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## **GUIDANCE NOTES ON THE CERTIFICATION PROCESS OF LEVEL 4 CATHODIC PROTECTION SPECIALIST PERSONNEL**

The aim of these guidance notes is to assist applicants applying for initial certification, 5-year and 10-year re-certification as an ISO 15257:2017, level 4, Cathodic Protection [CP] Specialist. The guidance provided covers the entire application process and offers specific guidance on completing the accompanying application forms

### **BACKGROUND**

ISO 15257:2017 “Cathodic Protection – Competence levels of cathodic protection persons – Basis for certification scheme” describes the requirements for a certification scheme to train, examine, assess and certify CP personnel to five, internationally recognised, levels of expertise. The Institute has interpreted the requirements of the standard and developed the *Professional Competences* it describes in order to deliver a compliant certification scheme and confer certification on eligible candidates. This certification scheme is detailed in the Institute’s Cathodic Protection, Qualification Procedure Document [QPD].

The QPD is maintained by ICorr Professional Development and Training Committee [PDTC], CP Sub-committee. Applicants are assessed in accordance with these procedures by ICorr Professional Assessment Committee [PAC], CP Sub-committee.

Level 4, CP Specialist, is aimed at those practising cathodic protection at a level equivalent to that of a Chartered Engineer, as a full-time activity or forming a significant proportion of their day-to-day role.

The award of Level 4 CP Specialist therefore sets the individual practitioner at a very high level of their profession. It demonstrates the achievement of a high-level of education, extensive experience, a commitment to the maintenance and continued progression of engineering competencies and the ability to practise the profession at a professional level. Becoming a Level 4 CP Specialist sends a clear signal to future Clients, Employers, Colleagues and the Public about the competence of the practitioner’s engineering knowledge, application and professionalism.

Applicants for Level 4 must be able to demonstrate their professional engineering experience as well as managerial skills. They must have practical knowledge and understanding of corrosion engineering, control or prevention and the underpinning engineering principles and specifically cathodic protection. They must also be able to exercise competent managerial skills and judgements.

### **ELIGIBILITY FOR LEVEL 4 CERTIFICATION**

In order to qualify for certification as a level 4 CP Specialist you will need to demonstrate the following:

- Have passed an ICorr approved examination comprising Core and Sector Specific Essay Questions;
- Undertaken a minimum of 4-years [up-to 12-years] *Industrial Experience* dependant on education, while operating at level 4 or higher. See below;

- Demonstrated competence of the knowledge and task requirements of levels 1 to 4 as described in the standard;
- Demonstrate commitment to Continuing Professional Development; and
- Undertaken a Professional Review Interview.

## EDUCATION AND INDUSTRIAL EXPERIENCE

ISO 15257:2017, describes 3 levels of academic achievement and these have been adopted by ICorr:

- Relevant engineering or scientific discipline degree [BSc, BEng or equivalent] including, or in addition to, a specialised education in the corrosion field.
- Technical education to HNC or similar level in a relevant Engineering or Scientific field.
- Other education with basic mathematical skills.

The length of additional *Industrial Experience* required of the applicant will vary depending on their education in relation to these categories.

Assuming that the applicant has previous certification to level 3 in the same application sectors they are seeking certification at level 4 then the relevant *Industrial Experience* required will be 4, 7 and 11 years respectively.

If the applicant is applying for certification to level 4 with a dispensation, then an additional year's *Industrial Experience* is required in each case.

If the applicant is presently certified to level 4 but is seeking certification for an application sector they do not presently hold certification for then an additional 1.5, 2 or 3 years *Industrial Experience* in that sector is required.

## PROFESSIONAL COMPETENCIES

All applicants for level 4 CP Specialist shall be able to demonstrate competence consistent with the following:

A Cathodic Protection Specialist shall be competent to:

- a) design cathodic protection systems;
- b) establish and validate cathodic protection criteria and testing procedures;
- c) interpret standards, codes, specifications and procedures;
- d) designate the particular cathodic protection test methods and procedures to be used;
- e) interpret the reported results of cathodic protection testing and use them in performance verification;
- f) determine any remedial actions; and
- g) carry out and supervise all level 1,2 and 3 duties;

A Cathodic Protection Specialist shall be able to demonstrate:

- a) detailed knowledge of corrosion theory, cathodic protection design, installation, commissioning, testing and performance evaluation including safety in at least one application sector,

- b) competence to undertake without supervision the design of cathodic protection systems in at least one application sector;
- c) sufficient theoretical knowledge and practical experience of cathodic protection to select cathodic protection testing methods, survey requirements and performance criteria;
- d) competence to evaluate and interpret results of cathodic protection performance in accordance with existing standards, codes and specifications;
- e) competence to assist in establishing testing and performance criteria where none are otherwise available; and
- f) a general familiarity with cathodic protection in other application sectors.

Level 4 personnel may, if authorised by the Institute of Corrosion or the Scheme Provider, present or supervise training and examinations to Level 1, 2 and 3 on its behalf via the Scheme Provider.

## **DISPENSATION**

ICorr PDTC may choose to grant a dispensation to allow an applicant to undertake the level 4 examination and apply for certification without having completed certification at level 3.

Dispensation will only be granted under exceptional circumstances and only once the applicant has confirmed that their education, knowledge and experience is consistent with that of a level 3, Senior CP Technician.

In these instances, ICorr will advise the candidate of their specific requirements for certification at level 4 and provide a unique reference for their dispensation. This number provides traceability and should be used when completing the application form to avoid their application being rejected.

## **THE APPLICATION AND CERTIFICATION PROCESS**

In order to simplify the application process and ensure that applications are assessed in a fair and repeatable manner ICorr have developed a thorough and robust assessment process.

Once an applicant feels they have achieved the required standard they may apply to ICorr to sit the ICorr CP Specialist Examination.

Upon successfully completing the examination and having completed the appropriate period of *Industrial Experience* they are advised to complete the ICorr level 4 CP Specialist Certification Application Form. This features 5 parts which are discussed in detail later in this document.

On receipt of the completed application and supporting documents, the application is checked for completeness and the applicant is assigned a unique number for tracking purposes. Confidential references will be requested from the applicant's referees.

On acceptance and receipt of references, the application will be passed for initial assessment by the Chair of ICorr PAC CP Sub-committee.

If the assessment suggests that the applicant is likely to be suitable for certification then the application will be passed to two members of the PAC CP Sub-committee for detailed review. The assessors will be members of PAC CP Sub-committee who themselves shall be certified to level 4.

The assessors will complete a Professional Certification Report, which will advise the Chair of PAC CP Sub-committee if the candidate should proceed to Professional Review or undertake further learning and or experience.

Successful applicants will be invited to a professional review interview with The Chair of PAC CP Committee and their reviewers where their application, and any points of weakness identified during examination, may be further interrogated. Further details on the Professional Review are presented later in this document.

The review committee will then advise if the applicant should be awarded certification.

Professional Reviews will typically be undertaken twice yearly in April and November. In order to qualify applicants must have submitted their application 3-months in advance of the review. As a result, of the relatively tight window for review, referees are asked to return their references within 1-month. If ICorr do not receive a reference within this time the application may be deferred until the next review meeting. Applicants are therefore asked to check with their referees if they will be available to return a reference within the required window to ensure their applications proceed as expected.

### **NOTES ON RE-CERTIFICATION**

Persons already certified as CP Specialists are required to maintain their certification by updating their knowledge through ongoing *Industrial Experience* and a commitment to continuing professional development.

In order to demonstrate this a CP Specialist shall:

- Submit an up-to-date *Industrial Experience* and CPD Report, every 5 years by completing the Parts 1, 3, 4, and 5.2 of the accompanying application form.
- Submit a complete application for re-certification and undertake a Professional Review every 10-years.

Examination for Re-certification is not required.

In order to simplify this process, the same forms are used for initial certification as well as 5-year and 10-year recertification. In this way the format of the information requested will remain the same and new entries can simply be appended to an existing application or re-certification form.

Please read the requirements of each section carefully to ensure you only complete the necessary sections for your recertification.

Applications for re-certification may be submitted up to 9-months in advance of expiry.

### **THE EXAMINATION**

There is no course for level 4. Candidates are generally expected to have gained certification at level 3 before progressing to level 4 following the appropriate period of additional *Industrial Experience*. In this way they will have received suitable training at the lower levels and developed these skills under the guidance of a level 4 Engineer.

The Examination will comprise a minimum of 4 essay questions and 5 questions devised to test the practical application of your knowledge and experience.

Two essay questions will focus on your common core knowledge [applicable to all application sectors] and two theoretical and five practical questions [per sector] will examine your sector specific knowledge and application.

A single examination comprising common core, and a single application sectors practical and theoretical questions are expected to take up to 3 hours with each additional sector adding a further two hours. As such you are advised to take no more than two sector specific examinations in a single sitting.

Level 4 examinations are administered by ICorr and will take place at ICorr Headquarters in Northampton. Please contact ICorr on [admin@icorr.org](mailto:admin@icorr.org) for booking information.

## **COMPLETING THE APPLICATION FORM**

Once you have successfully completed the level 4 examination[s] and have acquired the required *Industrial Experience* you may apply for certification by completing the Level 4 Cathodic Protection Specialist Application Form. The form is designed to capture all information required to allow PAC CP Sub-committee to make a detailed assessment of the applicant's credentials for certification to level 4 in accordance with level 4 of ISO 15257:2017.

The forms allow for applicants seeking certification for one or more of the four application sectors so that all information can be collected and assessed in one assessment.

The forms are designed for use for those seeking initial certification, 5-year and 10-year re-certification. The requirements for each differ and applicants seeking re-certification should read the notes on each part of the form carefully to avoid completing sections which may not be required. Further detail on the requirements for re-certification are detailed in a later section of this document.

Your application must be printed or written in BLACK ink (for photocopying). The font and size has been set as Arial 9 do not reduce this size further. If necessary, the entry boxes and tables may be expanded. The tables and boxes have been sized accordingly to accommodate the expected entry size. Whilst you may require multiple, additional, entries, if you find a single entry box requires significant expansion to accommodate your entry you should review the requirements to ensure the information you are presenting is suitable.

The form is divided into 5 parts, the requirements for each are described below.

### **PART 1 – PERSONAL AND APPLICATION DETAILS**

Please provide your personal details here. We require this information to communicate with you throughout the certification process. If your application is successful, these details will be held on the Institute of Corrosion's Certification Register database. This publicly available register will include your name, the Institute of Corrosion and your Level 4 Certification Number. ICorr may wish to use the information you supply in order to be able to communicate with individuals effectively while you remain certificated. Level 4 Certified Cathodic Protection Specialist have the right of access to their personal data held by ICorr and the right to prevent its use for direct marketing services

Where indicated please confirm if this application is for an Initial Certification, 5-year or 10-year renewal.

You are asked to confirm which application sectors you wish to apply for here. Should you fail to provide adequate information to support your application for any one or more application sectors your application may be rejected, or you may be offered to proceed based on only those application sectors where the supporting information is deemed adequate.

Please indicate, your level 3 certification number here or, alternatively, if you have been granted a dispensation please include your dispensation reference number. Note that your application will be rejected if you are unable to provide either a valid level 3 certification number or dispensation.

You are required to include your level 4 examination pass reference here.

Failure to provide the required information, or provision of erroneous information may result in your application being delayed or rejected.

## **PART 2 - EDUCATION, PUBLICATIONS AND COMMITTEES**

Please provide details of your relevant higher/further education or above. This information will be used to determine the length of additional "*Industrial Experience*" required when assessing your application. See the *Eligibility for Level 4 Certification, Education and Industrial Experience* section above.

The applicant is also asked to include details of any publications they are responsible for. Whilst these will not be directly assessed they may help to establish the candidate's knowledge and offers PAC an insight into the applicants work and background. In addition to any peer reviewed published papers, please also include any further published work, guidance documents or articles for which you are substantially responsible. Do not include any published works resulting from your input into committees [i.e. BSI, ISO, NACE, CIRIA, etc]. Involvement of this sort should be included within your CPD report.

Photocopied evidence of academic qualifications must be provided. Photocopies must be certified by your sponsoring referee as being true copies.

You do not need to complete this part of the form if applying for recertification.

## **PART 3 - EMPLOYMENT HISTORY**

You are asked to provide details of your present and previous employment and positions held in order that assessors can verify that you hold a position likely to reflect the duties required of a Cathodic Protection Specialist and have previously held positions likely to have provided the necessary experience to support this.

Please give full details of your current role within your organisation detailing to whom you report and any subordinates you may be responsible for using an organogram. We also require brief details of your responsibilities within the role. The organisation chart should show the chain of command in your present post and indicate your position in relation to your immediate supervisor, equivalent, and immediate subordinate staff. Your own position should be clearly marked.

You do not need to name the staff within the structure, but job titles are required as a minimum.

You may provide, if you wish, not more than two organisation charts covering previous positions you have held which you consider are relevant to this application.

As a Cathodic Protection Specialist, you are expected to have undertaken and been responsible for all the tasks expected of a Level 1, 2 and 3 Technician in accordance with ISO 15257:2017. We therefore ask for brief details of previous positions held to help support this claim.

Please give, in reverse chronological order, relevant dates and the titles of all posts you have held, the names of your employer(s), a description of your personal duties and responsibilities, plus details of any structured training undertaken (including apprenticeships).

If you are presently certificated to ISO 15257:2017 Level 3 you are only required to provide details covering your period of additional *Industrial Experience* as any previous relevant employment will have already been assessed.

## **PART 4 – CONTINUING PROFESSIONAL DEVELOPMENT**

Continuing professional development (CPD) comprises learning activities that you undertake to gain knowledge and experience to help you in your professional career as a Certificated Level 4 Cathodic Protection Specialist. Thus, CPD is ADDITIONAL to the normal duties of your day-to-day employment. For example, training days, professional mentoring of colleagues or others, attendance at conferences, etc. are all clearly CPD activities.

Applicants' CPD should be a mixture of learning activities relevant to current or future practice and should include activities in at least three (exceptionally two) of the following categories:

- Work based learning (e.g. supervising staff / students, reflective practice)
- Professional activity (e.g. involvement in a professional body, attendance at committee meetings, mentoring)
- Formal Training (e.g. Attendance at formal vocational training, or seminars)
- Self-directed learning (e.g. reading journals, reviewing books / articles)

The duration covered should be commensurate with the appropriate period of “additional experience” and education if seeking initial certification, or the period since you were last assessed if seeking re-certification.

## **PART 5 – INDUSTRIAL EXPERIENCE, KNOWLEDGE AND COMPETENCE**

ICorr has determined that in order to obtain certification as CP Specialist an applicant shall be able to demonstrate the following Professional Competencies.

In order to demonstrate the applicant can satisfy these competencies they are required to provide full details of their knowledge and experience in each sector they require certification.

Your competence and experience to become certificated as a Cathodic Protection Specialist will be assessed in three parts:

1. Confirmation from the applicant and their referees that they, are competent to undertake the majority of the core knowledge and application sector specific activities detailed in tables 1 to 6 on the Application Form.
2. Provision of an *Industrial Experience* report demonstrating a minimum 48 days per year per sector fully dedicated to the *Professional Competencies* detailed above. Where applicants are applying for certification in more than one sector it is acknowledged that time spent in each sector may vary from year to year. In such cases applicants shall detail the full time spent dedicated to the *Professional Competencies* in the period of industrial experience provided. Where, for some years applicants do not have 48-days per year in a particular sector it would be expected they have correspondingly greater experience in another sector. In such cases PAC may grant dispensation for periods where time in one year for a particular sector is less than 48 days.
3. Documentary evidence that you are capable of undertaking level 4 activities by way of one or more case studies per sector for which you are seeking certification.

All applicants are required to attend a professional review where they may be questioned on any of the information included within this form or supporting information.

### **PART 5.1 – KNOWLEDGE AND COMPETENCE REQUIREMENTS**

It is expected that during their career, before and after initial certification, the Applicant will have gained knowledge and experience in the majority of tasks listed in table 1 through 6 presented in the application

form. The tasks and knowledge items have been agreed by an ISO committee and presented as they are within the standard. It is not expected that every Applicant will be an expert in every item of their application sector but they should be able to demonstrate a general awareness of the requirements in each case. We rely on the Applicant and their Referees to be honest and rigorous in the assessment below of whether the Applicant is competent in their understanding and execution of the specific tasks below.

Please complete the “Insert R, C or N” column:

R = Tasks you are deemed competent to carry out and have regularly carried out in your normal job activities.

C = Those tasks you are deemed competent to carry out although your present duties may not require them to be used regularly.

U = Tasks for which you have general understanding of the concepts involved but have limited or no direct experience.

N = Tasks with which you are not familiar and are not deemed competent.

Any Applicant indicating a lack of understanding or competence [U or N] in one or more tasks may be requested to carry out additional training and assessment prior to being awarded Certification by the Institute of Corrosion.

All applicants are to fill in Tables 1 and 2. Only complete sector specific Table(s) 3 to 6 for the Sector/s for which you are applying to indicate your experience in the relevant tasks for Level 4 Certification. Please put a line through/delete/remove tables relating to sectors which you are **NOT** seeking certification.

## **PART 5.2 – INDUSTRIAL EXPERIENCE REPORT**

As a Cathodic Protection Specialist, it is required that you spend no less than 20% [approximately 48 days per year] of your professional activities on Cathodic Protection duties at Level 4 or higher.

If applying for initial certification complete the table for the period of additional *Industrial Experience* commensurate of your education or for re-certification the 5-years since you were last assessed.

The total time listed should amount to no less than 48-days per year. It is expected that for Applicants seeking certification in more than one sector the total time listed per year should be significantly more than 48-days per year with a reasonable proportion of this time spent on each sector.

Within the table provided please provide details of the sector and nature of the work undertaken, with reference to tables 1 through 6 where relevant, and the dates and duration of the work. You are not required to name contracts if this is confidential, but you must be prepared to answer questions on the work you claim to have completed at your Professional Review. Please also indicate how this work may be verified. If one your referees can verify that you have undertaken the work, then please indicate Ref 1 or Ref 2 accordingly.

It is expected the number entries required to complete this section will result in the table provided being extended to several pages.



### **PART 5.3 - EVIDENCE OF COMPETENCE AND EXPERIENCE**

You are required to send, along with your completed application, a minimum of one case-study per sector for which you are seeking certification.

The purpose of the case study is to demonstrate that you are actively undertaking and are responsible for the duties of a Cathodic Protection Specialist. As such the simplest way of achieving this is provide case studies comprising completed work for which the Applicant was responsible.

At least one case study should be a design comprising specification, calculations and drawings.

All design work should conform to the relevant standards and guidance applicable to the application sector in question. A list of relevant standards for each application sector is provided in Appendix A of this document. Any deviation from standard practice should be clearly documented and supported.

You will be asked questions about your design approach and basis for any calculations. Failure to demonstrate a detailed understanding of the basis of the calculations presented may result in certification being withheld.

Simple product specific design protocols, such as may be provided for galvanic anode products for use in reinforced concrete, heating systems and ships are unlikely to be sufficient unless the Applicant can demonstrate a detailed understanding of the design principals involved.

Other acceptable forms evidence are:

- Detailed survey reports providing interpretation and specific recommendation.
- Design and installation audit reports.
- Purpose prepared case studies comprising the details found in the documentation detailed above.

It should be clear from the documentation presented that the work is the result of your own direct efforts or that you have been ultimately responsible for the work and are able to demonstrate a detailed understanding of the information. ICorr PAC CP Sub-committee reserve the right to request additional information from co-authors or originators if there is any doubt to the Applicants ownership or responsibility.

You are asked to provide a single-page cover sheet summary for each case study so that it may be read in the intended context. This summary may include:

- Synopsis
- Background (which could include details such as how the project was identified, how project proposals are prepared, how you were allocated the task, size of project and you role)
- Technical content (which could include details such as planning the project, methods and techniques used, design details, technical and budgetary constraints, and your management of the project)
- Outcomes (the implications and applications of the project)

Your cover page must feature the following statements from you and at least one of your referee:

You must sign your Case Study Cover Sheet under the statement:

*"I certify that this Case Study is a true and accurate representation of work I have produced/been responsible for."*

Your sponsoring referee must attest your Case Study under the statement:

*"I certify that I have read the Case Study of (your name) and confirm that, to the best of my knowledge, it is a true and accurate reflection of the candidates work/responsibilities."*

Please ensure that you have obtained any necessary permission from your employer and/or your client for the use of the Case Study. All case studies and information provided in your application will be treated in strictest confidence and will only be reviewed by members of ICorr Professional Assessment Committee, Cathodic Protection Sub-Committee and processed by ICorr office staff for administration purposes. All members of PAC CP Sub-committee have signed Non-disclosure agreements to this effect.

If documentation has been prepared in a language other than English a certified translation is required.

All documentation should be provided in electronic format.

## **ATTESTATION**

You are asked to read carefully and sign your acknowledgment to the attestation and Code of Ethics for ICorr Certification of Cathodic Protection Personnel.

Failure to abide by the statement or code may result in your certification being withdrawn and this withdrawal being published in the associated trade press.

There is an optional tick box which if marked allows ICorr to send you information relating to an application for Professional Membership of the Institute. You are not obliged to tick this box and existing members may ignore this item.

You are also asked to confirm your acceptance of the Institutes data protection [GDPR] statement regarding Level 4, Cathodic Protection Specialist certification.

Finally details of where to send your application and what documents should be included in your application whether it be for initial certification, 5-year or 10-year recertification are presented here.

## **REFEREES**

Referees should be Professional Members of the Institute of Corrosion who are established Cathodic Protection Engineers, (preferably Certificated to Level 4) who have known the Applicant personally and professionally for a minimum of three years. Two Referees are required, one of whom has direct knowledge of the applicant's employment. If the MICorr referees cannot be found, a Professional Member of an alternative Engineering Institute who has direct knowledge of the applicant's employment (e.g. supervisor or line manager) will be acceptable.

Referees should sign the confirmation on this page and initial where indicated at the bottom of each page of the application. We rely on the Applicant and their Referees to be honest and rigorous in the assessment. As such if a referee is unable to verify significant portions of the content on a given page we ask that they strike-through their verification box and initial the content on the page they are able to verify.

If a referee has any concerns surrounding specific areas of the applicants experience but feels that they general meet the requirements of Cathodic Protection Specialist they will be able to express this in their reference which will be requested separately by the Institute and will be treated in strictest confidence.

## SUBMITTING YOUR COMPLETED APPLICATION

When you are ready to submit your application please ensure that you have completed all the relevant sections of the application and included all the necessary supporting documentation. A table is provided [repeated here] to indicate what documents and parts of the form are to be completed if you are seeking initial certification, 5-year or 10-year recertification:

Documentation	Initial Certification	5-Year Recertification	10-Year Recertification
Application Form, Completed Signed and Verified By Referees	✓	✓	✓
- Part 1 - Personal Information	✓	✓	✓
- Part 2 – Education and Publications	✓	*	x
- Part 3 – Employment History	✓	✓	✓
- Part 4 – CPD Report	✓	✓	✓
- Part 5 - Industrial Experience, Knowledge And Competence	✓	5.2 Only	✓
- Attestation, Signed by the Applicant.	✓	✓	✓
- Referees, Signed by both referees.	✓	✓	✓
- Payment Form & Payment	✓	✓	✓
Verified Copies Of Relevant Certification [Part 2].	✓	*	x
Case Studies. One Per Sector [Part 5.3].	✓	*	✓

Your completed application should be returned to:

### INSTITUTE OF CORROSION

Corrosion House,  
5 St Peters Gardens,  
Marefair,  
Northampton,  
NN1 1SX

FAO Professional Assessment Committee, CP Sub-Committee Chair

## THE PROFESSIONAL REVIEW

Should your application receive a favourable review you will be asked to attend a Professional Review interview with the Chair of PAC CP Sub-Committee and up to two Co Panellist/s. Wherever possible co-panellists will be those who reviewed your application. The Interview panel are judging

- Your level of responsibility and professional judgement.
- Your knowledge and application of Cathodic Protection (technical content).
- Your commitment to the profession.

- Your communication skills.
- Your commitment to Continuing Professional Development. -There are NO trick questions.
- All Interview discussions are competence-based, using your application form, Case studies and Examination Papers.

Following the interview, the Review panel will confer and the Chairman may:

- a) Accept and Issue Applicant with Certification,
- b) Defer, requesting further information for re-submission or
- c) Reject - Advise applicant of reasons for rejection and steps to take to overcome these.

The applicant will be informed in writing of the panel's decision, typically within 2-weeks following interview.

On acceptance, the applicant shall be registered as a Level 4 Cathodic Protection Specialist with the Institute of Corrosion and will be issued with a uniquely numbered Certificate.

Interviews may take up to 1 ½ hours depending on the number of application sectors the applicant is seeking certification for.

The Professional Review interview is held in person at ICorr HQ in Northampton.

In exceptional circumstances it may be necessary to undertake an interview via conferencing software such as Skype. In this case it is the applicant's responsibility to provide suitable facilities [i.e. stable connection with sound and video] to conduct the interview. If interview cannot be completed due to technical issues certification may be refused.

## **Appendix A**

Level 4 certificated personnel shall have a detailed knowledge of following standards for each applied sector:

### **Standards for On-Land Metallic Structures Application Sector**

BS EN 12954:2001	Cathodic protection of buried or immersed metallic structures. General principles and application for pipelines
BS EN 13509:2003	Cathodic protection measurement techniques
BS EN 13636:2004	Cathodic protection of buried metallic tanks and related piping
BS EN 14505:2005	Cathodic protection of complex structures
BS EN 15112:2006	External cathodic protection of well casing
BS EN 18086:2017	Corrosion of metals and alloys. Determination of AC corrosion. Protection criteria
BS EN 16299:2013	Cathodic protection of external surfaces of above ground storage tankbases in contact with soil or foundations
BS EN ISO 15589-1: 2015	Petroleum, petrochemical and natural gas industries - Cathodic protection of pipeline systems. Part 1: On-land pipelines

### **Standards for Marine Metallic Structures Application Sector**

BS EN 12473:2014	General principles of cathodic protection in seawater
BS EN 12474:2001	Cathodic protection for submarine pipelines
BS EN 12495:2000	Cathodic protection for fixed steel offshore structures
BS EN 12496:2013	Galvanic anodes for cathodic protection in seawater and saline mud
BS EN 13173:2001	Cathodic protection for steel offshore floating structures
BS EN ISO 13174: 2012	Cathodic protection of harbour installations
BS EN 13509:2003	Cathodic protection measurement techniques
BS EN ISO 15589-2: 2015	Petroleum, petrochemical and natural gas industries - Cathodic protection of pipeline systems. Part 2: Offshore pipelines
BS EN 16222:2012	Cathodic protection of ship hulls

### **Standards for Reinforced Concrete Structures Application Sector**

BS EN ISO 12696:2016	Cathodic protection of steel in concrete
BS EN 13509:2003	Cathodic protection measurement techniques
BS EN 14038-1:2004	Electrochemical realkalisation and chloride extraction treatments for reinforced concrete. Part 1: Realkalisation
DD CEN/TS 14038-2:2011	Electrochemical realkalization and chloride extraction treatments for reinforced concrete - Chloride extraction

### **Standards for Inner Surfaces of Metallic Structures Containing an Electrolyte**

BS EN 12499:2003	Internal cathodic protection of metallic structures
BS EN 13509:2003	Cathodic protection measurement techniques