



## **NIICAP Auditing Standard: AS-3**

### Program for Accreditation of Employer Coating Applicator Training Programs

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## **1. INTRODUCTION**

1.1. NIICAP™ is the Contractor Accreditation Program of the NACE International Institute Business Services LLC (hereafter referred to as NIIBS). This document is the NIICAP AS-3 Standard, "Program for Accreditation of Employer Coating Applicator Training Programs" (hereinafter referred to as AS-3). This standard should be used in accordance with the "Contractor Accreditation Program Policies and Procedures Manual" (Reference 2.1) to conduct quality management audits for shop and field industrial/marine coating and lining operations.

1.2. Requiring NIICAP accreditation improves the level of confidence that the owner has when s/he evaluates and selects a contractor to perform work. Participation in NIICAP is an indication that the contractor holds his/her work to a high standard of quality.

1.3. AS-3 is a NIICAP auditing standard, and represents a consensus of the NIICAP development group that reviewed this standard, its scope, and its requirements.

1.4. The technical requirements of AS-3 are managed by the NIICAP Oversight Board. Administrative oversight of the NIICAP accreditation programs is by NIIBS personnel, the NIICAP Oversight Board, and the Policies and Procedures Committee of the NACE International Institute.

1.5. In-house Applicator Trade Skills Training auditing standards, testing, and acceptance criteria is based on References 2.2 and 2.3.

1.6. Management practice assessment are based on Reference 2.5.

## **2. REFERENCE DOCUMENTS**

2.1. NIIBS "Contractor Accreditation Program Policies and Procedures Manual" 2015 (use latest revision) (Houston, TX: NACE International Institute).

2.2. ANSI/NACE No. 13, ANSI/NACE/SSPC Standard Practice: "Industrial Coating and Lining Application Specialist Qualification and Certification" 2008 (use latest revision) (Houston, TX: NACE International and Pittsburgh, PA: SSPC).

2.3. ASTM D 4228-99: "Standard Practice for Qualification of Coating Applicators for Application of Coatings to Steel Surfaces," (use latest revision).

2.4. NIIBS, "NIICAP Auditor Manual," 2015 (use latest revision) (Houston, TX: NIIBS Inc.).

2.5. ANSI/ISO/ASQ Q9001-2008: "Quality Management Systems – Requirements" (use latest revision).

2.6. NIICAP Contractor Program Process Map (use latest revision) (Houston, TX: NIIBS Inc.).

2.7. NIICAP Standard: AS-1, "Program for Accreditation of Field and Shop Coatings Contractors" (referred hereinafter as NIICAP AS-1) (use latest revision) (Houston, TX: NIIBS Inc.).

2.8. NIICAP Standard: AS-3, "Program for Accreditation of Employer Coating Applicator Training Programs" (referred hereinafter as NIICAP AS-3) (use latest revision) (Houston, TX: NIIBS Inc.).

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### **3. SCOPE**

NIICAP applies to all industrial and marine surface preparation and coating or lining application work performed by a NIICAP-accredited coating contractor firm. The intent of the program is to determine whether an industrial/marine coatings contractor has access to the personnel, organization, qualifications, procedures, knowledge and capabilities to meet customer specifications on time, first time, and within budget. This audit standard is used to assess the contractor's in-house trade skills training program as part of the contractor's overall ability to meet the customer's specifications by putting a professional workforce on the job site. NIICAP does not certify an employer's in-house trade skills training program, or the workers trained in accordance with that program. NIICAP verifies that program content, program management, methods of delivery, testing practices, objectivity of the testing protocol, and employee retention meet the NIICAP requirements at the time of the audit.

3.1. In some cases, owners may choose not to invoke NIICAP as a requirement for contractor bids, or they may choose to require NIICAP accreditation but exempt contractors from certain NIICAP requirements. The fact that the owner exempts a requirement will not affect the NIICAP accreditation process or requirements, since the contractor may use the accreditation on jobs where there is no exemption from NIICAP requirements.

3.2. In all cases owners are responsible for reviewing appropriate health, safety, environmental, and regulatory documents and for determining their applicability in relation to NIICAP prior to its specification.

3.3. The baseline NIICAP accreditation is NIICAP AS-1. It provides a core accreditation for the capability to perform surface preparation and coating/lining application process either in shop or in the field. After achieving the baseline accreditation, contractors may seek additional NIICAP accreditation. This document, AS-3, is the in-house applicator training accreditation based on References 2.2 and 2.3.

3.4. A NIICAP accreditation does not ensure, guarantee, or certify that a contractor performs in a professional, efficient, contracted, or ethical manner. A NIICAP accreditation indicates that a contractor (a) meets the relevant auditing standard(s) at the time that the NIICAP official audit is performed, and (b) a sampling of the work performed, or in the case of AS-3, the applicator trade skills training performed, prior to and at the time of the audit, based on shop or field training and testing, and recorded observations, meets the relevant auditing standard(s).

3.5. NIICAP accreditation of a contractor's in-house applicator trade skills training, as implemented through AS-3, provides industry and government with a recognized initial and ongoing accreditation program to verify that a contractor and its relevant employees have demonstrated or produced the following:

3.5.1. Management and support infrastructure in place to provide an effective and thorough in-house applicator trade skills training program.

3.5.2. Documented experience of at least six (6) months history of performing an in-house applicator trade skills training program.

3.5.3. Specialized skills and documented trade skills training required to perform the surface preparation and coating application practices in the specialized applications in which the contractor maintains an accreditation. Training for specialized skills must have been witnessed on each audit visit.

3.6. In-house Surface Preparation and Application Training Programs

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3.6.1. NIICAP will perform an audit of a contractor's in-house applicator trade skills training program and, if the trade skills training program meets criteria in this standard, NIICAP will provide accreditation of the employer's application trade skills training program. To receive NIICAP accreditation of an in-house surface preparation and application trade skills training program, the trade skills training program must, at a minimum, meet or exceed the requirements of References 2.2 and 2.3 as implemented by this document, AS-3.

3.6.2. The NIICAP audit of an employer's application trade skills training program addresses training requirements for surface preparation tasks, coating/lining application tasks, skills and tasks ancillary to surface preparation and coating/lining application, and data collection related to QC functions. NIICAP does not provide an accreditation for employer programs associated with independent QA/QC tasks. The only current method to obtain independent QA/QC qualification is by successfully completing one of the recognized commercially available courses.

3.6.3. The contractor is required to demonstrate an effective application trade skills training program, including testing and data/records collection for the surface preparation and coating/lining application methods used by the contractor. Because the employee's qualification is not portable from one contractor to another, there is no need to address skills and equipment usage for methods that the contractor does not use.

#### **4. DEFINITIONS**

For use within NIICAP and this standard, definitions shall apply as shown in Reference 2.1.

#### **5. INITIAL, MAINTENANCE, AND RENEWAL ACCREDITATION PROCESSES**

5.1. The Initial and Renewal accreditation processes include a very thorough administrative review of management processes, documentation, lesson plan development, scheduling of training, test content and protocol, and recordkeeping, as well as an on-site audit of trade skills training practices, mock up availability, and training equipment condition and use to verify that in practice the trade skills training program in place meets the requirements of the documented trade skills training program written directions and policies. The Maintenance accreditation process is similar to the Initial or Renewal accreditation process; however, it involves validation of a known trade skills training program and training practices and is less intensive.

##### **5.2. Initial or Renewal Accreditation Process Overview**

5.2.1. Contractor submits application form (available at [www.niicap.net](http://www.niicap.net)), fees, and supplemental forms and information. Normally a trade skills training audit is performed in accordance with AS-3 requirements concurrent with an accreditation audit performed in accordance with AS-1. The submission should be in PDF format, and include:

5.2.1.1. Work experience form; detail of owners and projects worked within the last twelve (12) months.

5.2.1.2. Training department information sheet.

5.2.1.2.1. List of experience and third-party certification of the employer's training manager, and instructors or trainers, identifying each individual in the training department.

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5.2.1.3. Contractor-specific references such as internal instructions or manuals related to the employer's application trade skills training program, including:

- 5.2.1.3.1. NIICAP contractor application form;
- 5.2.1.3.2. Training or maintenance of current training manager, and instructor skills;
- 5.2.1.3.3. Lesson plan development;
- 5.2.1.3.4. Training protocols, such as instructor-led training, on the job (OJT) experience tracking, individual study requirements, and computer-based training, quizzes, testing, tracking, and accreditation of skills;
- 5.2.1.3.5. Lesson plans for each major task or skill when in-house training is used;
- 5.2.1.3.6. Lesson plans for environmental, health, and safety training, including right to know requirements, fall protection, and confined space entry when in-house training is used;
- 5.2.1.3.7. Lesson plans for hazardous material and hazardous waste handling and management when employer training is used;
- 5.2.1.3.8. List of higher-tier references applicable to each lesson plan;
- 5.2.1.3.9. Written and practical test protocols for all of the above lesson plans when in-house training is used;
- 5.2.1.3.10. Decision matrix, instruction, or policy defining student selection and scheduling of training;
- 5.2.1.3.11. Direction for analyzing test data and discrepancy data to develop trade skills training program updates as appropriate; and
- 5.2.1.3.12. Direction for supervisors and training managers to use when assessing and documenting employee work practices, and counseling employees on progress.

5.2.1.4. Contractor's information sheet, including:

- 5.2.1.4.1. Current bonding status, bond company, and policy number;
- 5.2.1.4.2. Current insurance policy cover sheet and declarations sheet, including the current experience modification rate (EMR);
- 5.2.1.4.3. Information on any health, safety or environment (HSE), national, state/province, or local citations or notices of violation (pending or final) received within the last forty-eight (48) months for an initial application and within the last thirty-six (36) months for subsequent applications;
- 5.2.1.4.4. Information on any outstanding or known pending detrimental legal actions; and
- 5.2.1.4.5. Other company names the contractor has worked under in the past thirty-six (36) months.

5.2.1.5. Contractor's training documentation information sheet, including:

- 5.2.1.5.1. Employee training and certification tracking program, and examples showing tracking of skills, training, testing results, OJT tracking, certifications or accreditations, and employee progress reviews (or summary entry); and

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- 5.2.1.5.2. Employee skills break-down matrix to assess skills in the work force compared to skills needed by the contractor's workload.
  - 5.2.1.6. Contractor facility information sheet for each facility, including:
    - 5.2.1.6.1. A physical description of each facility including details on surface preparation facility, coating facility, and curing location;
    - 5.2.1.6.2. Complete list of surface preparation methods and coating/lining application methods used by the contractor with a description of each, including equipment used and materials typically encountered and removed or applied;
    - 5.2.1.6.3. Environmental controls during surface preparation, coating, and cure;
    - 5.2.1.6.4. The applicable policies, quality assurance practices, process instructions, and trade skills training program performed in the facility. If multiple facilities use exactly the same instructions, only one set of instructions is required. If there is any difference between instructions from one facility to another, a set of each of the differing instructions must be submitted with an indication of which facility uses which instructions;
    - 5.2.1.6.5. Average number of employees on site, including temporary workers and subcontracted workers performing surface preparation or coating/lining application tasks. Include break out of the number of each category of worker; and
    - 5.2.1.6.6. Total throughput per site per month for the year; either defined by square footage throughput per month for each month covering a year, or a dollar amount per month with an average cost per square foot processed. The intent is for NIICAP to define an approximate schedule to determine environmental risks based on throughput and the facility controls in place at the time of the work.
  - 5.2.1.7. Personnel certification review.
    - 5.2.1.7.1. Number of personnel with current professional certification by the NACE International Institute, NBPI (accepted for Navy ship work), SSPC, NCCER, or FROSIO or similar organizations with a breakdown by type of certification and date of certification or most recent renewal date.
  - 5.2.2. The NIICAP chief auditor shall perform a technical review based on the submitted documentation and develop a list ranking the facilities.
    - 5.2.2.1. All facilities that have a trade skills training program equivalent to, or above, the facility audited in the ranking will be eligible to receive AS-3 accreditation for the employer's trade skills training program based on the facility audit;
    - 5.2.2.2. All facilities having a trade skills training program ranked lower, or less complete than, the audited facility shall not be eligible to receive AS-3 accreditation for the employer's trade skills training program until the subject facilities are successfully audited, or evidence is provided showing that the training program at the subject facilities have been improved adequately to be ranked equivalent to, or above, the audited facility;
    - 5.2.2.3. The contractor may exercise the option to pursue AS-3 accreditation for some facilities while not pursuing accreditation for other facilities.
    - 5.2.2.4. If a contractor exercises the option to pursue AS-3 accreditation only at some facilities, no placard, statement, or evidence of AS-3 accreditation may be

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displayed or attributed to a facility that has not received AS-3 accreditation. Personnel qualifications based on AS-3 accreditation are valid only at facilities that have achieved AS-3 accreditation and operated by the same contractor that achieved AS-3 accreditation.

5.2.3. NIICAP administrator verifies payment of application fees prior to commencing a technical review.

5.2.3.1. NIICAP administrator shall review submitted documents for administrative records, personnel records, doing business as and company history.

5.2.3.1.1. The company history review will include a review of regulatory sites that provide information on company performance. In the U.S., this includes OSHA and EPA sites.

5.2.3.2. The NIICAP chief auditor shall review technical portions of the submitted material and owner and job submissions to determine adequacy of the application.

5.2.3.3. The NIICAP administrator may request any additional information needed from the contractor.

5.2.3.4. The NIICAP administrator shall enter the application and submissions into database, schedule the audit, and invoices the contractor for the audit fee.

5.2.3.5. The NIICAP administrator shall select the auditor and provides the auditor with access to the applicable documents. The NIICAP administrator may consult with chief auditor to match auditor experience to the type of industry being audited.

5.2.3.6. The auditor shall review submitted documents and performs the administrative portion of the audit to the maximum extent possible prior to traveling to the contractor's facility. During the document review, the auditor shall complete the audit preparation sheet based on the information provided in the submitted documents. The auditor sends a copy of the completed Audit Preparation Sheet to the chief auditor prior to consultation. This reduces the time spent during the audit finding facts and details related to the audit.

5.2.3.7. Successfully completing the administrative portion of the audit is a prerequisite for verifying practices at the contractor's facility. Therefore, if any of the documentation, instructions, or policies are incomplete or inadequate, and will result in a failed audit, the chief auditor shall notify the contractor of the discrepancy. The contractor may request NIICAP to suspend the audit while the discrepancies are addressed and documentation is resubmitted; the request must be submitted to the NIICAP administrator in writing.

5.2.3.8. After all documentation, procedures, and instructions have been verified to be adequate, and NIICAP personnel verifies that contractor has paid audit fees, the auditor shall travel to the contractor's facility, performs the shop/field portion of audit and completes the administrative portion of audit.

5.2.3.9. The Initial audit shall be a thorough review of the contractor's management policies related to employee trade skills training. The prerequisite administrative review shall include:

5.2.3.9.1. The contractor's history to determine whether any recent or pending actions may indicate a potential for a training deficiency;

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- 5.2.3.9.2. The contractor's administrative controls, instructions, training plan, and tracking program that contributes to the adequacy and consistency of the trade skills training program;
- 5.2.3.9.3. Training records, test results, employee performance reviews, and employee training plans; and
- 5.2.4. Activities of the on-site audit auditor.
- 5.2.4.1. Observe the contractor's training staff as they proctor a retention test for selected employees using the testing material previously approved during the document review portion of the audit;
- 5.2.4.2. Verify mock-up facility and support equipment. If trade skills training and testing is performed in actual field/shop operations rather than using a mock up, the auditor must determine if the complexity of the work site is comparable to the test apparatus described in Reference 2.3;
- 5.2.4.3. Observe hands-on skills testing during the field/shop audit;
- 5.2.4.4. The number of required observations will be based on the contractor's in-house trained population by job title. A test cycle is one (1) employee performing the practical for either surface preparation or coating application or both. The definition of the cycle depends on what skill mix the employee will be qualified to perform;
- 5.2.4.4.1. The auditor shall observe two (2) test cycles for a small contractor defined as employing twenty (20) full-time coatings applicators or less in a twelve (12) month period;
- 5.2.4.4.2. The auditor shall observe four (4) test cycles for other contractors that employ more than twenty (20) full-time coatings applicators in a twelve (12) month period; and
- 5.2.4.4.3. The required number of observations defined above shall apply to personnel performing surface preparation by abrasive blasting or water jetting, plural component airless pump operation, airless pump operation, and airless or plural component airless applicator; however, the observations are limited to the processes that the contractor performs.
- 5.2.4.5. The chief auditor and auditor review observations and possible findings during all steps of the audit to determine the facts, the significance of an observation, and whether it warrants an observation, minor finding, or major finding. The chief auditor and auditor shall also determine the appropriate values to assign to each of the observed attributes.
- 5.2.4.6. The auditor shall submit the proposed audit report, through the chief auditor, to the NIICAP administrator upon completion of the shop/field portion of the audit. The chief auditor, the auditor, and NIICAP administrator shall review the report and concur or agree on corrections.
- 5.2.4.7. The NIICAP administrator shall send an interim letter to the contractor, based on Paragraph 5.2.4.6, with a copy to the auditor and chief auditor.
- 5.2.4.8. The chief auditor and the auditor shall out-brief with the contractor. Typically, this event is performed by telephone because it occurs several days after the audit.
- 5.2.4.9. The contractor proposes corrective actions to be performed, for consideration by the chief auditor and administrator.

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5.2.4.10. Once accepted, the contractor performs the corrective actions and the auditor shall verify the actions, either based on documentation or a follow up shop/field audit. Any follow up audit site-visit will be performed only after the NIICAP administrator receives payment from the contractor.

5.2.4.11. The chief auditor shall recommend appropriate action to the appropriate NIICAP Oversight Board subgroup based on the audit report and validation of the corrective actions taken.

5.2.4.12. On a monthly basis, the NIICAP Oversight Board or a subgroup thereof reviews the monthly reports from the auditor/chief auditor and considers whether to confirm the recommended accreditations. Voting members may not be in the position of doing business with any contractor whose accreditation is being reviewed, or having any other conflict of interest.

### 5.3. Maintenance Application Overview

5.3.1. The Maintenance accreditation process is the same as the Initial and Renewal accreditation process; however:

5.3.1.1. The administrative review in the Maintenance audit is less detailed and focused on determining continued consistent performance.

5.3.1.2. If the contractor has multiple locations, each round of Initial, Renewal, and Maintenance accreditation must rotate among the facilities.

### 5.4. Accreditation Cycle and Details.

5.4.1. The Initial, Renewal, and Maintenance accreditations are valid for one (1) year.

5.4.2. The cycle consists of one (1) Initial accreditation, followed by two (2) Maintenance accreditations, and starts over with one (1) Renewal accreditation followed by two (2) Maintenance accreditations. At the end of the third year, the Renewal cycle is repeated. For detailed actions, refer to Reference 2.6 and Section 7 of this standard.

## 6. AUDITOR QUALIFICATIONS

6.1. NIIBS manages a written process for selecting, training, qualifying, and evaluating NIICAP auditors who are independent contractors to NIIBS. See Reference 2.4.

## 7. CONTRACTOR REQUIREMENTS TO ACHIEVE NIICAP AS-3 TRAINING ACCREDITATION

7.1. Business structure. This is a statement of the business practices used by the contractor to manage and deliver a trade skills training program and ensure the quality of the job being performed.

7.2. Applicator Trade Skills Training Program. The contractor shall have a trade skills training program and a documented Applicator Trade Skills Training Manual. The Applicator Trade Skills Training Manual shall define the parameters of the trade skills training program including:

7.2.1. Statement of training goals and employee development objectives. The statements must be prominently posted and accessible to both managers and workers. The contractor should refer to employee development principles regularly in written and

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oral format and commit to ensuring that schedule and cost pressures do not negate or dilute the intent of the written training policy;

7.2.2. Definition of the position descriptions; and

7.2.3. Trade skills training and certification requirements, and responsibilities of personnel related to trade skills training functions.

7.3. Assignment of Key Training Related-Functions and Requirements. Descriptions of said functions and requirements shall be included in the contractor's training program and may be assigned as appropriate within the organization. The key functions include:

7.3.1. Direction on how to develop, review, update, and deliver a lesson plan;

7.3.2. Training plan specific to a subject describing the methods for delivering the trade skills training, such as hands on, verbal, or student reading;

7.3.3. References to training plans for each subject required to perform the business activity;

7.3.4. References to industry standards related to the lesson plans and instructions;

7.3.5. Direction or protocol for administering written and hands on testing, and quizzes;

7.3.6. Direction for correcting quizzes, hands on and written tests, and recording test scores;

7.3.7. Requirement for all personnel to have trade skills training or certification in accordance with Appendix A of AS-3;

7.3.8. Managing and analyzing the employee skills development tracking program;

7.3.9. Reviewing and analyzing contractor caused discrepancies, and technical resolution to incorporate improvements into the trade skills training program where practical; and

7.3.10. Reviewing periodic in-house surveillance or audit reports to determine compliance with applicable requirements. The program should review data developed by the QA manager on findings, corrective actions, surveillance of material storage areas and work practices, and follow up to incorporate lessons learned into the training program where practical.

7.4. Effective In-house Applicator Training Management Team. The contractor must have an effective in-house training management team as defined in the Applicator Trade Skills Training Manual. At a minimum the management team will consist of an Applicator Training Manager and an Applicator Trade Skills Instructor with input from the employee's shop or field supervisor. Depending on the size and complexity of the organization, and the extent of the in-house vs. commercially available training, additional instructors may be necessary for hazardous material, hazardous waste, occupational safety and health, environmental compliance, and specialty skills.

7.4.1. The team must have enough depth to support the number of work crews and individual workers that the contractor employs at the peak workload. However, one individual may perform more than one function.

7.4.2. The contractor shall have an organizational chart or contact list for significant personnel within the training organization. The chart or list may be part of the company list and does not need to be stand-alone; however, the contact information for the training organization personnel must be readily available to all employees.

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7.5. Position Descriptions. At a minimum, the position descriptions for the positions noted below should include the following responsibilities:

7.5.1. Applicator Training Manager responsible for management of the overall trade skills training program:

7.5.1.1. Development and approval of the applicable training plans, lesson plans, exams, quizzes, lecture material, and retention testing;

7.5.1.2. OJT schedules, training schedules, and class schedules;

7.5.1.3. Manage the skills tracking system for each employee, including experience, OJT tasks and hours, training completed, training needed, test scores, due dates, and progress review information to verify timely completion of tasks and for contribution to training development;

7.5.1.4. Student selection to ensure a balance between employee skills certification and employer skill mix necessities; and

7.5.1.5. Manage the functions and professional development of the instructors;

7.5.2. Applicator Trade Skills Instructor (reporting directly to the Applicator Training Manager):

7.5.2.1. Presenting material in accordance with the applicable lesson plan;

7.5.2.2. Answering technical questions posed by the students;

7.5.2.3. Proctoring exams and quizzes;

7.5.2.4. Counseling students on academic or trade skill strengths and weaknesses;

7.5.2.5. Maintaining records of the students' progress;

7.5.2.6. Reporting recommendations for changes in the lesson plans to the Applicator Training Manager; and

7.5.2.7. The Applicator Trade Skills Instructor must provide input regarding employee progress.

7.5.3. The instructor reports directly to the Applicator Training Manager and perform all of the instructor functions identified above for subjects other than trade skills that are required for effective business function, including:

7.5.3.1. General safety, health, and environmental training; and

7.5.3.2. Specialized subsets of safety, health, and environmental related to a specific task.

7.5.4. Shop/field supervisor. The employee's supervisor must provide input regarding employee progress based on worksite observations of trade skills, and documenting strengths, weaknesses, and progress to be used during the periodic employee review.

7.5.5. The employee must participate in periodic reviews of his/her progress to ensure good communication of goals and milestones. Normally the supervisor performs the periodic review with the employee.

7.5.6. Depending on the size of the organization, the same individual may perform any combination of the above positions, or the individual may have additional duties; however, production responsibilities may result in a conflict of interest and should be avoided.

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7.6. Required Skills and Proficiencies. The documented training program shall include and document required skills and proficiencies, instructor-led training, on-the-job-training, and skills testing for various levels of employees, from entry-level laborers to technicians skilled in the use of technical equipment appropriate for the work performed by, and equipment and processes used by, the contractor.

7.6.1. Examples of technical surface preparation and application equipment include: UHP equipment, abrasive blasting equipment, plural component spray equipment, airless spray equipment, conventional and HVLP spray equipment, electrostatic and powder coating spray equipment.

7.6.2. The contractor's applicator trade skills training program may be delivered internally, by a third party, through a commercially available program, or a combination of in-house and commercially available training. The NIICAP AS-3 accreditation applies only to the employer's internal application trade skills training program; however, the contractor must provide information on other training venues to verify that all of the required subjects are adequately covered within the contractor's training program.

7.6.3. NIICAP recognizes the following third-party programs as meeting the requirements of general applicator trade skills training and meeting the body of knowledge requirements of Reference 2.2:

7.6.3.1. IUPAT (International Union of Painters and Allied Trades) Apprenticeship Training Program for Painters;

7.6.3.2. NCCER Industrial Lining and Coating Application Specialist Training Program;

7.6.3.3. SSPC Coating Applicator Specialist Training Program;

7.6.3.4. NACE International Coating Application Training Program (available 2016); or

7.6.3.5. NACE International Institute Coating Applicator Certification Program (available 2016).

7.6.4. NIICAP recognizes the following third-party programs as meeting the requirements of the specific skills addressed by each certification:

7.6.4.1. SSPC C-7 Abrasive Blasting Program;

7.6.4.2. SSPC C-12 Spray Application Program.

7.6.4.3. SSPC C-13 Waterjetting Program;

7.6.4.4. SSPC C-14 Marine Plural Component Program;

7.6.4.5. SSPC ATT Train the Trainer Program; and

7.6.4.6. NCCER Painting Program.

7.6.5. The contractor may submit information on other third-party trade skills training and certification programs for consideration. Contact the NIICAP administrator for more information.

7.6.6. The contractor's training program must include the following details:

7.6.6.1. All items mentioned in Paragraph 5.2.1.3;

7.6.6.2. A training plan and lesson plan for each subject covered by the contractor's in-house applicator trade skills training program;

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7.6.6.3. A training plan and lesson plan for advancement through qualification or certification for a defined skill set. Training plans or lesson plans may be combined if the subject matter is similar; however, all required subjects must be addressed;

7.6.6.4. A training plan and lesson plan for basic training for employee safety and health requirements and environmental practices necessary to prevent spills or inadvertent discharge of hazardous material or hazardous waste to the environment;

7.6.6.5. A tracking system for each employee that includes managing and tracking:

    7.6.6.5.1. Training elements completed by the employee;

    7.6.6.5.2. Safety and health training including employee “right to know” training, and environmental training elements completed by the employee;

    7.6.6.5.3. Certifications held by the employee;

    7.6.6.5.4. Skills testing completed by the employee, test scores, observations, and approvals’

    7.6.6.5.5. Written input from the instructors and the supervisor regarding employee progress based on supervisor observation of work performed by the employee, and instructor observation of quizzes, tests, and employee understanding of the curriculum; and

    7.6.6.5.6. A periodic review of the training being delivered to determine if the training plan is being followed and if the training plan needs to be modified. The review periodicity must be at least annually;

7.6.6.6. A supervisor, applicator training manager, or lead person assigned to maintain and review the tracking and progress of the employees and maintain copies of progress reviews including strengths and weaknesses if appropriate. The employee and the supervisor or applicator training manager will sign the review indicating that the employee was counseled on his/her status. The employee will sign the review indicating that the employee was counseled and reviewed the progress review document.

7.6.6.7. The training program shall define the employee progress review frequency. Some options may include annually, at the end of a project, an exit interview prior to the end of employment, or as defined in the contractor’s training program. The frequency shall be at least annually.

7.6.6.8. Training may be cursory or in-depth, depending on whether the training is intended to make an employee aware of a program, or if the training is intended to qualify the employee to actively participate in the task. An example is crane safety for a painter who does not operate a crane would consist of awareness of the hazards and how to avoid them. Crane safety for a painter who also operates a crane or performs rigging tasks would include hand signals, how to operate the crane, how to communicate an emergency stop, appropriate rigging practices, etc.

7.7. Trade Skills Training and Skills Development of Surface Preparation and Application Employees. The NIICAP auditor shall perform a document review to verify that the contractor’s lesson plan contains the required elements, and all other documentation is available and acceptable as a prerequisite to the field/shop audit. The auditor shall perform an on-site audit to verify that the contractor follows the training plan for all training practices, test administration, delivery of content, and all functions defined in the contractor’s training plan, including the general knowledge requirements below.

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## 7.8. General Knowledge Requirements.

7.8.1. The lesson plan, testing, or other methods used verify that the student can read, write, speak, and understand instructions in the language of the worksite. In some cities, regions, or countries, more than one language is in common use at worksites. The lesson plan must verify that the student can communicate effectively in one of the common languages at the worksite.

7.8.2. Employees must receive safety and health training prior to exposure to the hazards regarding confined space entry, “right to know”, hydrogen sulfide, personal protective equipment (PPE), fall protection, chemical exposure, respirator use, hearing protection, lock out tag out, aerial work platforms, electrical grounding, scaffolding and ladder use, heavy metals and toxic materials exposure, and other general hazards as they apply to the working environment and as defined in Appendix A of this standard.

7.8.3. Employees receive safety training prior to the exposure to the hazards related to specific trade hazards such as abrasive blasting, airless spray painting, UHP practices, working with solvents, plating and dipping operations, and hazardous material and hazardous waste controls, MSDS (or SDS) and product data sheet, as they apply to the working environment.

7.8.4. The principles of corrosion explaining what it is and why it is detrimental to engineered materials.

### 7.8.5. Environmental conditions requirements and testing procedures:

7.8.5.1. Ambient temperature;

7.8.5.2. Surface temperature;

7.8.5.3. Humidity;

7.8.5.4. Dew point;

7.8.5.5. Prior to, during, and after surface preparation;

7.8.5.6. Prior to, during, and after coating/lining application; and

7.8.5.7. During cure to recoat and cure to service.

7.8.6. The principles of environmental controls, benefits, and concerns with enclosures, and ventilation principles.

7.8.6.1. Containment designs and concerns;

7.8.6.2. Exhaust ventilation (filtered and unfiltered);

7.8.6.3. Dehumidification; and

7.8.6.4. Heating and cooling.

## 7.9. Surface Preparation:

7.9.1. Surface assessment;

7.9.2. Addressing existing coatings;

### 7.9.3. Surface cleanliness prior to surface preparation:

7.9.3.1. Organic solvents;

7.9.3.2. Water; and

7.9.3.3. Alkaline or acidic cleaners.

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**7.9.4. Surface preparation standards:**

- 7.9.4.1. SSPC hand and mechanical cleaning standards;**
- 7.9.4.2. Joint NACE/SSPC abrasive cleaning standards; and**
- 7.9.4.3. ISO hand, mechanical, and abrasive cleaning standards.**

**7.9.5. Common abrasives:**

- 7.9.5.1. Crushed slag;**
- 7.9.5.2. Aluminum oxide;**
- 7.9.5.3. Silicon carbide;**
- 7.9.5.4. Garnet;**
- 7.9.5.5. Steel shot;**
- 7.9.5.6. Steel grit;**
- 7.9.5.7. Glass beads;**
- 7.9.5.8. Plastic media; and**
- 7.9.5.9. Agricultural abrasives.**

**7.9.6. Surface preparation of special substrates:**

- 7.9.6.1. Galvanized/zinc coated;**
- 7.9.6.2. Aluminum;**
- 7.9.6.3. Stainless steel; and**
- 7.9.6.4. Dissimilar metals.**

**7.9.7. Surface preparation of complex geometry;**

**7.9.8. Surface defects;**

**7.9.9. Surface preparation methods:**

- 7.9.9.1. Dry abrasive blast;**
- 7.9.9.2. Wet abrasive blast;**
- 7.9.9.3. Centrifugal blast;**
- 7.9.9.4. Water jetting and water cleaning;**
- 7.9.9.5. Hand tool;**
- 7.9.9.6. Power tool;**
- 7.9.9.7. Acid etching; and**
- 7.9.9.8. Dipping.**

**7.9.10. Surface preparation equipment:**

- 7.9.10.1. Dry abrasive blasting machine;**
- 7.9.10.2. Dust collector;**
- 7.9.10.3. Compressor;**
- 7.9.10.4. Wet abrasive blasting machine;**

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- 7.9.10.5. Centrifugal abrasive blasting machine;
  - 7.9.10.6. Pressure washer;
  - 7.9.10.7. High-pressure or ultra-high pressure water-jetting machine;
  - 7.9.10.8. Water containment and treatment methods;
  - 7.9.10.9. Hand tools;
  - 7.9.10.10. Power tools; and
  - 7.9.10.11. Shop vacuum.
- 7.9.11. Surface preparation acceptance elements:
    - 7.9.11.1. Cleanliness achieved vs. cleanliness specified;
    - 7.9.11.2. Surface profile; and
    - 7.9.11.3. Invisible contaminants.
- 7.9.12. Testing, inspection, frequency, and documentation:
    - 7.9.12.1. Equipment inspection;
    - 7.9.12.2. Nozzle aperture test;
    - 7.9.12.3. Blotter test;
    - 7.9.12.4. Needle pressure test;
    - 7.9.12.5. Profile testing;
    - 7.9.12.6. Nonvisible contaminants testing;
    - 7.9.12.7. Abrasive cleanliness; and
    - 7.9.12.8. Visual inspection of surface cleanliness and surface preparation standard achieved just prior to coating/lining application.

## 7.10. Coating/Lining Application

- 7.10.1. Physical properties of coatings:
  - 7.10.1.1. Convertible vs. nonconvertible;
  - 7.10.1.2. Curing mechanisms; and
  - 7.10.1.3. Properties of the types of coatings.
- 7.10.2. Appropriate coating selection based on service;
- 7.10.3. Product data sheet;
- 7.10.4. Material storage and staging;
- 7.10.5. Material mixing:
  - 7.10.5.1. Visual inspection for material condition;
  - 7.10.5.2. Proper components;
  - 7.10.5.3. Proper ratio;
  - 7.10.5.4. Proper sequence of mixing;
  - 7.10.5.5. Proper amount of mixing; and

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- 7.10.5.6. Proper stand in or induction time;
  - 7.10.6. Coating/lining application methods:
    - 7.10.6.1. Brush and roll;
    - 7.10.6.2. Mitt;
    - 7.10.6.3. Airless spray;
    - 7.10.6.4. Plural component airless spray;
    - 7.10.6.5. Air assisted airless spray;
    - 7.10.6.6. Conventional spray;
    - 7.10.6.7. HVLP spray;
    - 7.10.6.8. Dip method; and
    - 7.10.6.9. Flood and flow method.
  - 7.10.7. Coating/lining application equipment:
    - 7.10.7.1. Brush and roller;
    - 7.10.7.2. Mitt;
    - 7.10.7.3. Electrical or compressed air source Airless spray pump;
    - 7.10.7.4. Plural component airless spray pump; and
    - 7.10.7.5. Air assisted airless spray pump;
    - 7.10.7.6. Conventional spray system:
      - 7.10.7.6.1. Separate pressure pot;
      - 7.10.7.6.2. Pressure feed attached pot; and
      - 7.10.7.6.3. Gravity feed attached pot;
    - 7.10.7.7. HVLP spray system;
    - 7.10.7.8. Dipping facility; and
    - 7.10.7.9. Flood and flow facility;
  - 7.10.8. Recognizing and addressing application errors:
    - 7.10.8.1. Improper spray pattern or overlap;
    - 7.10.8.2. F fingering or tailing;
    - 7.10.8.3. Improper thickness (too thin, too thick);
    - 7.10.8.4. Holidays, complex geometry; and
    - 7.10.8.5. Off ratio pump;
  - 7.10.9. Testing, inspection, frequency, and documentation:
    - 7.10.9.1. Wet film thickness readings;
    - 7.10.9.2. Dry film thickness readings;
    - 7.10.9.3. Visual inspection; and
    - 7.10.9.4. Adhesion testing.

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## 7.11. Data Collection and Documentation.

7.11.1. The contractor shall define the training and certification required to perform data collection and quality control tasks within the company. Training and certification may be provided by a third party such as NACE, the NACE International Institute, NBPI, NCCER, or SSPC, or training may be in-house. In-house training does not satisfy the requirements for independent QA/QC inspection practices. The data collection training must include:

- 7.11.1.1. Specific instruction on the use of precision measuring equipment and shop/field validation of the equipment's accuracy. The precision measurement training must be validated based on hands on testing;
- 7.11.1.2. Direction for actions to be taken if "out of specification" data is collected;
- 7.11.1.3. Data collection and documentation requirements, including completing a sample set of in process QA/QC documentation;
- 7.11.1.4. Specific hold point tasks, and general observation tasks; and
- 7.11.1.5. The importance of objectivity and integrity in data collection and documentation.

## 7.12. Testing Policies to Verify Trade Skills Knowledge.

7.12.1. The Applicator Trade Skills Training Manual or training program instruction contains a section covering testing protocols used for quizzes, written tests, and hands on testing for demonstrating trade skill knowledge.

7.12.2. Required policies include:

- 7.12.2.1. Maintain physical and intellectual security of test materials, test keys, student records and grades;
- 7.12.2.2. Requirement that any cheating during a test shall be cause for failing the test;
- 7.12.2.3. Utilization of a separate but similar question bank for quizzes and tests;
- 7.12.2.4. Maintain a log sheet verifying that each question can be traced back to information that was delivered, or assigned during the training; and
- 7.12.2.5. Test apparatus for hands on testing

7.12.2.5.1. Ensure that hands on testing for surface preparation and coating application is performed on a test apparatus that meets the requirements of Reference 2.3 or an apparatus or location of similar difficulty.

7.12.2.5.2. If hands-on testing is performed on an apparatus or location determined to be of similar difficulty, make note of the change in the test documentation, and provide a description or photos of the apparatus or location.

7.12.2.6. Correcting or grading tests

7.12.2.6.1. All grading or correcting of written tests shall be based on a test key.

7.12.2.6.2. All grading or correcting of hands on tests shall be based on a written guideline with the acceptance range stated in writing.

7.12.2.6.3. If any deviation is required from values defined in the test key, written guidelines, or acceptance ranges, the deviation and the reason for the deviation must be written on the test sheet or test key at the time of the deviation, signed

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by the instructor, and approved by the training manager verified by the training manager's signature.

7.12.2.6.4. Strict objectivity shall be maintained when grading or correcting test sheets and when observing hands on testing.

7.12.3. Test pass/fail ranges must be consistent unless a change is made to the training plan. If a contractor with a NIICAP AS-3 Accreditation changes any portion of the training plan or lesson plan covered by elements within this section, the contractor must immediately contact NIICAP to determine if the change will affect the accreditation.

## **8. PREREQUISITES AND ACTIONS FOR FACILITY TRADE SKILLS TRAINING AUDIT**

8.1. The contractor must ensure scheduling that allows auditor to observe retention testing, hands on testing, test grading, and documentation.

8.2. While testing and test grading is being performed, the auditor shall observe work practices and task execution to determine compliance with technical direction and industry standards, as invoked and appropriate.

8.3. The contractor must ensure that employees are available for testing of written and hands-on surface preparation and coating/lining applications skills in accordance with Paragraph 5.2.4.4. The auditor shall randomly select the required number of employees from the list of qualified employees and submit the names to the contractor. The contractor can remove one (1) employee for cause, such as assigned out of the area. However, the auditor shall select another employee from the list. The next day, the instructor will have one-half hour for a final briefing of the employee and the testing will begin.

## **9. AUDIT CRITERIA ATTRIBUTE CREDIT**

9.1. Each audit attribute shall be assigned a numeric value, which is identified in the audit attribute box. Some attributes are for information only, and have a value of (0 points.). All scored attributes will have a value of 5 points.

9.2. Attribute scoring shall be as follows:

9.2.1. Outstanding value (5 points) shall be awarded for an outstanding finding of compliance. Requirements for an outstanding rating are included in those attributes in which an outstanding rating is possible. If an outstanding finding occurs, there is no reasonable recommendation to be made for improvement. An outstanding finding indicates the contractor has an efficient process that meets the requirements and minimizes risk, schedule, and cost.

9.2.2. Expected value (3 points) shall be awarded for an adequate or satisfactory finding. Requirements for an expected rating are included in the attributes. Typically, an adequate finding occurs when the contractor's process meets the requirement; however, there is a potential for process improvement to reduce risk, schedule, or cost. It should be noted that generally (3 points) are awarded, and that is an acceptable rating.

9.2.3. One point shall be awarded for an unacceptable finding. Typically, an unacceptable finding occurs when the contractor's documentation or process does not meet the requirement. For the administrative section of the audit, an inadequate program may warrant a score of (2 points), or nonexistent program may warrant a score of (1 point). An unacceptable finding in the training section should be the result of a significant error or failure in the training or testing process. Even the best contractor may experience a process failure occasionally; however, if the contractor does not seem to

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have control of the process, does not understand the process requirements or standards, or does not address the training discrepancy adequately, an unacceptable rating may be appropriate.

9.2.4. Attributes do not always neatly fall into the defined conditions above. If a finding is between the defined conditions, the auditor should adjust the point value appropriately i.e., a score of (2 points) or (4 points).

9.2.5. Comments or description of the condition are required for all ratings. It is important that after the audit, or when discussing the findings with the contractor, that the auditor can explain specifically what was observed. Comments may be one or two sentences, or longer as appropriate. Comments for the Administrative Practices section of the audit may be as simple as the document and paragraph or section where the requirement was found.

9.2.6. If an attribute does not apply to the process or the item being observed, then "N/A" is typically noted in the "Comments" block.

9.2.7. Each section of the audit (Administrative Practices and Training Practices) requires an overall score of (3). Each sub-section of the Administrative Practices and the Training Practices sections require a minimum score of (2.9) if the sub-section is applicable. However, any occurrence of (1 point) must be discussed with the chief auditor. A score of (1 point) may be the basis for a "major" finding.

9.2.8. If there is a pattern of several related "minor" findings that show a pattern of weakness in a particular area, the cumulative findings may be changed to a "major" finding in the event that the auditor, NIICAP personnel or relevant NIIBS committee considers these minors to be indicative of a serious systemic issue.

## **10. COMMUNICATIONS**

10.1. NIICAP may periodically distribute to participating, owners and accredited contractors, a newsletter including a list of the most common findings during initial and follow up audits.

10.2. NIICAP provides a public web page that lists accredited contractors for the purpose of aiding NIICAP participants in achieving higher performance, peer-to-peer benchmarking, and verification of contractor accreditations.

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## APPENDIX A

### TRAINING CONTENT AND PERCENTAGE REQUIREMENTS

Employee Position	Percent Required to be Trained or Certified	Program Meeting Certification Requirement
<u>Supervisor – Foreman</u> , when competent person functions are supported by a separate assigned person present during working hours	100%	<ul style="list-style-type: none"> <li>• QA Certification from the NACE International Institute, SSPC, FROSIO (U.S. Navy NBPI program accepted for Navy ship work).</li> <li><u>OR</u></li> <li>• Applicator certification that meets or exceeds ANSI/NACE/SSPC Standard (NACE No. 13).</li> <li><u>OR</u></li> <li>• NACE International Institute or SSPC PCS (Protective Coating Specialist Certification).</li> </ul>
<u>Supervisor – Foreman</u> , when performing the functions of the competent person for environmental, safety, and health	100%	<ul style="list-style-type: none"> <li>• QA Certification from the NACE International Institute, SSPC, FROSIO (U.S. Navy NBPI program accepted for Navy ship work).</li> <li><u>OR</u></li> <li>• Applicator certification that meets or exceeds ANSI/NACE/SSPC Standard (NACE No. 13).</li> <li><u>OR</u></li> <li>• NACE International Institute or SSPC PCS (Protective Coating Specialist Certification).</li> </ul> <p><u>AND</u></p> <ul style="list-style-type: none"> <li>• All training required for a worker exposed to hazardous substances, health hazards, or safety hazards.</li> <li>• Additional eight (8) hours specialized training covering:             <ul style="list-style-type: none"> <li>- Employer's safety and health program.</li> <li>- Associated employee training programs.</li> <li>- PPE program.</li> <li>- Spill containment program.</li> <li>- Health hazard monitoring procedures and techniques.</li> </ul> </li> </ul> <p>"Competent person" is defined as one who is capable of identifying existing potential or probable hazards in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to employees, and has the authorization to take prompt corrective measures to eliminate them.</p> <p>NOTE: Even if a legal authority does not define specific training protocol, the competent person must be designated by the contractor, and must show a combination of experience and training to effectively perform the position, and have the authority to take prompt corrective action.</p>

<b>Employee Position</b>	<b>Percent Required to be Trained or Certified</b>	<b>Program Meeting Certification Requirement</b>
<u>Competent Person</u>	100%	<ul style="list-style-type: none"> <li>• All training required for a worker exposed to hazardous substances, health hazards, or safety hazards.</li> <li>• Additional eight (8) hours specialized training covering: <ul style="list-style-type: none"> <li>- Employer's safety and health program.</li> <li>- Associated employee training programs.</li> <li>- PPE program.</li> <li>- Spill containment program.</li> <li>- Health hazard monitoring procedures and techniques.</li> </ul> </li> </ul> <p>"Competent person" is defined as one who is capable of identifying existing potential or probable hazards in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to employees, and has the authorization to take prompt corrective measures to eliminate them.</p> <p>NOTE: Even if a legal authority does not define specific training protocol, the competent person must be designated by the contractor, and must show a combination of experience and training to effectively perform the position, and have the authority to take prompt corrective action.</p>
<u>Trainer of Applicators</u>	100%	Applicator qualification that meets or exceeds ANSI/NACE/SSPC Standard (NACE No. 13).
<u>Trainer for Environmental, Safety and Health Requirements</u>	100%	<ul style="list-style-type: none"> <li>• Qualified to instruct employees about the subject matter that is being presented.</li> <li>• Complete a training program qualifying the instructor to teach, or have academic credentials and instructional experience necessary to teach the subjects.</li> <li>• Instructor shall demonstrate competent instructional skills and knowledge of the applicable subject matter.</li> </ul>
<u>Quality Control Representatives</u> performing data collection to accept or reject work	100%	QA certification from the NACE International Institute, FROSIO, NCCER, SSPC (NBPI program accepted for Navy ship work).
<u>Plural Component Pump Applicator</u>	100%	SSPC C-12 or a contractor's program included in a NIICAP AS-3 accreditation.
<u>Plural Component Pump Operator</u>	100%	SSPC C-14 or a contractor's program included in a NIICAP AS-3 accreditation.
<u>Airless Pump Applicator</u>	100%	SSPC C-12 or a contractor's program included in a NIICAP AS-3 accreditation.
<u>Airless Pump Operator</u>	100%	Contractors train or brief the operator; no documentation required.
<u>Conventional – HVLP Applicator</u>	50%	Contractor's program included in a NIICAP AS-3 accreditation.
<u>Paint Mixer</u>	100%	Contractors train or brief the operator; no documentation required.
<u>Brush and Roll</u>	20%	Contractors train or brief the operator; no documentation required.

<b>Employee Position</b>	<b>Percent Required to be Trained or Certified</b>	<b>Program Meeting Certification Requirement</b>
<u>Abrasive Blasting Nozzle Operator</u>	100%	SSPC C-7 or a contractor's program included in a NIICAP AS-3 accreditation.
<u>Blast Equipment Operator</u>	100%	SSPC C-7 or a contractor's program included in a NIICAP AS-3 accreditation.
<u>Power – Hand Tool Operator</u>	20%	Contractors train or brief the operator; no documentation required.
<u>Support Workers with potential exposure to health hazards, or safety hazards</u>	100%	<ul style="list-style-type: none"> <li>• Training equivalent to "OSHA 10." See specifics in NIICAP Standard AS-2, Appendix B.</li> <li>• Employee right to know.</li> <li>• Safety, health and recognition of other hazards present at the work site.</li> <li>• Work practices to minimize risks from hazards.</li> <li>• Emergency action plan actions <ul style="list-style-type: none"> <li>- At time of employment.</li> <li>- Whenever the employee's responsibilities or actions change.</li> <li>- Whenever the plan is changed.</li> </ul> </li> <li>• Refresher training annually, eight (8) hours.</li> </ul>
<u>Workers Entering Confined Spaces</u>	100%	Confined space entry prior to exposure to confined spaces.
<u>Employees with Emergency Response Actions</u>	100%	Elements of the emergency response plan and specific assignments.
<u>Qualified Person</u>	100%	<p>Qualified person is a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience has successfully demonstrated his/her ability to solve and resolve problems related to the subject matter, the work, or the project.</p> <p>NOTE: Even if a legal authority does not define specific training protocol, the qualified person must be designated by the employer, and must show a combination of experience and training to effectively perform the position.</p>