## INSTITUTE OF CORROSION

## Corrosion House, 5 St Peters Gardens, Marefair

## Northampton, NN1 1SX

**TEL: +44 (0) 1604 438222**

**E-mail: admin@icorr.org Web site: http://www.icorr.org**

***TYPE or PRINT in black ink. This form is available in e-format from http://www.icorr.org.***

*Note that this form will be photocopied. Please send your completed form, copies of Certificates and supporting documents to:*

*Institute of Corrosion, Professional Assessment Committee, CP Sub Committee Chairman.*

*Note that the Institute of Corrosion needs this information, in addition to details of any courses and examinations that you have undertaken to assess your experience and competence in the field.*

*Formerly Level 2 to BS EN 15257:2006.*

## PART 1 - PERSONAL INFORMATION (if not relevant, insert N/A)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Title  |  | Surname |  | Forenames |  |
| Present Grade of Membership (delete as required) | None / SustainingTICorr / ICorr / FICorr | Membership Number |  |
| Date of Birth |  |
| Telephone Mobile  |  |
|  Business  |  |
|  Home |  |
| email Business |  |
|  Home |  |
| Private Address (Including Postcode) |  |
| Business Address (Including Postcode) |  |
| Which address for communications? | Business / Home |

**PART 2 - CRITERIA FOR CATHODIC PROTECTION SENIOR TECHNICIAN LEVEL 3 CERTIFICATION**

**Passed ICorr Level 3 Reinforced Concrete Structures Cathodic Protection Course:**

**Exam Certificate No(s):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­­­­­­­­­ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­­­­­­­­­­­­­­­­­­­**

|  |  |
| --- | --- |
| **Industrial Experience**Please give details of at least your last 4 years’ experience immediately prior to this application to demonstrate your current professional practice giving Employer, dates and position. These should include reference to the tasks listed in Experience Report Tables 2 and 3List what projects you were involved in and what tests you undertook or supervised:***Note: Insufficient information made preclude the certification award*** | Referees to initial for verification of experience |

**APPLICANT’S UNDERTAKINGS**

I wish to apply for registration as a Certificated Level 3 Cathodic Protection Technician **Reinforced Concreteoi Structures (**Buried pipeline externals which may cross river/estuaries etc., buried tank externals, external bottoms of above ground storage tanks, well casings etc.)

**Attestation**

In signing and completing this form I confirm that the information given above is truthful and accurate. I acknowledge that my Certification can be withdrawn by the Institute of Corrosion if any element of the above information is shown to be false and that such withdrawal can be published by the Institute.

I also accept that the Institute of Corrosion will maintain records of my Certification and may disclose them at any time to any enquirer seeking personnel Certificated in Cathodic Protection. The Institute of Corrosion is authorised to make contact with me by the details that I have provided above.

I am also accepting and agreeing to work within the Code of Ethics for the Institute of Corrosion Scheme for Certification of Inspection and Cathodic Protection Personnel as detailed below:

**Code of Ethics for ICorr Certification of Inspection and Cathodic Protection Personnel**

This code must be upheld by all personnel Certificated to levels 1 to 5 under the Institute of Corrosion’s *ICorr Certification Scheme* for Inspection and Cathodic Protection personnel engaged in painting and coating inspection, cathodic protection, and in inspection of pipe coating, insulation, fire proofing and metallic coatings.

This Code was approved by the Council of the Institute of Corrosion in December 2013.

Before ICorr Certification or Re-certification can be issued, participants in the scheme shall sign this Code of Ethics and undertake to comply with the following:

1. I undertake to uphold the dignity and good standing of my profession and the Institute of Corrosion and its Certification Scheme; I will observe the highest standards of ethical behaviour and obey local laws.
2. I will exercise due skill, care and diligence in all of my professional activities.
3. I acknowledge that my activities may impact on the health and safety of individuals, of the public at large, on the safety of plant and facilities on which I work and on the environment; I will be rigorous in the execution of my professional activities.
4. I shall not use ICorr Certification to mislead any individual, employer or authority by presenting it as testimony that applies to any task outside the scope of the Certification as declared on the ICorr Certificate. I shall not permit my ICorr Certification to be used by any other party nor shall I knowingly permit my Employer or others to misuse the Certification documents issued to me.
5. I shall always endeavour to become fully familiar with my duties and understand the scope of my authority prior to performing work. I shall not accept duties for which I am not trained and proficient; if I am requested to do so I will request – (in writing) – to receive additional training and mentored experience.
6. I recognise that it is my duty to perform tasks as I have been contracted to do and I shall not allow deviations from specified requirements unless given permission – (in writing) – to do so by a higher authority.
7. I will report – (preferably in writing) – to a higher authority if I am aware of any specified requirements which may lead to adverse work or conditions which were not intended.
8. I will endeavour to perform inspections, tests, measurements and any other work for which I have been contracted to the best of my ability and will inform my superior(s) – (in writing) – if I am unable to do so.
9. I will not accept gratuities of any kind which may affect my judgement in the work that I am performing as an ICorr Certificated individual.
10. I will endeavour to be fair, reasonable and objective towards the requirements for which I perform at all times.
11. I will not allow my work to be influenced by personalities or other individual considerations.

I hereby agree to uphold and abide by this code and I acknowledge that I may be subject to a disciplinary procedure which could result in loss of Certification if it can be proven that I have failed to comply or have provided false information associated with my participation in the scheme.

|  |  |  |
| --- | --- | --- |
| Name (Print) | Signature of Applicant: | Date |

**OPTIONAL**

**As a Level 3 Certificated Cathodic Protection Senior Technician you will be eligible to apply for the Professional Membership Technician Grade in the Institute of Corrosion: TICorr. If you wish to apply for TICorr and thus become a full member of ICorr and gain all the associated benefits, please tick the box**

|  |
| --- |
|  |

**Data Protection:** If your application is successful, 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 3 Certification Number. I Corr may wish to use the information you supply in order to be able to communicate with individuals effectively. Level 3 Certified Cathodic Protection Technicians have the right of access to their personal data held by I Corr and the right to prevent its use for direct marketing services.

|  |  |
| --- | --- |
| **If you wish to receive this information, please tick the box**  |  |

There is no additional charge for Certification.

Please send your completed form and copies of Examination Pass to:

INSTITUTE OF CORROSION

Corrosion House,

5 St Peters Gardens

Marefair

Northampton, NN1 1SX

EXPERIENCE REPORT

**All Applicant s are to fill in Tables 1, 2 and 3 to indicate their experience in the relevant tasks for Level 3 Certification. (See ICORR REQ DOC (CP).**

***NOTE: To Applicant and Verifier:***

It is not expected that the Applicant will have been taught or will have been examined on the theory and practice of ALL of the Tasks listed below as part of the Institute of Corrosion training courses or examination that the Applicant originally undertook prior to Certification.

However, it IS expected that during their time of experience, before and after taking the Course/Examination, ALL of the tasks below have been taught to the Applicant , in the field or in the classroom, by his colleagues, his employer and his Level 3 or Level 4 Cathodic Protection supervisors. We rely on the Applicant and the Verifier to be honest and rigorous in the assessment below as to whether the Applicant is competent in their understanding and execution of the specific tasks below (C) and whether the Applicant undertakes them regularly (at least once per month) (R). The Institute of Corrosion reserves the right to call Applicant s for interview or examination in order to prove the validity of a proportion of applications for Certification.

Please enter N for any task that the Applicant does not undertake and/or is not competent to undertake. It IS permitted for the Applicant to be specifically trained in these tasks by Level 3 or Level 43 supervisors, in the field or classroom, or by self-study and field application supervised by others, before completing this Certification Application. Any Applicant indicating lack of understanding or competence in any task may be called for additional training and examination by the Institute of Corrosion.

Please sign that you understand the above requirements:

Applicant ……………………………………. Referees 1………………………………..

Print Names ………………………………… Referees 2………………………………..

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 you present duties may not require them to be used regularly.

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

TASKS TO BE FULFILLED IN ALL APPLICATION SECTORS

Table 1 details tasks which shall be fulfilled for Level 3, whatever the application sector. The field of application of each of these tasks covers only the application sector of the certificated individual.

* **Table 1: Knowledge required by level 3 Applicants**

|  |  |  |
| --- | --- | --- |
| **Knowledge number** | **Description of knowledge** | **Insert****R,C or N** |
| 1 | Electricity relevant to CP application and measurements |  |
| 2 | Corrosion, electrochemistry and coatings relevant to CP |  |
| 3 | Theory, principles and criteria of CP |  |
| 4 | Requirements related to application of CP |  |
| 5 | Application methods of CP, galvanic anodes, impressed current |  |
| 6 | CP measurements and test procedures |  |
| 7 | Relevance of voltage gradient errors and influence on structure to electrolyte potential measurement |  |
| 8 | Factors influencing the correct selection of reference electrodes for potential measurements |  |
| 9 | Effects of excessive CP on coatings, high-yield strength steels and corrosion-resistant alloys |  |
| 10 | Diagnostics of CP systems |  |
| 11 | Interference conditions (alternating current and direct current) |  |
| 12 | Standards and codes of practice in the relevant application sector |  |
| Confirmation | Print Name | Signature | Date |
| Referee 1 |  |  |  |
| Referee 2 |  |  |  |

# SPECIFIC TASKS FOR REINFORCED CONCRETE STRUCTURES APPLICATION SECTOR

Level 3 certificated personnel shall have a good understanding of:

|  |  |
| --- | --- |
| **BS EN ISO 12696:2016** | Cathodic protection of steel in concrete |
| **BS EN 13509:2003** | Cathodic protection measurement techniques |
| **BS EN 14038-1:2016** | Electrochemical realkalization and chloride extraction treatments for reinforced concrete. Realkalization |

Table 2: Specific tasks to be fulfilled by Level 3 Senior Cathodic Protection Technician in all application sectors

| **Task number** | **Description of task** | **Insert****R, C or N** |
| --- | --- | --- |
| 2 | Prepare technical instructions |  |
| 3 | Collect general information for design purposes based on technical instructions for simple CP systems (as in Annex A Definitions) |  |
| 4 | Collect detailed information and data for design purposes |  |
| 5 | Check calibration validity of CP measuring and testing equipment based on documentation |  |
| 6 | Measure structure to electrolyte potential |  |
| 7 | Perform verification test of working portable reference electrode against master electrode of the same type based on measurement |  |
| 8 | Perform verification test of working portable reference electrode against another type of reference electrode |  |
| 9 | Perform verification test of stationary reference electrode against a portable reference electrode |  |
| 10 | Perform pre-commission testing |  |
| 11 | Check whether the positive output of the rectifier is connected to the anode and the negative output is connected to the structure |  |
| 12 | Identify a wrong polarity of the CP system by structure to electrolyte potential measurement |  |
| 13 | Perform start-up and commissioning |  |
| 14 | Record and report results of the measurements in a comprehensible format |  |
| 15 | Classify the results of the measurements |  |
| 16 | Define the limitations of application of the testing method according to established procedures |  |
| 17 | Interpret commissioning or performance verification data and prepare commissioning report, performance verification report or system review report for simple CP systems (as defined below) |  |
| 19 | Measure current and voltage in the CP circuit |  |
| 20 | Carry out basic maintenance work on CP systems |  |
| 21 | Inspect and measure of DC power supply output current and voltage |  |
| 22 | Inspect and verify DC power supply overall operations |  |
| 23 | Inspect and maintain DC power supply output terminations if accessible without exposing persons to live AC equipment |  |
| 24 | Inspect and maintain DC power supply components |  |
| 25 | Verify DC power supply voltage and current outputs with portable calibrated meter |  |
| 26 | Routine and expected adjustment of current output to maintain pre-determined performance |  |
| 27 | Determine the validity of the data and analyse anomalies detected |  |
| 28 | Determine increase/decrease in current output to maintain optimum performance including remedial actions to correct anomalies and interferences |  |
| 29 | Ensure compliance with safety requirements related to application of CP in the application sector, task and competence level |  |
| 30 | Perform risk assessment of safety requirements related to application of CP in the application sector, task and competence level |  |
| 31 | Translate CP measuring and testing standards and specifications into technical instructions for CP measuring and testing, routine maintenance, and installations procedures |  |
| 32 | Investigate material weight loss corrosion when application of CP may be involved |  |
| 33 | Set up measuring and testing equipment and verify equipment settings |  |
| 36 | Write technical instructions for lower-level persons, supervise and train them in the practice of their tasks |  |
| 37 | Interpret and evaluate results in accordance with established standards, codes and specifications |  |
| 38 | Undertake, without supervision, simple CP system (as defined in 3.10) design works according to established procedures in a known environment  |  |
| 39 | Establish technical instructions including definition of CP test procedure and equipment to be used and the format for reporting data for tasks covered in standards, codes and specifications |  |
| Confirmation | Print Name | Signature | Date |
| Referee 1 |  |  |  |
| Referee 2 |  |  |  |

**Work on the AC mains, side of transformer rectifiers is specifically excluded from the competence requirements of all levels of personnel. Regulations, training and specific certifications apply for work on mains voltage equipment.**

***From ISO 15257***

***3.10 Simple CP System***

***Simple Cathodic Protection System***

*Cathodic protection system with no design constraints due to external electrical influences, foreign structure interaction or unpredictable electrolyte changes where the design follows identified and defined, auditable procedural steps as developed by a person certificated to Level 4*

**Table 3: Specific tasks to be fulfilled by Level 3 Senior Cathodic Protection for Reinforced Concrete Structures application sector**

| **Task number** | **Description of task** |  |
| --- | --- | --- |
| 1 | Test electrical continuity of reinforcement to allow accurate potential measurements |  |
| 2 | Measure steel to concrete natural potential in concrete |  |
| 3 | Measure “Half Cell Potential Survey” (close interval survey natural potential) |  |
| 4 | Process potential data for mapping |  |
| 5 | Locate reinforcement with cover meter |  |
| 6 | Measure cover to reinforcement with cover meter |  |
| 7 | Supervise or undertake the collection of concrete drilling dust or core samples for chloride testing |  |
| 8 | Interpret chloride analysis results |  |
| 9 | Test carbonation to broken or cored concrete |  |
| 10 | Measure concrete resistivity (two pin or four pin) |  |
| 11 | Inspect surface of reinforcement when exposed for corrosion or physical damage |  |
| 12 | Measure pit depth with suitable gauge |  |
| 13 | Inspect surface of pre-stressing steel when exposed for corrosion or physical damage |  |
| 15 | Measure reinforcement electrical continuity (resistance and potential techniques) |  |
| 16 | Supervise reinforcement electrical continuity bonding and retest |  |
| 17 | Supervise installation of cable connection to reinforcement or embedded/surface mounted metallic items: mechanical |  |
| 18 | Supervise installation of cable connection to reinforcement or embedded/surface mounted metallic items: exothermic/welded/pin brazed |  |
| 20 | Supervise installation of anode systems: galvanic and impressed current |  |
| 21 | Supervise connections of cables to anodes and (if applicable to anode system) primary anode system installation into secondary anode system |  |
| 22 | Supervise installation of reference electrodes, sensors and coupons |  |
| 23 | Supervise installation of DC power supplies and monitoring system **(electrical input AC excluded due to regulations/safety)** |  |
| 24 | Measure anode to reinforcement isolation (resistance and potential techniques) |  |
| 25 | Measure anode circuit continuity or resistance |  |
| 26 | Measure cathode and test circuit continuity or resistance |  |
| 27 | Correct or remove anode to reinforcement short circuit |  |
| 28 | Set up synchronized current interruptions for instant OFF potential measurements |  |
| 29 | Measure ON and instant OFF potential and current at permanently installed reference electrodes and coupons |  |
| 30 | Measure ON and instant OFF potential and potential decay from instant OFF at permanently installed reference electrodes |  |
| 31 | Survey/measure potential decay from instant OFF over concrete surface using portable reference electrodes |  |
| 32 | Perform interference testing |  |
| Confirmation | Print Name | Signature | Date |
| Referee 1 |  |  |  |
| Referee 2 |  |  |  |

**REFEREES**

Referees should be Professional Members of the Institute of Corrosion who are established Cathodic Protection Engineers, (preferably Certificated Level 3) and 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 MICorr/FICorr Level 3 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.

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I confirm that I have read the Criteria for Level 3 Certification and confirm that the applicant is competent to carry out the tasks listed above. I recommend that the applicant, to the best of my knowledge and belief, is a fit person to be registered as a Certificated Level 3 Senior Cathodic Protection Technician through the Institute of Corrosion. I agree, on request of the Institute of Corrosion, to provide a confidential written reference.

**Referee 1**

|  |  |  |  |
| --- | --- | --- | --- |
| Name |  | Qualification |  |
| Address |  | Signature |  |
| Date |  |
| Tel No |  | Email |  |

**Referee 2**

|  |  |  |  |
| --- | --- | --- | --- |
| Name |  | Qualification |  |
| Address |  | Signature |  |
| Date |  |
| Tel No |  | Email |  |

For office tracking and recording

|  |  |
| --- | --- |
| **Name** |  |
| **Individual Application Number** | **CP** |  | **Date of Award** |  |
| **Individual Certificate Number** | **CP** |  | **Date for Renewal** |  |
|  | Checked by | Date |  | Checked By | Date |
| Received |  |  | Assessors |  |  |
|  |  |  | Committee Chairman |  |  |
| Acknowledged |  |  | Certificate |  |  |
| Referees |  |  | CP register |  |  |