

NC Licensed PE qualification survey:
Criteria for acceptance by AHJ for Third Party Inspections

GUIDELINES FOR ACCEPTABLE ANSWERS - INTERNAL USE ONLY - DO NOT FORWARD TO APPLICANTS

1). How many years experience do you have in Product Safety inspections?

Five years (Of actual product safety experience) is a good minimum to use as a guideline. A Certified Product Safety Engineer (NCE) is required to have 10 years verified experience in product / equipment evaluation and use of product Standards.

2). What US Product Standards do you have experience in, how many years for each Standard?

Examples: For Industrial Equipment / Machinery, the applicant should have UL 508A (Industrial Control Panels), NFPA 79 (Standard for Electrical Safety of Machinery), UL 987 (Stationary Tools), UL 73 (Motor Operated Equipment), UL 499 (Electric heating Appliances), NFPA 86 (Industrial Ovens), NFPA 33 (Paint Spray Booths), etc. 5 years of experience is a good place to start.

3). Approximately how many products have you inspected in each Standard category?

A good answer would be at least five to ten, with ten before that consisting of inspections during training with another experienced Engineer. Applicant should be able to provide copies of completed documents showing examples of previous inspections of similar equipment (to qualify for categories)

4). What kind of training have you received in Electrical Safety for Industrial & Manufacturing equipment?

NFPA Offer classes in NFPA 79 and other Standards. UL offers training at uluniversity.com. Quadtech offers UL/US Standards training at quadtech.com, Schneider Electric (Square D) has UL 508A training, many others. The documents should speak for themselves....

6). Do you have copies of all current Standards needed for Evaluating industrial equipment and machinery?

Have the applicant provide a list of the Standards to be used. It is very important for the applicant to use Product Standards, i.e. ANSI / UL, NFPA

7). Provide a list of the Standards you have on hand, and their edition numbers/dates (as current).

Go to www.ili.co.uk, click on "purchasing standards and free online store", then click on "free online store customer login". Type in the Standard number given and compare the edition number or date to verify as current.

8). Do you have the correct test equipment for conducting tests per the applicable Standards?

Some of the equipment needed for Field Evaluation would be Insulation Resistance tester, Hipot (Dielectric) tester. Temperature rise meter, Grounding Impedance tester, Leakage Current tester, Current Clamp, etc.

9). Is your test equipment calibrated by an accredited calibration laboratory (A2LA, etc.), traceable to NIST Standards.

The applicant will need to provide evidence of the Calibration lab's accreditation. This information is readily available on the calibration lab website.

10). Does your test equipment calibration certificate include Measurement Uncertainty per ISO 17025?

Measurement uncertainty is an estimated range of values in which the true value of the measurement lies; an indication of how exact a measurement is. The applicant will need to provide a copy of a calibration certificate for verification. ISO 17025 is the standard for Competence of Testing and Calibration Laboratories.

11). Do you have procedures for assessing the effect on previous tests by equipment returned from the calibration lab out-of-tolerance condition?

Sometimes test equipment will come back from the calibration lab showing "Out of Tolerance". This means that the previous tests performed with this equipment may be inaccurate, and may affect the validity of the test and the equipment inspection it was used for. Those experienced in the use and control of test equipment will have a written procedure with details on how this out-of-tolerance condition may affect the test equipment and results, and how prior projects will be inspected to see if the test results are affected.

12). How often is your test equipment calibrated? Is it inspected for proper functionality after shipping or transport?

Ordinarily, most test equipment manufacturers specify that test equipment be calibrated yearly, with some exceptions. If a piece of equipment comes back from the calibration lab out-of-tolerance, it is common practice to shorten the calibration cycle to 6 months, or replace the piece of equipment. Many individuals and organizations that use calibrated test equipment have the calibration lab come onsite, because shipping and mishandling can cause test equipment to go out-of-tolerance.

13). Do you have documented procedures for addressing, tracking and resolving customer complaints?

Customer complaints are a great source of opportunity for improvement. If a professional or organization does not track and resolve customer complaints, all those connected to the work (Including the AHJ), may be viewed in a negative way. Additionally, resolution of customer complaints helps to keep problems from re-occurring.

14). Do you have documented procedures for confidentiality and security of customer information?

Customer information needs to be kept secure, especially with regards to subcontractors and all computer / project file information. Details on how this is accomplished would include procedures, signed confidentiality forms on file,

locked offices / file cabinets, and secure computer networks, (i.e. firewalls, hacking and virus protection, maintained by an IT expert).

15). Do you have written procedures, forms, and work instructions for evaluation and testing of equipment / products?

When performing product evaluations, it is critical to have correct procedures, instructions and forms. For example, evaluation forms should include review of warning/cautionary markings, clause-by-clause review of the equipment per the applicable Standard(s), equipment ratings, specific test to be performed and test results, manufacturer details, record of all electrical components used in the construction (And if they are used correctly). Test records will also include a list of test equipment used, the model/serial numbers and calibration date / due date.

16). Are these documents controlled and audited? Have they ever been audited by an outside auditor? (Independent or accreditation auditor).

Test and evaluation documents need to be updated frequently, due to changes in product Standards. Control of documents insures outdated form and instructions are not used. This is achieved by using a procedure for document control / updating. This control and updating is proven through internal auditing. Product evaluation mistakes can cause loss of life, this is why outside auditors are used for repeatable organizations.

17). Are your test reports peer reviewed? (By another Engineer of equal or greater certification / training)

In product testing, it is common practice to have test records and reports peer reviewed. This should be reflected in a written procedure or policy.