vicroads

Guide to Surveillance of Protective Coatings of Structural Steelwork

Technical Bulletin No 48

Guide to Surveillance of Protective Coatings of Structural Steelwork

Technical Bulletin No 48

November 2003

Foreword

This Guide provides a methodology for quality surveillance of the application of protective coatings to structural steelwork during fabrication and site work for VicRoads contracts. The main aims of the Guide are to ensure that:

- Surveillance is carried out in a uniform and consistent manner, following principles of quality management
- Observation records of workshop and on-site application of protective coatings contain sufficient detail.

ABOUT VICROADS

VicRoads is the Victorian State Road Authority responsible for the management of the road network.

1.1 Purpose

The purpose of this Guide is to:

- Set criteria for the qualification requirements of Protective Coatings Surveillance Officers
- Provide guidance to the Protective Coatings Surveillance Officer in working with quality assurance contracts
- Promote consistency in the surveillance of quality assurance contracts
- Provide a training basis for Protective Coatings Surveillance Officers.

The Guide is intended for use in quality assessment of VicRoads construction and maintenance contracts which include the protective coating of structural steelwork.

1.2 Scope

This document puts in place a recommended system for the appointment and duties of a Protective Coatings Surveillance Officer, and provides a set of checklist guides, to ensure quality standards, specifications and contract obligations are met.

It does not cover every possible contingency, and the information herein can be expanded both in scope and depth as the need arises. There will always be a need for the Protective Coatings Surveillance Officer to apply judgement and, when in doubt, seek further specialist advice.

1.3 Application of Protective Coatings

Activities in the protective coating of structural steelwork include preparation of surfaces, supply of paints and other coatings, containment of debris and residues, application of coatings, testing of the applied coatings and handling and transport of the treated steelwork.

2

Surveillance in a Quality Assurance Environment

2.1 The Quality Assurance Environment

Quality assurance is applied in protective coating of structural steelwork contracts as part of a management system to ensure that:

- Contractor/sub-contractor relationships are working
- Processes are being managed
- People have sufficient empowerment and responsibility to do their jobs
- Products meet the specified criteria, i.e., standards and specifications are achieved.

2.2 The VicRoads Framework for Quality Assurance Contracting

This Guide has been produced by VicRoads to complement the Austroads publications *Quality Assurance in Contracts*[1] and *Guide to Field Surveillance of Quality Assurance Contracts*[2]. The second publication is referred to within this Guide as the Austroads Guide.

The contents of this Guide specifically address Contractor surveillance activities associated with the implementation of that portion of the Quality Plan covering processes associated with the surface preparation and application of protective coatings to new or major maintenance steelwork. The Quality Plan covering protective coating of steelwork processes is generally owned by the Protective Coatings Sub-contractor and is reviewed by the Contractor.

This Guide does not cover the surveillance of the removal of lead coatings. However, once the lead removal process is completed, this Guide can be used for the surveillance of the subsequent surface preparation and application of replacement protective coatings.

2.3 Aim of Surveillance of Protective Coatings

The surveillance of protective coating application to structural steelwork determines, in a systematic manner, that the Contractor's and Protective Coatings Sub-contractor's Quality Plans are implemented, that the Contract Specification requirements for the surface preparation and protective coating are complied with, and that the specified quality is achieved. Surveillance is carried out both on the surface preparation and application of protective coatings to new steelwork, and on major maintenance or repair of existing protective coatings on steelwork.

Each process used in the application of protective coatings to structural steelwork should be observed for verification that the detail of the process has been carried out in accordance with written instructions and that the specified requirements have been achieved.

The personnel who carry out surveillance require detailed knowledge of surface preparation and coatings application techniques and must be

trained to observe and seek appropriate evidence of compliance with procedures. In particular these personnel must be particularly conversant with Section 641-*Zinc-In-Silicate Coating*, of the VicRoads Standard Specifications for Roadworks and Bridgeworks.

The Protective Coatings Surveillance Officer is retained by, and acts on behalf of, the Contractor and generally carries out surveillance of sub-contracted, protective coating applications. In the event that the protective coating of structural steel work is not sub-contracted, then the Protective Coatings Surveillance Officer will be retained by the protective coating applicator, who in this instance is also the Contractor.

All protective coating surveillance shall be carried out by Protective Coating Surveillance Officers who are authorised signatories employed by organisations holding inspection accreditation with the National Association of Testing Authorities, Australia (NATA). Accreditation shall be to AS/NZS ISO/IEC 17020-*General Criteria for the Operation of Various Types of Bodies Performing Inspection*[3], for surveillance of protective coating, in accordance with the accreditation criteria in this Guide.

The criteria for accreditation of Protective Coatings Surveillance Officers and companies offering these surveillance services are stated in Appendix A.

Under VicRoads specifications, the Superintendent reserves the right to undertake independent audit and surveillance activities, notwithstanding the fact that a Protective Coatings Surveillance Officer may be deployed on the works.

Figure 2.1: ***Dry abrasive blasting is often an open-air activity. The Surveillance Officer should obtain verification that ambient conditions were suitable and recorded, and that prepared surfaces were not adversely affected by moisture or salt contamination prior to coating.***

3.1 The Role of VicRoads in Protective Coating of Steelwork

A VicRoads officer is normally appointed as the Superintendent of VicRoads awarded contracts. The Superintendent will arrange surveillance and audits to verify the effectiveness of the Contractor's Quality System and compliance with the management plans and procedures.

3.2 The Role of the Contractor

Contractors have the responsibility for the conduct of regular surveillance and audit of all on-site and off-site sub-contractors. Contractors are responsible for establishing, undertaking and continuing control and process checks to ensure the specified criteria for protective coatings are met.

Where the application of protective coatings to structural steelwork is carried out as a sub-contract, the Contractor shall conduct surveillance of the sub-contracted works utilizing the services of a Protective Coatings Surveillance Officer. It is the responsibility of the Contractor to procure the services of a Protective Coatings Surveillance Officer to undertake surveillance of sub-contracted protective coatings works. A specific aspect of the Contractor's Quality Plan should cover the surveillance of sub-contracted protective coating. The Protective Coating Sub-contractor shall prepare a separate Quality Plan covering processes associated with the protective coating. It is essential that the Protective Coatings Sub-contractor's Quality Plan is reviewed by the Contractor.

The Contractor must monitor the performance of the Sub-contractor by surveillance of surface preparation and application of protective coatings to obtain assurance that the Sub-contractor complies with the quality system and meets the specified quality criteria. In many contracts, the Protective Coating Sub-contractor is a sub-contractor of the Structural Steelwork Contractor.

3.3 The Role of the Protective Coatings Surveillance Officer

The Protective Coatings Surveillance Officer generally acts on behalf of the Contractor and carries out surveillance of sub-contracted, structural steelwork coating processes.

The Protective Coatings Surveillance Officer verifies the implementation of the Protective Coatings Sub-contractor's Quality Plan, the conduct of the application processes, and verification of specified requirements for protective coating during the contract delivery process. The general role of surveillance officers in Contract Delivery is described in the Austroads Guide.

Where specifications nominate 'Hold Points' during the course of the contract, these can only be released by a Protective Coatings Surveillance Officer.

4.1 General

In a construction process for protective coatings, the activities undertaken by the Contractor and the Protective Coatings Surveillance Officer are as follows:

- Preparation of Contractor's Quality Plan (Contractor activity)
- Review of the Protective Coatings Sub-contractor's Quality Plan (Contractor activity)
- Pre-construction activities (Contractor & Surveillance Officer activity)
- Field surveillance activities (Surveillance Officer activity)

4.2 Quality Plans

Under AS/NZS ISO 9001:2000[4] *"The organization shall establish, document, implement and maintain a quality management system and continually improve its effectiveness in accordance with the requirements of this International Standard.*

The organization shall:

(a) identify the processes needed for the quality management system and their application throughout the organization,

(b) determine the sequence and interaction of these processes,

(c) determine criteria and methods needed to ensure that both the operation and control of these processes are effective,

(d) ensure the availability of resources and information necessary to support the operation and monitoring of these processes,

(e) monitor measure and analyse these processes, and

(f) implement actions necessary to achieve planned results and continual improvement of these processes.

Where an organization chooses to outsource any process that affects product conformity with requirements, the organization shall ensure control over such processes. Control of such outsourced processes shall be identified within the quality management system.

"The organization shall plan and carry out production and service provision under controlled conditions".

To demonstrate compliance with AS/NZS ISO 9001:2000 both the Contractor and Protective Coatings Sub-contractor normally prepare a Quality Plan for each job, which becomes the basis for surveillance and technical audit. The Quality Plan covering processes associated with protective coatings application is generally prepared and owned by the Protective Coatings Sub-contractor and is reviewed by the Contractor.

For protective coatings, the Quality Plan covering processes for each job shall:

- Be site or contract specific
- Describe the processes and reference the standards for protective coating that the Contractor will follow to achieve the agreed standard of work
- Specifically describe the areas of responsibility and accountability of the Contractor's personnel
- Provide details of coating materials and names of suppliers
- Provide details of preparation and protective coating processes and procedures
- Provide details of any sub-contractors to be used and their responsibility in the process
- List the quality records to be kept which provide evidence of compliance
- Provide inspection and testing plans and checklists for materials and processes
- Provide for identification of non-conformances and methods to deal with them
- Contain or refer to other relevant documents such as the Contractor's Quality Manual and Operating Procedures Manual
- Provide certificates of material performance and outline process for traceability and identification.

When used during the coating process, the above documents collect information which demonstrate the Quality Plan has been followed.

4.3 Surveillance Checklists

When surveillance of protective coatings is conducted, surveillance checklists should be used to ensure all relevant items are covered. Appendix B contains a typical checklist based on the relevant portions of the following specifications, standards and guides. The checklists in Appendix B are considered a minimum standard and shall be supplemented to include items specific to the particular contract.

4.4 Surveillance Processes

The Protective Coatings Surveillance Officer conducts surveillance of the Protective Coatings Sub-contractor's processes by observing each process, at a frequency determined by the surveillance schedule. Verification should be made that the details of the process have been carried out in accordance with the written instructions and that the specified requirements have been achieved. The use of checklists is recommended. Reporting of the results of surveillance should be made to the contract party that is one level above that which is being surveilled.

Preconstruction activities, field surveillance activities and reporting are described in Sections 5, 6 and 7 of this Guide, respectively.

5.1 Introduction

This section describes activities that the Protective Coatings Surveillance Officer should carry out prior to commencement of preparation and application of protective coatings to structural steelwork. These activities are covered generally in Section 6 of the Austroads Guide.

5.2 Contract Quality Plan

The Quality Plan will detail requirements for the activities to be carried out by the Protective Coatings Surveillance Officer. These requirements will cover, for example, the conduct of communications between parties, a process for reporting and resolution of non-conformances, maintenance of diary records, etc.

Steps	Actions
1	Review the contents of the project Contract Quality Plan to understand what is required
2	Identify and become familiar with all the requirements of the contract procedures that relate to the duties of a Protective Coatings Surveillance Officer

5.3 Surveillance Documentation and Reporting System

The Protective Coatings Surveillance Officer shall use a secure system for reporting and storing information collected during the course of the surveillance. Each surveillance shall have a unique identification code.

Steps	Actions
1	Establish an appropriate system for storing information and reports

5.4 Contract Documentation (Contract Quality Plan, Drawings, Specification)

The Protective Coatings Surveillance Officer must have a thorough understanding of all relevant documentation applicable to structural steelwork coating. This documentation includes:

- Contractor's Quality Plan relating to protective coating of structural steelwork
- Quality Plan from the Protective Coatings Sub-contractor
- Drawings and specification for the structural steelwork and protective coatings
- Product data sheets and Materials Safety Data Sheets for the coatings products used
- Relevant standards and guidelines

Steps	Actions
1	Obtain all documentation related to protective coating of structural steelwork
2	Review documentation to obtain an understanding of technical and specification requirements

5.5 Manufacturing Processes

The Protective Coatings Surveillance Officer must be familiar with the processes related to the preparation and application of protective coatings to structural steelwork, particularly for processes where the results or quality cannot be verified by subsequent inspection and testing of the product and where, for example, processing deficiencies may become apparent only after the product is in use. The sequence and interaction of these processes shall also be determined. For protective coatings, such processes may be associated with surface preparation, galvanising, paint coating application, powder coating, thermal metal spraying and handling of coated items.

Steps	Actions
1	Identify any processes
2	Identify the particular requirements for assessment of the process, for example: • Verifying the process in production or as a procedure test • Sighting evidence provided by the Protective Coatings Sub-Contractor

Figure 5.1: As part of surveillance, the results of surface preparation methods should be verified for class of surface preparation and achievement of profile.

6.1 Introduction

This section describes the activities a Protective Coatings Surveillance Officer may carry out during the protective coating of structural steelwork. Some of these activities are covered generally in Section 7 of the Austroads Guide.

6.2 Surveillance Schedule

The Protective Coatings Surveillance Officer shall develop a surveillance schedule for the approval of the Contractor. This schedule should be based on the risk of specific aspects of the process and requirements of the specification.

Surveillance frequency should be higher in the early stages of manufacture. An initial surveillance is required at the commencement of the contract to assess compliance with supervision, qualification of personnel and procedures, material supply and inspection requirements. As fabrication procedures are observed to be in place and delivering the required product quality, the frequency of surveillance could be reduced. However, both the frequency and duration of surveillance should be increased where non-conformances arise which are detrimental to product quality or the potential service life, or both of these aspects.

The Protective Coatings Surveillance Officer attends the Protective Coatings Sub-contractor's works or worksite in accordance with the surveillance schedule.

Surveillance near contract completion is required to assess compliance with inspection and testing, and resolution of non-conformances.

Surveillance is required to observe critical production activities, including assessment of surface preparation standards, use of paint application procedures, adherence to re-coat intervals, monitoring of ambient conditions, control of debris and residue, witnessing of any test panels, plate edge treatments and use of re-work procedures.

Steps	Actions
1	Conduct surveillance at intervals to cover contract start-up, completion and any intermediate stages
2	Witness specific activities as required by the schedule

6.3 Surveillance Record

Surveillance carried out by the Protective Coatings Surveillance Officer shall be recorded on checklists and Surveillance Record and Report Forms.

Other activities and important site events during the contract are to be recorded to provide an accurate account of events and resources, as

observed during surveillance. Photographic and video methods may be used to record progress of the works and significant events.

Steps	Actions
1	Maintain a record of each surveillance • Completed after each surveillance • Legible and understandable by others • Relevant, comprehensive and unbiased

6.4 Contract Review - Protective Coatings

At the initial surveillance, the Protective Coatings Surveillance Officer shall assess that the Protective Coatings Sub-contractor has completed a contract review process. This review identifies specific requirements for the Contract regarding:

- Application standards to be used
- Surface preparation and coating application procedures required for the contract and if specific procedures require qualification and approval prior to use in production
- Method for obtaining procedure approval
- Inspection and testing procedures
- Selection, identification and traceability of materials
- Specification requirements, including contract specific clauses

Protective coating of new steelwork is usually carried out either within a paint shop building, in a designated dry-abrasive blasting yard, or within the premises of a galvanizing contractor. Specific planning approvals from the appropriate local government authority for use of the premises for abrasive blasting, use of chemicals, or application of paint are generally required for these operations to be carried out. Documents granting these approvals or licences should be sighted.

Steps	Actions
1	Verify that the Contract Review for protective coating has been carried out for: • Applications standards • Local government planning approval for use of site for abrasive blasting and paint/coating applications • Surface preparation and coating application requirements • Approval of specific procedures • Method for obtaining procedure approval • Inspection and testing procedures • Selection, identification and traceability of materials
2	Verify that containment design for debris and emission control level for the specified or selected paint removal and/or surface preparation method has been put into place
3	When works are being performed on site, verify that the Contractor has provided a containment design to achieve specified debris and emissions' control levels for the paint removal and/or surface preparation methods

6.5 Sub-Contracting

In the application of protective coatings to structural steelwork, some activities are supplied by sub-contractors to the Protective Coatings Sub-contractor. The Protective Coatings Surveillance Officer should assess that the Protective Coatings Sub-contractor has evaluated the selected sub-contractors/suppliers on their ability to meet specified requirements, including quality.

Steps	Actions
1	Review protective coatings contractor's records of approval of sub-contractors and suppliers
2	Participate in surveillance of activities by sub-contractors and suppliers

6.6 Inspection and Testing Personnel - Qualifications and Competencies

All personnel involved in protective coatings inspection and testing require experience and qualifications in their respective fields. The Protective Coatings Surveillance Officer shall verify that the following personnel are appropriately qualified:

- Protective Coatings Inspectors
- Testing personnel

Steps	Actions
1	Verify that the protective coatings contractor has records of the qualifications of the protective coatings inspector
3	Verify that the qualifications meet specified requirements
2	Verify that the qualification and accreditation of testing and inspection personnel meet specified requirements

6.7 Surface Preparation

Surface preparation is a vital component of a protective coatings system. The protective coatings contractor must demonstrate that the required surface preparation has been carried out and that an appropriately authorised and qualified person has certified that the surface preparation complies with the requirements of the specification.

Steps	Actions
1	Verify the following in regard to the surface preparation method: • The specified level of visual and invisible surface cleanliness • The specified level of surface profile • When specified, compliance with the requirements for soluble salt contamination
2	When specified,verify the pressure required for pressure water cleaning and jetting
3	Verify that certifications and test records for surface cleanliness, surface profile, soluble salt contamination and water pressure meet specification requirements for test values and testing
4	Verify that an appropriately authorised and qualified person has certified the surface preparation

Figure 6.1: The Surveillance Officer should verify that the required surface preparation has been achieved, the coating is applied within the allowed time, and that coating application has been to the manufacturer's instructions

6.8 Materials and Consumables

The Protective Coatings Sub-contractor has responsibility to ensure that materials and consumables are supplied in accordance with the specification.

Traceability of materials and consumables, such as various paints in a coating system, is often lost after the materials are incorporated into the structure. Traceability is the responsibility of the Protective Coatings Sub-contractor, who must demonstrate that materials and consumables of the specified grades and quality have been acquired for, assigned to and used in the works.

6.9 Non-Conformance

The protective coatings contractor shall raise non-conformance reportswhen work is not in accordance with the specification or drawings.

If the Protective Coatings Surveillance Officer discovers a non-conformance, this shall be raised as a non-conformance with the Contractor. The Contractor will then deal with the issue in accordance with the contract.

Steps	Actions
1	Raise any non-conformance with the Contractor, to allow the issue to be dealt with in accordance with the Contractor's quality system
2	When required, comment on the practicality of the disposition and actions to prevent recurrence
3	Conduct surveillance to verify that the agreed disposition has occurred prior to close-out of the Non-Conformance Report
4	Complete the required record and documentation

Figure 6.2: ***The Surveillance Officer should verify that coating thickness measurements for each coating film have been made and that the required minimum thickness has been achieved.***

Figure 6.3: ***Dry abrasive blasting is often an open-air activity. The Surveillance Officer should obtain verification that ambient conditions were suitable and recorded, and that prepared surfaces were not adversely affected by moisture or salt contamination prior to coating.***

7

Reporting of Surveillance

Surveillance reports shall include any requirements for the National Association for Testing Authorities, Australia (NATA) endorsement of the report, as well as specific information resulting from the surveillance. Surveillance reports shall be made within two working days of conducting the surveillance.

The Protective Coatings Surveillance Officer shall make available to the Contractor and to VicRoads, at the request of the Superintendent, all relevant documentation collected during the course of the surveillance.
Appendix C of this document contains an example of a basic Surveillance Record and Report Form.

Steps	Actions
1	Report surveillance in accordance with the standard reporting requirements and any contract specific requirements. Include verification of activities, verification of inspections and any remedial action completed, and details of non-conformances and achievement of agreed dispositions
2	Issue surveillance reports within 2 working days of surveillance
3	Issue reports only to the Contractor and to the Superintendent upon request

Figure 7.1: Surface preparation which is below the minumum required, or the omission of primer of intermediate coating, or coatings which are below the thickness specified, may lead to premature failure of the coating system.

1 Austroads, *Quality Assurance in Contracts*, Sydney 1994, AP-115/94

2 Austroads, *Guide to Field Surveillance of Quality Assurance Contracts,* Sydney 1995, AP–38/95

3 Standards Australia, AS/NZS ISO/IEC 17020—*General Criteria for the Operation of Various Types of Bodies Performing Inspection*

4 Standards Australia, AS/NZS ISO 9001—*Quality Management Systems—Requirements*

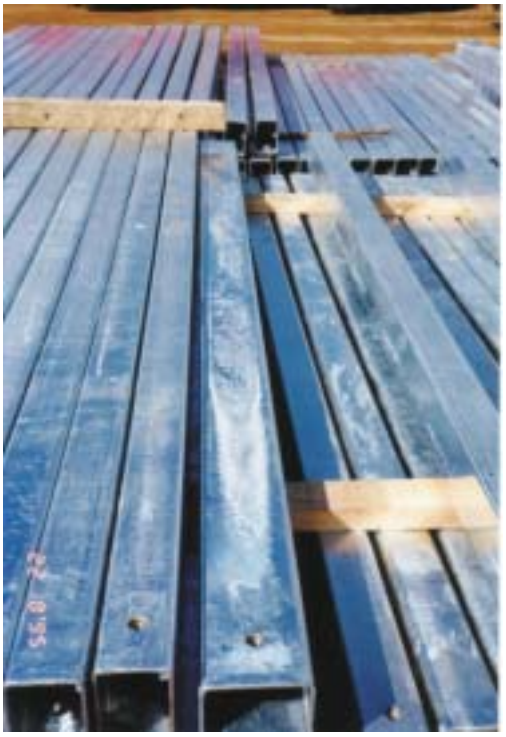

Figure 8.1: The storage of galvanized components should allow for air circulation, to avoid wet storage stain and formation of white zinc corrosion product.

9

Additional Reading

National Association of Australian State Road Authorities, 1969, *Duties and Responsibilities of Superintending Officers,* Vol II, Contract Bridgeworks

VicRoads, Code of Practice RC 500.11, *Code of Practice for Surveillance of Testing Materials and Work*

AS 1580 *Paints and related materials - Methods of test (various parts relevant to field inspection)*

AS 1627 *Metal finishing - Preparation and pretreatment of surfaces (nine parts)*

AS 2312 *Guide to protection of iron and steel against exterior atmospheric corrosion*

AS 3894 *Site testing of protective coatings*

AS 4680 *Hot-dip galvanized (zinc) coatings on fabricated ferrous articles*

SPC-SP12/NACE N.S. *Surface Preparation of Steel and Other Hard Materials by High and Ultrahigh-pressure Water Jetting Prior to Recoating,* Steel Structures Painting Council, Pittsburgh PA.

Company Accreditation

All companies conducting surveillance of protective coatings shall hold inspection accreditation with the National Association of Testing Authorities, Australia (NATA). Accreditation shall be to AS/NZS ISO/IEC 1720-*General Criteria for the Operation of Various Types of Bodies Performing Inspection*[3], for surveillance of protective coatings, in accordance with this Guide.

Business Rules

Companies conducting surveillance of the application of protective coatings to structural steelwork shall have evidence of the following business information:

- Australian Business Number
- WorkCover Employer Registration Number
- Details of Public Liability and Professional Indemnity Insurance as specified in the primary VicRoads contract.

Personnel Qualifications

In additiion to the general requirements specified by NATA, personnel shall meet the following requirements for qualifications and experience before gaining inspection accreditation as an authorized signatory for protective coatings surveillance:

1. Attendance at a two-day course on surveillance of construction works, conducted by a recognised training authority
2. Attendance at a two-day course in auditing or quality management principles, conducted by a recognised quality training organisation
3. Completion of a trade certificate in a relevant industrial field such as industrial painting, galvanizing, welding or boiler making, or a certificate of technology specific to protective coatings or steel fabrication, from a recognised technical institution
4. At least one of the following qualifications or certifications:
   (a) Coating Inspection Certificate (Australasian Corrosion Association Inc.)
   (b) Provisional Coating Inspection Certificate (Australasian Corrosion Association Inc.)
   (c) Certified Corrosion Technician (Australasian Corrosion Association Inc.)
   (d) Level 1 Coating Inspection Certificate (KTA-Tator Australia)
   (e) Certification Board for Inspection Personnel - NZ, Certified Coatings Inspector
   (f) NACE Coatings Inspector
   (g) British Gas Certified Coatings Inspector
   (h) SSPC Protective Coatings Specialist
5. Demonstration of both satisfactory near range and medium range vision, and satisfactory colour perception

Documented evidence of qualifications and courses shall be provided at the initial assessment by NATA. Accredited companies shall retain copies of this documentation for verification at subsequent re-assessments by NATA or at subsequent audits.

Personnel Experience

All personnel conducting surveillance of protective coatings on structural steelwork shall meet the following experience requirements:

- Sound and demonstrated knowledge of relevant material standards, application codes, specifications, production procedures and work standards, including:

  AS 1580 Paints and related materials - Methods of test (various parts relevant to field inspection)
  AS 1627 Metal finishing - Preparation and pretreatment of surfaces (nine parts)
  AS 2312 Guide to protection of iron and steel against exterior atmospheric corrosion
  AS 3894 Site testing of protective coatings
  AS 4680 Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
  Australian Paint Approval Scheme (APAS)
  The Painting Contractor Certification Scheme (PCCP)
- Demonstrated competence to read and understand contract and shop drawings, material compliance certificates, product data sheets, material safety data sheets, protective coatings specifications, inspection and test reports, and the like, including the assessment of compliance of these documents with specification criteria
- Ability to prepare surveillance reports
- Participation in at least three surveillance visits as a trainee surveillance officer, under the mentorship of a person trained in quality auditing and experienced in the application of protective coatings to structural steelwork, prior to gaining NATA signatory status.
- Practical experience in the inspection of or application of protective coatings which should include:
  - Workshop application of industrial paint coatings, e.g. zinc silicates, epoxies and urethane paint systems and multi-coat systems
  - Application of hot-dipped galvanized coatings
  - Application of coatings to exterior surfaces
  - Maintenance recoating at field sites, including recoating under conditions of full environment containment

Referee persons, such as a principal of the surveillance company or of the Contractor's company, shall independently verify experience by signing experience statements at the appropriate entries.

Resources, Records and Reports

The accredited surveillance company shall establish and maintain a surveillance record and reporting system. All personnel conducting

surveillance of protective coatings shall use the surveillance reporting system established by the accredited surveillance company.

Surveillance reports shall be issued to the Contractor within two working days of the surveillance. Security and confidentiality of records and reports shall be maintained. Records and reports shall be held for three years after expiry of the contract defects liability period.

Surveillance reports shall comply with the requirements of the NATA accreditation.

Ethics and Independence

All surveillance companies and personnel conducting surveillance of protective coatings shall:

- Exercise their professional and technical skills and judgement to the best of their ability and discharge their professional and technical responsibilities with honesty, integrity and thoroughness

- Accurately and impartially record and report surveillance findings without the influence of any internal or external pressures or considerations

- Disclose to the Contractor any commercial or other relationships they may have, or have had, with organisations to be assessed or related organisations or competitors

- Ensure that they do not disclose their surveillance findings, or any part of their findings, to any third party other than VicRoads

Appendix B

Checklists for Surveillance of Application of Protective Coatings to Steelworks Contracts

Item	Requirements and Reference	Comments	Evidence
1.0	**QUALITY SYSTEM**		
1.1	Does the protective coatings contractor have a Quality System, as evidenced by a Quality Manual?		
1.2	Is the Quality System accredited to: AS/NZS ISO 9000? Certifying body is: Certificate number: Date of original certification: Date of latest continuation audit:		
1.3	Does a Quality Plan or Inspection & Test Plan from the Protective Coatings Sub-contractor exist?		
1.4	Is there a schedule of internal quality audits? Do records exist for these audits?		
1.5	Are non-conformances listed in a register?		
1.6	Are non-conformances and corrective actions raised and closed out?		
2.0	**CONTRACT DOCUMENTATION**		
2.1	Is the Protective Coatings Contractor using the latest approved drawings and specifications? What is the revision status of the drawings?		
3.0	**CONTRACT REVIEW**		
3.1	Does the contract review process address: • Application standards • Local government planning approval for use of the site for abrasive blasting • Surface preparation and coating application requirements • Approval of specific procedures • Method for obtaining procedure approval • Inspection and testing procedures • Selection, identification and traceability of materials		
3.2	Cross check with the protective coatings contractor's procedures to ensure they are being complied with, particulalry for: • Lifting of members within the workshop or surrounding yard • Traffic management on site and permits for transport of members to site, if applicable • Control of debris and dust • Permits for working near electricity supply lines, railway tracks and other utilities, if applicable • Scaffolding		

Item	Requirements and Reference	Comments	Evidence
4.0	**SUBCONTRACTING**		
4.1	Verify records of approval of subcontractors and suppliers of: • Paint coatings • Zinc metal • Chemicals • Abrasive media • Equipment		
5.0	**QUALIFICATIONS**		
5.1	Approval of personnel: • Verify qualification of protective coatings inspectors		
6.0	**SURFACE PREPARATION FOR PAINTING**		
6.1	Verify that oil and grease is removed prior to further preparation Verify that edge preparation, e.g. deburring of holes and radiusing of section edges, has been correctly and completely carried out prior to commencement of surface preparation Verify that the air supply for abrasive blasting, blow down and coating application meets the quality requirements for freedom from oil and water		
6.2	Verify the surface preparation method used, e.g.: • Dry abrasive blast • Wet abrasive blast • Pressure water blast • Brush (whip) blast • Other		
6.3	Verify abrasive used: • Type (e.g. garnet, steel grit) • Size • Quality and cleanliness • Supplier and traceability		
6.4	Verify that the blast media does not contain more than 1% crystalline silica		
6.5	Verify records of surface profile measurement Do these records indicate compliance with the specified requirements?		
6.6	Verify clean-down after blasting Verify dryness of surface prior to painting		
6.7	Verify authorisation of approval to paint Verify that the authorisation includes certification that the surface cleanliness achieved complies with that specified		
6.8	Verify weather, climatic and substrate conditions		

Item	Requirements and Reference	Comments	Evidence
7.0	**PAINT APPLICATION**		
7.1	Verify that specified paint has been supplied and that all paint thinners are from the same manufacturer		
7.2	If applicable, verify that specified equipment or paint delivery system is used		
7.3	Verify that ambient weather conditions are or were suitable for application of the coatings and that compliance with the coating manufacturer's instruction has been achieved List records that have been sighted		
7.4	Verify that mixing, thinning, pot life, etc. comply with the coating manufacturer's instructions Where coatings are made up from multi-pack components, verify that mixing is in full pack quantities Verify that the manufacturer's instructions are available at the work place		
7.5	Verify that the prepared surface has been completely covered within 6 hours of the completion of surface preparation and that the surface preparation quality is evident at the time that the primer coating is being appplied		
7.6	Verify that overspray or defect removal has occurred prior to subsequent work proceeding		
7.7	Verify that the correct coatings have been used, in the right sequence		
7.8	Verify that previous coating in the system is satisfactory in all regards, that all repairs have been carried out and that the required cleanliness and conditions exist before overcoating		
7.9	Verify that paint thickness measurements have been made to demonstrate wet thicknes and dry thickness of paints		
7.10	Verify that the coating has been protected from the weather until resistant to moisture		
7.11	Verify that 100 percent coverage has been achieved Verify that topcoats are uniform in appearance		
7.12	Verify that zinc silicate coatings have been cured in accordance with the coating manufacturer's instructions Verify that the manufacturer's instructions for recoating times have been followed for subsequent coats		

Item	Requirements and Reference	Comments	Evidence
8.0	**GALVANIZING**		
8.1	Verify records that indicate that the steelwork is suitable for galvanizing, including location of vent holes, edge condition and handling methods		
8.2	Verify records for surface preparation by chemical cleaning		
8.3	Verify galvanizing bath composition records		
8.4	Verify that inspection has been carried out to assess appearance and freedom from defects Verify inspection of items for compliance with straightness and profile tolerances Verify complete coverage of the surface Verify evidence of remedial work		
8.5	Verify measurements of coating mass and thickness Verify the means of demostrating compliance with AS/NZS 4680, from the options listed in Apendix B of that Standard		

Appendix C

Sample Surveillance Record and

Contractor		Surveillance No	
Sub-Contractor/Supplier			
Contract No.			
Job/Product			
Surveillance Officer		Date of Surveillance	
Job Engineer			
Location of Surveillance			
Procedures/Plans/ Tests Checked			
Observations			
Checklists Used			
Number of Non-Conformances Observed			
Details of Non-Conformances			
Comments			
Number of Non-Conformances Resolved			
Date of Notification of Non-Conformance Resolutions			
Disposition of Non-Conformances			
Signature		Date	

GeoPave

12 Lakeside Drive,
Burwood East, 3151
Phone: 9881-8907
Facsimile: 9881-8900

VicRoads Bookshop

60 Denmark Street,
Kew, 3101
Phone: 9854-2782
Facsimile: 9854-2468

Victoria
The Place To Be

VicRoads Publication No 01328

vicroads
www.vicroads.vic.gov.au