or certification upon suspension or withdrawal of certification, and to return any certificates issued by the certification body;
6. Not to use the certificate in a misleading manner.
7. Advise the supervisor or contractor of any potential problems with the installation of the spray polyurethane foam material.
8. Provide all information requested to the UFC evaluator.
9. Approve UFC to provide current installer certification status to interested parties.
10. To only install spray polyurethane foam material which meets the appropriate standard or has received a Canadian Construction Material Center (CCMC) Evaluation Report or Listing.
11. Certified installer is to notify UFC of any changes to: personal or business contact information, insurance policy and current employer.
12. Daily Work Records are to be completed in full and retained for a period of 7 years by each spray foam contractor. Daily Work Records are to be submitted to UFC upon request.
13. The installer may be subject to a short-notice field evaluation once during the 5 year certification period. This surveillance audit is intended to verify that the certified installer is applying material in compliance with the current national standards, and the guidelines of the UFC quality assurance - program. Short-notice evaluations are to be scheduled at UFC's discretion in the event, most frequently when a contractor has received one or more complaints.
14. In order to maintain UFC certification, the installer must complete a recertification evaluation 5 years from the original certification date. The installer will be subjected to a written and practical evaluation.

Urethane Foam Consultants will evaluate the installer's compliance with the above requirements through surveillance audits as well as period reviews with distributors and chemical manufacturers.

5 Industry Standards

The current national standards are CAN/ULC S705.1 including amendments 1 and 2, CAN/ULC S712.1 for the material and CAN/ULC S705.2, CAN/ULC S712.2 for the installer's responsibilities or application. These standards are published by Underwriters Laboratory of Canada and are listed in the National Building Code and the provincial building codes. The CAN/ULC 700 Task Group Committee continues to review the standards and the industry installation specifications to ensure they are current. The Canadian Construction Materials Center (CCMC) has published a Technical Guide for Spray Polyurethane Foam Insulation. This guide is also used as part of the UFC SQAP.

6 Specifications

CAN/ULC committees have developed specific application installation specifications for the Industry. These specifications have been published for use by the industry. Specifications form an important part of ensuring that a quality installation is performed. The specifications always build on the national standard,

but it allows much more detail for a particular application to be included. Each specification is focused on a particular application. As the specifications are much more specific, they are updated on an ongoing basis as new information is received from the field, suppliers, and research institutions. UFC provides these specifications to interested parties in both a hard copy and an electronic format. The specifications include a general specification for the requirement of the UFC. This is done in the master specification format so the user can "drop" the UFC specification into a job specification.

7 Educational Requirements

One of the core principles of the UFC SQAP is the assurance of knowledge and competency of each installer. The written and field evaluations are designed to provide an evaluation of the installer's knowledge of health & safety, material, application and practical skill. In order to meet the requirements of the program, the installer must provide proof of training by the manufacturers CCMC approved training program.

A list of CCMC approved materials can be found at
<https://www.nrc-cnrc.gc.ca/eng/solutions/advisory/ccmc/evaluations.html>

Should an installer have already attended a manufacturer's training course, they have the option to "challenge" the tests. This allows them to attempt to complete a written and field evaluation, upon successful complete of which will earn them a license card and certification.

7.1 Learning Objectives

At the completion of the manufacturer's training program the participant should be able to:

- Describe how codes and standards are used and describe the most common ones used in the construction industry
- Describe the responsibilities of a certified installer
- Describe PPE implementation and product stewardship
- Describe the following in detail: MSDS, WHIMS and product labels
- Describe proper substrate conditions for application of specific spray polyurethane foam insulation materials
- Describe appropriate application technology
- Describe what is required for continuity / compatibility of components
- Describe detailed installation requirements
- Describe equipment components and their use
- Describe and conduct all required testing and site compliance inspections
- Describe and correctly complete all required documentation and reporting
- Describe troubleshooting requirements .

8 Field surveillance audits & Inspections

Field surveillance audits or installer site inspections may be conducted by UFC or a third-party independent group with approved inspectors under the UFC quality assurance program. These random field surveillance audits are designed to ensure that the consumer is provided with a quality product in accordance with the national standards for material and installation, the manufacturer's instructions, any applicable installation specifications and the requirements of the UFC SQAP.

8.1 Frequency of Field Audits

The number of field inspections will depend on the competency shown by the installer the initial assessment and feedback obtained by the UFC office. Should the installer pass, the audit will be repeated at a minimum of every 5 years when the installer completes recertification.

8.3 Skill Requirements and Demerit Points

The following is a list of necessary skills and installer must show the Inspector. The inspector may assess demerit points to the installer should the skill requirement not be met. The following is a summary of equipment and processes that the evaluator will assess during the surveillance audit.

UFC Surveillance Audit

* key skill major non conformance

- | | |
|---|--|
| - Fresh air respirator (in use) (Key Requirement) | - Installer has demonstrated density test |
| - Body Protection | - Drum Temperature |
| - Safety Shoes | - Hose Heat |
| - Gloves | - Machine Temperature (Pre-heaters) |
| - Safety Signs and Barrier Tape in position | - Pressure Setting |
| - Density Check (Key Requirement) | - Power Up Equipment (Key Requirement) |
| - Adhesion Cohesion Check | - Fire extinguisher availability: |
| - Job Site Label | - Spill containment materials available (on truck) |
| - Analytical balance (0.01 g resolution) | - Manufacturer's instructions |
| - 50gr. Calibration weight | - MSDS |
| - Graduated cylinder (1000 ml min size, 10 ml max graduation) | - Technical Data Sheets Present |
| - Circular disk or hook (70mm max diameter) | - Equipment manufacturer instructions |
| - Coring tool (70mm inside diameter) | - Foam surface smooth and consistent thickness |
| - Calculator | - Retrofit Installation Requirements: |
| - Thermometer and hygrometer | - Spray area isolated (Only apply to retrofit installation) |
| - Thickness gauge / test | - Vents blocked (Only apply to retrofit installation) |
| - Daily work sheet completed | - Verify ventilation is in place (Only apply to retrofit installation) |
| - Ambient temperature verified | - 15 min. eye wash station |
| - Wind speed verified | - Installer has valid UFC card present |
| - Installer verified humidity (<80%) | - Unsafe / Improper handling of drums (Key Requirement) |
| - Installer verified substrate temperature | |
| - Job Site Label | |

Should any above the above-indicated "key requirements" not be met during the surveillance audit, the installer will automatically be given a failure. They will be advised that they are to comply with remedial action set out by UFC in order to maintain their certification.

9. Certification Equivalency

At this point UFC will not be accepting certification by another third party. Each installer must complete the written and practical evaluations in order to achieve UFC certification.

10. Qualified Trainers and Proxy's

It is critical that a high level of professionalism be maintained. To ensure this, UFC will work with the manufacturers to ensure they only use evaluators who have worked in all facets of the industry and have a minimum of 5 years minimum experience or trained to ISO 17024 with one year of site evaluation experience. The training program will be constantly monitored and updated on an annual basis. New



entrants into the industry can be taken through a training session to become competent installers. This training program combines classroom instruction with follow up training in the field under the supervision of a "UFC qualified inspector".

11. Installer UFC Certificate

Upon completion of all of the requirements of certification the Installer will receive a UFC certificate. The certificate indicates that the installer is certified by UFC. The certificate will outline that the installer has met the requirements of UFC and is certified by an ISO 17024 certification body. Should the installer found to be not in compliance with the UFC Certification requirements, they will be required to forfeit the certificate to UFC upon request.

12. Scheme Committee

The Urethane Foam Consultants Field Quality Assurance program is continually evolving with input from the scheme committee. The members of the scheme committee shall be comprised of the following individuals: The UFC management team plus but not limited to one elected individual from each manufacturer using UFC's services. The maximum number of people on the scheme Committee at any time shall be six, if necessary to meet the six person limit, the number of persons sitting on the scheme committee shall be reduced accordingly excluding UFC personnel removal.

The scheme committee periodically reviews policy and procedures, but is not involved in the assessment of demerit points, suspension of certification or licenses, or re-instatement criteria, which are all to be administered by the UFC General Manager.

The scheme committee will be responsible for policy-making governing the development and operation of the UFC Quality assurance program. The scheme committee will meet as required at least once a year to review the UFC Field Quality assurance program

13. Conclusions

The UFC has been designed to be an industry-run program ensuring the consumer consistently receives a quality product.

13.2 General Objectives

The Program meets the requirements of all governmental agencies by providing a comprehensive UFC Field Quality assurance program to benefit the consumer. The Program constantly monitors the product and the installers through the database and the field inspections. This guarantees that the skills learned in the training sessions are maintained and used in the field. The program through its constant monitoring will notice trends and identify concerns before problems are created and allow the industry to take the necessary steps to correct the situation.

The Program satisfies the consumer or end-user of the spray polyurethane foam insulation system that it has been installed to the highest quality standard. The installer can open new markets as he/she will be able to provide the level of consumer confidence required to expand the use of the product.

13.3 Monitoring and Evaluation

Constant feedback from consumers, manufacturers / suppliers, installers, inspections, and daily work sheets will allow for a continuous monitoring and evaluation of the UFC SQAP. This feedback will be used to adjust and refine the UFC Site Quality assurance program on an ongoing basis. UFC will evaluate feedback as part of the annual management review.

13.4 Impartiality

Urethane Foam Consultants undertakes all certification activities as an impartial, third-party organization working under the guidelines of ISO 17024. Our certification activities and scope are limited to the application and quality of spray-applied polyurethane foam insulation. UFC's management has a commitment to maintain and ensure that inspection activities and organizational structure comply with the impartiality requirements identified in ISO 17024.



Threats to impartiality are evaluated on an on-going basis and are reviewed and addressed yearly during management reviews. Specific attention will be paid to identifying and documenting any threats to impartiality which can include, but are not limited to:

- 1) Commercial, financial or other pressures compromising impartiality.
- 2) Any relationships that may compromise impartiality, relationships can include direct relationships of the business, as well as relationships of UFC employees.
- 3) Should any threats to impartiality be identified, UFC is to document how these threats will be minimized. This process is to be part of the management review.

14) Preparation for UFC Evaluations

In order for a UFC evaluator to complete a UFC written and practical evaluation at the contractor's location, we have attached a list of items that will be required. The purpose of the installer field test is so the UFC representative can verify that the installer can:

- Set-up a spray foam job, as per the CAN/ULC standard S705-2 or CAN/ULC S712.2.
- Start –up the spray foam equipment.
- Show that he can spray foam in a wall cavity.
- Show that he can perform the duties required to fill out a daily work record and job site label, using a site test kit.

UFC Written Test Requirements:

- Contractor needs to supply a room with:
 - Sufficient seating and table for the students to write the UFC test.
 - Students have 3 hours to complete UFC test (100 questions - need 76 % to pass).
- UFC will not supply in-class lunch for the students. Students have 1 hour for lunch break.
- UFC will supply the pens

UFC Field Test Requirements:

- A complete operational spray foam system, wetted down with the chemical manufactures product.
- All items required on site as per the CAN/ULC standard S705.2 or S712.2 as required
- MSDS Sheets for all liquids on spray foam rig.
- Chemical Manufactures product information sheet (tech data sheets)
- Equipment Manufactures Instructions (Operational Manuals for all equipment in spray rig).
- Eye wash station (rated for 15 minutes).
- Fire Extinguishers (2 x 4.5 kg. fire extinguishers). One located in spray rig and the other one for the foam application area.
- Spill containment materials.
- Fume extraction (if needed).
- Warning signs.
- Fresh air supply and PPE equipment for the installer.
- A mock wall set-up in a shop or a job site where the installer can do the spray foam test.
- A site test kit to do the procedures for filling out the daily work record.

Practical Evaluation: As part of the UFC Field Test Audit. The installer will be required to show that they can apply spray foam, with a reasonably smooth surface and a consistent thickness. The installer will

need to spray two 50 mm passes of foam in a standard 2" x 4" wall cavity with 16 "center studs or another typically representative framing construction. Multiple passes provide us the opportunity to observe a cohesion test in addition to the adhesion test performed on a single pass. A single 50 mm pass is acceptable for the evaluation if framing or jobsite specifications limit thickness beyond 50 mm. This spray test can be done at the contractor's location with the use of a mock wall or at a job site close to the contractor's location.

Mock Wall: If there is no job site available, the UFC field test audit spray foam trail could be done at another location with the use of a mock wall and a well-ventilated area. In the event a mock wall is used, the installer is to apply two 50 mm passes of material.

Typical Mock Wall assembly: The Mock wall only needs to be 4 ft. x 8 ft. This can be done with a single sheet of 1/2" dry wall or 1/2" plywood. You can use 2"x 4" wood studs or 2"x 4" tin studs. There should be six (16" x 48") wall cavities. The mock wall should be mounted horizontally about 3 feet off the ground for the spray trial (as shown in attached picture). The provided dimensions are typical of residential framing construction, you may elect to use 24" on center stud spacing if preferred.

In order to reuse the mock wall for spray trials, it is recommended that cardboard inserts are used in the mock wall 16" x 48" cavities. The cardboard will make it easy to remove the spray foam from the cavities. The cardboard sheets will need to be cut into 22 "x 54" sections. You should allow 6 to 10 sheets of cardboard per installer.

The mock walls can be sprayed outdoors or indoors. If spraying indoors, you need to poly plastic protect the application area and supply ventilation for fume extraction.

