Certification Standard
Protective Coatings Inspectors

PROCEDURE NO: PRO-CER-13

Sixth Edition August 2021

Issued under the Authority of the

Certification Board for Inspection Personnel, New Zealand (CBIP)

References:

- Training Modules 1 – 17. Certification of Protective Coating Inspectors
- AS/NZS 2312:2014 Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings.
- SSPC Best Painting Practice Volume 1

STANDARD FOR CERTIFICATION- PROTECTIVE COATINGS INSPECTORS

1. Foreword

This Standard for Certification – Protective Coatings Inspectors (PCI Standard for Certification), in conjunction with the Standard for Certification – General Requirements, defines the requirements for the issue of Discipline Recognition to protective coatings inspectors performing surface treatment inspection of new construction, on-site maintenance, or project supervision.

The CBIP requirements for a Competence Certificate are detailed in the Standard for Certification - General Requirements PRO-CER-18.

Certification and re-certification in accordance with this PCI Standard confirms the qualifications, training, experience and examined competence of protective coatings inspectors.

This PCI Standard must be read in conjunction with the Standard for Certification – General Requirements PRO-CER-18.

2. Scope and General

2.1 Scope

This Standard for Certification – Protective Coatings Inspectors (PCI) covers the learning expectations, training, experience, and competency requirements for the issue of a Discipline Recognition to inspectors performing inspection of new construction and maintenance of painting or other protective coatings, or who have responsibility for the supervision of painting or protective coating projects.

Note: An inspector holding a Discipline Recognition requires a Competence Certificate before they may practice inspection (See Standard for Certification – General Requirements).

2.2 Discipline Recognition Range

The Discipline Recognition which may be granted under this PCI Standard is the Protective Coatings Inspector.

3. Certification Process

Candidates seeking a Discipline Recognition shall satisfy the requirements of the Standard for Certification – General Requirements and this PCI Standard, by completing:

(a) The pre-requisite training, qualifications, and experience in Section 3 below, and

(b) The examinations in Section 6.

4. Pre-Requisites for Discipline Recognition

Candidates shall meet the following training, qualifications, and experience requirements. Candidates may submit alternative training, qualifications and experience for consideration which may provide equivalence to that listed.

4.1 Training and Qualifications

Candidates shall have:

(a) Completed and passed the seventeen modules of the relevant Protective Coating Inspection home study course.

(b) Completed and passed a practical examination in the safe use of protective coating inspection equipment.

Candidates shall undertake training sufficient for them to be knowledgeable in the requirements of section 5.

Candidates shall provide evidence of qualifications with their application for certification.

CBIP does not issue a schedule of recognised qualifications, therefore the applicant must provide sufficient information for an evaluation to be completed.

4.2 Experience

Candidates shall have a minimum of three years' experience in the protective coatings industry.

Examples are.

- Working in the abrasive blast cleaning and industrial coatings application industry.
- Protective Coating sales and marketing industries.
- Related industries such as hot dip galvanising industry or pipe wrapping industries
- A candidate with a qualification such as NACE Level 2 or ACA may be granted recognition or may be asked to sit the practical exam, providing they meet the requirements set out in Appendix B.

5. Training Evidence

Candidates shall provide with their application an affidavit signed by their employer and training provider acceptable to CBIP which certifies that the candidate has completed the required training and passed the minimum score requirement of 70% or better.

Candidates shall provide a training record that covers the scope and aspects of appendix B and contained in the various modules of the relevant Protective Coating Inspection home study course the training plan must be signed by a competent person e.g., Senior PCI.

6. Competency And Performance Requirements for PCI Certification

The competency and performance requirements for PCI Certification are given in Appendix B.

7. Examinations

A candidate will become eligible to sit the PCI Discipline Recognition examination once having completed the necessary home study modules from a Protective Coatings Inspection Home Study Course acceptable to CBIP. Once the examination has been passed a certificate may be issued for a PCI Discipline Recognition

The examinations for a PCI Discipline Recognition are comprised of the following papers, which should be taken in the order shown.

(a) Section 1 – Multi Choice Questions
(b) Section 2 – Short Answer Questions
(c) Section 3 – Written Project
(d) A practical examination and peer review covering the use of testing and inspection equipment and general knowledge of abrasive blasting and painting applications.

The examinations cover inspection of protective coating systems for both new construction and in-service plant.

The examinations will test a candidate's knowledge relevant to the selection, preparation, application, inspection and testing of protective coating systems for:

(e) Carbon steels and austenitic stainless steels
(f) Galvanising systems and procedures
(g) Pipe wrapping on site and in shop environments.
(h) AS/NZS 2312 Protective Coating Systems.

And will include:

(i) Testing and Inspection equipment,
(j) Preparation and approval of inspection procedures,
(k) Preparation and approval of inspection and test plans.

7.2 Recertification

The recertification exam will be an appropriate re-certification examination based on ongoing learning, evidence of courses attended, and evidence of additional industry related training attended.

7.3 Sample questions

Sample questions for the examination papers are given in Appendix A.

7.4 Knowledge requirements

The knowledge requirements applicable to the examination papers for a PCI Discipline Recognition are described in Appendix B.

7.5 Exemptions from Examination

CBIP will consider applications for exemptions from the examination for a PCI Discipline Recognition.

Application for exemptions from examination papers shall be made in accordance with the Standard for Certification – General Requirements.

APPENDIX A

Sample Examination Questions

(Informative)

Examination Format:

1. The site where corrosion takes place on a metal is called the:

   a anode

   b cathode

   c electrolyte

   d conducting path

2. If the anode of a corrosion cell is much larger than the cathode, then corrosion is generally:

   a increased

   b reduced

   c remain much the same

   d increase or reduce depending on which metal is the anode and which the cathode.

3. A piece of zinc is joined to a piece of copper, and both are placed in a salt water solution. Corrosion takes place at:

   a The copper

   b the zinc

   c both the zinc and copper

   d neither, both are immune from corrosion

4. In crevices and under dirt or mill scale on a piece of steel:

   a corrosion does not occur

   b corrosion continues exactly the same as in the exposed areas

   c corrosion is accelerated

   d any of the above depending on what metal the steel is connected to

5. Which of the following is not a good design feature to help minimise corrosion:

   a a structure with good ventilation

   b a structure which allows easy painting

   c a structure with drain holes

   d a structure with crevices and cavities

6. Zinc anodes on a ship provide corrosion protection by:

   a dissolving and reacting with the coating to form a zinc-rich coating

   b altering the flow of water over the hull so that it is less corrosive

   c sacrificially corroding instead of the steel

   d dissolving and putting a corrosion inhibitor in the sea water

Section 2 Short Answers

7. You are measuring humidity using a sling psychrometer on a clear day and find that the wet bulb reading and dry bulb readings are consistently the same. Describe two things you would check on the instrument. (4 marks)

   _____

8. List the problems which can arise from each of the following:

   a Steel members being splattered with concrete

   b Steel members entering concrete

   c Steel members entering the ground

   d Steel members entering the sea

   _____

9. Briefly describe how you would test for oil and water contamination in compressed air. (3 marks)

   _____

APPENDIX B

Outline of Knowledge Requirements

(Normative)

B.1 Introduction

Protective coatings Inspectors

It is essential that the inspectors who perform the inspection functions have the necessary knowledge to be competent in the inspections that they perform in order to provide value to the client.

B.2 Requirements

B2.1 General

The following sub-sections define the core requirements to guide candidates on the extent of knowledge required in order to be prepared for both the examinations and their future work.

It is essential that the inspector understands the protective coatings operational process in order to identify where and what corrosion/degradation mechanisms are expected and consequently where to concentrate the Inspection effort.

B2.2 Material and corrosion degradation mechanisms

The inspector must understand the protective coatings operational conditions and underlying reasons that dictate materials selection and the interpretation of the relevant standards and codes of practice in respect to material selection.

B2.3 Inspection techniques and NDT

The Inspector must recognise the limitations of the various methods and techniques and take this into account when deciding on the values of that employed (i.e. it may be necessary to supplement the method or techniques used with another one to increase confidence). His/her knowledge of this subject should be such that he/she can converse with specialists in the field and evaluate the results of their examinations.

B2.4 Design codes and standards, and methods of, inspection and repair.

The inspector must have sound detailed knowledge and experience in the use of the codes and standards covering, application, condition assessment and testing and inspection procedures. Familiarisation with the full range of standards relevant to protective coatings and piping wrapping and galvanising systems. Understand the fundamental principles within the standards sufficiently to resolve any conflict between them and to advise their client of their applicability.

It is essential that the inspectors are fully aware with the requirements for the development, review and implementation of Inspection and Test Plans (ITP's).

B2.5 Special tools

The inspector must be aware all of tools available to determine “fitness for purpose” of protective coatings. He/she must recognise the limitations of the various tools and take this into account when deciding on the values of the methods and techniques employed (i.e. it may be necessary to supplement the method used with another one to increase confidence).

B2.6 Inspection methodologies

The inspector must be knowledgeable about corrosion and selective risk-based inspection methodologies and any other reliability methodology to optimise protective coatings inspection intervals. He/she shall be capable of participating in multi-disciplinary teams to develop, implement or maintain this methodology for the relevant plant.

B2.7 Quality Assurance Systems

The inspector must be aware of Quality Assurance and Quality Control concepts/systems e.g. ISO 9000 standards.

B2.8 Record keeping and report writing

The inspector must be capable of preparing and maintaining accurate and proper records and reports of all relevant inspections to build up the necessary historic data to maintain the reliability of the protective coatings and also meet statutory requirements.