INTERNATIONAL STANDARD

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Paints and varnishes — Corrosion protection of steel structures by protective paint systems —

Part 8:
Development of specifications for new work and maintenance

Peintures et vernis — Anticorrosion des structures en acier par systèmes de peinture —

Partie 8: Développement de spécifications pour les travaux neufs et l'entretien

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 12944-8 was prepared by Technical Committee ISO/TC 35*, Paints and varnishes*, Subcommittee SC 14*, Protective paint systems for steel structures*.

ISO 12944 consists of the following parts, under the general title *Paints and varnishes - Corrosion protection of steel structures by protective paint systems:*

Part 1: General introduction
Part 2: Classification of environments
Part 3: Design considerations
Part 4: Types of surface and surface preparation
Part 5: Protective paint systems
Part 6: Laboratory performance test methods
Part 7: Execution and supervision of paint work
Part 8: Development of specifications for new work and maintenance

Annexes A to K are for information only.

Introduction

Unprotected steel in the atmosphere, in water and in soil is subjected to corrosion that may lead to damage. Therefore, to avoid corrosion damage, steel structures are normally protected to withstand the corrosion stresses during the service life required of the structure.

There are different ways of protecting steel structures from corrosion. ISO 12944 deals with protection by paint systems and covers, in the various parts, all features that are important in achieving adequate corrosion protection. Additional or other measures are possible but require particular agreement between the interested parties.

In order to ensure effective corrosion protection of steel structures, it is necessary for owners of such structures, planners, consultants, companies carrying out corrosion protection work, inspectors of protective coatings and manufacturers of coating materials to have at their disposal state-of-the-art information in consise form on corrosion protection by paint systems. Such information has to be as complete as possible, unambigous and easily understandable to avoid difficulties and misunderstandings between the parties concerned with the practical implementation of protection work.

This International Standard – ISO 12944 – is intended to give this information in the form of a series of instructions. It is written for those who have some technical knowledge. It is also assumed that the user of ISO 12944 is familiar with other relevant International Standards, in particular those dealing with surface preparation, as well as relevant national regulations.

Although ISO 12944 does not deal with financial and contractual questions, attention is drawn to the fact that, because of the considerable implications of inadequate corrosion protection, non-compliance with requirements and recommendations given in this standard may result in serious financial consequences.

ISO 12944-1 defines the overall scope of all parts of ISO 12944. It gives some basic terms and definitions and a general introduction to the other parts of ISO 12944. Furthermore, it includes a general statement on health, safety and environmental protection, and guidelines for using ISO 12944 for a given project.

This part of ISO 12944 is intended as an aid when a corrosion protection specification is to be drawn up.

Paints and varnishes – Corrosion protection of steel structures by protective paint systems –

Part 8:
Development of specifications for new work and maintenance

1 Scope

This part of ISO 12944 deals with the development of specifications for corrosion protection of steel structures, using protective paint systems. It relates to new work and maintenance in the workshop or on site and is also applicable to the corrosion protection of individual components. This part of ISO 12944 concerns the corrosion protection of steel structures exposed to different corrosion stresses by environments such as indoors, open-air and immersion in water or burial in soil, as well as special stresses, for example due to medium or high temperatures. The need for different durability ranges is considered.

Steel surfaces that have been hot-dip-galvanized, metal-sprayed, zinc-electroplated or sherardized, and previously painted steel surfaces, are also covered by this part of ISO 12944.

In annex B, reference areas for assessing the quality of the corrosion protection work and the performance of the protective paint systems used are dealt with. Annexes C and D provide detailed flow charts for planning new work and maintenance, which should be taken into account when writing a specification.

If extreme corrosion stresses or high temperatures occur, or the protective paint systems are to be used on other substrates such as non-ferrous metals or concrete, the specifications will have to take this into account. This part of ISO 12944 may also be used as a guide in such cases.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 12944. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 12944 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2409:1992, *Paints and varnishes - Cross-cut test.*

ISO 2808:1997, *Paints and varnishes - Determination of film thickness.*

ISO 4623:1984, *Paints and varnishes - Filiform corrosion test on steel.*

ISO 4624:1978, *Paints and varnishes - Pull-off test for adhesion.*

ISO 4628-2:1982, *Paints and varnishes - Evaluation of degradation of paint coatings - Designation of intensity, quantity and size of common types of defect - Part 2: Designation of degree of blistering.*

ISO 4628-3:1982, *Paints and varnishes - Evaluation of degradation of paint coatings - Designation of intensity, quantity and size of common types of defect - Part 3: Designation of degree of rusting.*

ISO 4628-4:1982, *Paints and varnishes - Evaluation of degradation of paint coatings -Designation of intensity, quantity and size of common types of defect - Part 4: Designation of degree of cracking.*

ISO 4628-5:1982, *Paints and varnishes - Evaluation of degradation of paint coatings - Designation of intensity, quantity and size of common types of defect - Part 5: Designation of degree of flaking.*

ISO 4628-6:1990, *Paints and varnishes - Evaluation of degradation of paint coatings - Designation of intensity, quantity and size of common types of defect - Part 6: Rating of degree of chalking by tape method.*

ISO 8501-1:1988, *Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings.*

ISO 8501-2:1994, *Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part 2: Preparation grades of previously coated steel substrates after localized removal of previous coatings.*

ISO 8503-1:1988, *Preparation of steel substrates before application of paints and related products - Surface roughness characteristics of blast-cleaned steel substrates - Part 1: Specifications and definitions for ISO surface profile comparators for the assessment of abrasive blast-cleaned surfaces.*

ISO 8503-2:1988, *Preparation of steel substrates before application of paints and related products - Surface roughness characteristics of blast-cleaned steel substrates - Part 2: Method for the grading of surface profile of abrasive blast-cleaned steel - Comparator procedure.*

ISO 8503-3:1988, *Preparation of steel substrates before application of paints and related products - Surface roughness characteristics of blast-cleaned steel substrates - Part 3: Method for the calibration of ISO surface profile comparators and for the determination of surface profile - Focusing microscope procedure.*

ISO 8503-4:1988, *Preparation of steel substrates before application of paints and related products - Surface roughness characteristics of blast-cleaned steel substrates - Part 4: Method for the calibration of ISO surface profile comparators and for the determination of surface profile - Stylus instrument procedure.*

ISO 11124-1:1993, *Preparation of steel substrates before application of paints and related products - Specifications for metallic blast-cleaning abrasives - Part 1: General introduction and classification.*

ISO 11124-2:1993, *Preparation of steel substrates before application of paints and related products - Specifications for metallic blast-cleaning abrasives - Part 2: Chilled-iron grit.*

ISO 11124-3:1993, *Preparation of steel substrates before application of paints and related products - Specifications for metallic blast-cleaning abrasives - Part 3: High-carbon cast-steel shot and grit.*

ISO 11124-4:1993, *Preparation of steel substrates before application of paints and related products - Specifications for metallic blast-cleaning abrasives - Part 4: Low-carbon cast-steel shot.*

ISO 11126-1:1993, *Preparation of steel substrates before application of paints and related products - Specifications for non-metallic blast-cleaning abrasives - Part 1: General introduction and classification.*

ISO 11126-3:1993, *Preparation of steel substrates before application of paints and related products - Specifications for non-metallic blast-cleaning abrasives - Part 3: Copper refinery slag.*

ISO 11126-4:1993, *Preparation of steel substrates before application of paints and related products - Specifications for non-metallic blast-cleaning abrasives - Part 4: Coal furnace slag.*

ISO 11126-5:1993, *Preparation of steel substrates before application of paints and related products - Specifications for non-metallic blast-cleaning abrasives - Part 5: Nickel refinery slag.*

ISO 11126-6:1993, *Preparation of steel substrates before application of paints and related products - Specifications for non-metallic blast-cleaning abrasives - Part 6: Iron furnace slag.*

ISO 11126-7:1995, *Preparation of steel substrates before application of paints and related products - Specifications for non-metallic blast-cleaning abrasives - Part 7: Fused aluminium oxide.*

ISO 11126-8:1993, *Preparation of steel substrates before application of paints and related products - Specifications for non-metallic blast-cleaning abrasives - Part 8: Olivine sand.*

ISO 12944-1:1998, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 1: General introduction.*

ISO 12944-2:1998, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 2: Classification of environments.*

ISO 12944-3:1998, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 3: Design considerations.*

ISO 12944-4:1998, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 4: Types of surface and surface preparation.*

ISO 12944-5:1998, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 5: Protective paint systems.*

ISO 12944-6:1998, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 6: Laboratory performance test methods.*

ISO 12944-7:1998, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 7: Execution and supervision of paint work.*

3 Definitions

For the purposes of this part of ISO 12944, the following definitions apply in addition to those given in ISO 12944-1.

3.1 constituent element: A part of a structure (3.10) that is exposed to a particular environment and which will therefore require a specific protective paint system specification.

NOTE For example, a storage tank will have more than one constituent element, as it comprises internal and external surfaces, and possibly also support steelwork.

3.2 dry film thickness (DFT): The thickness of a coating remaining on the surface when the coating has hardened.

NOTE For details, see ISO 12944-5:1998, subclause 5.4.

3.3 durability: The expected life of a protective paint system to the first major maintenance painting.

NOTE For further important information on durability and durability ranges, see ISO 12944-1.

3.4 inspector: Anyone responsible for ensuring conformity with one or more of the individual specifications (3.8.1 to 3.8.4).

3.5 maintenance: The sum of all measures, as covered by ISO 12944, which ensure that the function of the protection of the steel structure against corrosion is maintained.

NOTE Maintenance includes but is not limited to paint work. Such paint work can be patch painting (repair of degradated spots/areas of the coating system), patch painting followed by overpainting of the structure, or total repainting.

3.6 nominal dry film thickness (NDFT): The dry film thickness specified for each coat or for the whole paint system to achieve the required durability.

NOTE For details see ISO 12944-5:1998, subclause 5.4.

3.7 project: The whole of the work for which the specification (3.8) is being developed. The project may include one or more structures.

3.8 specification: A technical document describing all the requirements that are to be observed when a steel structure is to be protected against corrosion by using protective paint systems. Such a document consists of several individual specifications - project specification, protective paint system specification, paint work specification, inspection and assessment specification - as defined in 3.8.1 to 3.8.4.

3.8.1 project specification: The specification that describes the project and the requirements relating specifically to it.

NOTE The specifier of a project specification may, for example, be the owner of the structure to be protected or the prime contractor.

3.8.2 protective paint system specification: The specification that describes the preparation of the surface of the structure and the protective paint system(s) for the structure, in conformity with the project specification (3.8.1).

NOTE The specifier of a protective paint system specification may, for example, be a paint manufacturer.

3.8.3 paint work specification: The specification that describes the way the paint work is to be carried out, in conformity with the project specification (3.8.1) and the protective paint system specification (3.8.2), as well as with the inspection and assessment specification (3.8.4).

NOTE The specifier of a paint work specification may, for example, be a paint application company.

3.8.4 inspection and assessment specification: The specification that describes how inspection and assessment are to be carried out.

3.9 specifier: Anyone responsible for the development of a specification.

3.10 structure: A steel construction (for example a bridge, a factory building, a storage tank or an offshore construction) consisting of more than one constituent element (3.1). There may be one or more structures in any given project (3.7).

4 How to develop a specification for new work or maintenance

It is recommended that the specifier considers the information given in clause 5, and establishes which specification(s) apply/applies to the project or constituent element to be protected. Then, the specifier should check in the respective table, item by item, which of the items listed are to be taken into account in the specification. The various items are supported by detailed information given in the "Remarks" column in tables 1 to 4, and in the annexes.

When writing a specification for new work or maintenance, it is important to chose the most suitable protective paint system. To achieve this all relevant parameters shall be taken into consideration, for example:

- required durability;
- environmental conditions and special stresses;
- surface preparation;
- different generic types of paint;
- number and types of coats [priming coat(s), intermediate coat(s) and top coat(s)];
- methods of application and application requirements;
- place of application (shop or site);
- scaffolding requirements;
- requirements regarding (future) maintenance (if any);
- health and safety requirements;
- environmental protection requirements.

These parameters are described in detail in ISO 12944-1 to ISO 12944-7. In this part of ISO 12944, only such information is given which is considered to be particularly important to the specifier.

In the drafting of a specification for maintenance work on a structure or constituent element, a decision has to be taken between

- complete renewal and
- partial removal of the protective paint system involved.

When complete renewal has been decided, the specification should preferably be developed in accordance with a specification for new work, e.g. using the form given in annex G.

At an early stage in the drafting of a project specification, a final decision will have to be taken by the specifier on essential planning parameters, such as protection of slip-resistant connections using high-tensile bolts, the inside surfaces of hollow sections and other hidden steel surfaces (see ISO 12944-3 for details of design).

Exclusions, i.e. items not to be painted, shall be indicated in the specification(s).

The choice of protective paint systems shall be based on practical experience and/or the results of laboratory performance tests, particularly when new coating technology is involved. The protective paint systems shall be tested for compatibility with existing coatings on previously coated surfaces.

The specifier shall further take into account regulations and/or requirements relating to environmental protection, health and safety, and working conditions in the shop or on site.

Because national requirements concerning health and safety at work, pollution control etc. vary significantly, it may not be possible to include detailed information covering such requirements in a specification. However, the specification shall draw attention to the need to comply with current local, regional, national and international legislation and regulations.

5 Contents of a specification

The items which are preferably to be covered by a specification are listed in tables 1 to 4, under the following headings:

- Contents of a project specification (table 1);
- Contents of a protective paint system specification (table 2);
- Contents of a paint work specification (table 3);
- Contents of an inspection and assessment specification (table 4).

NOTE For small structures, or those whose protection is not subject to any particular requirements, only certain items need to be taken into account.

An example of a specification based on table 1 is given as annex F.

NOTE Each table contains sufficient information to enable the specifier to write a specification for any one of the subjects listed above without having to make frequent references to the other tables. This has led to some expressions being repeated in each of the tables, for example under 1.1, 2.1, 3.1 and 4.1 the items "name of project", "name of owner" and "name of specifier" are repeated. In practice, such information should only be given once in the complete specification.

Table 1 – Contents of a project specification

No.	MAIN ITEM/Sub-item *)	Remarks
1.1	**GENERAL INFORMATION**	
1.1.1	Name of project	
1.1.2	Name of owner	
1.1.3	Location(s) of structure(s)	
1.1.4	Name of specifier	State organization and person.
1.1.5	Environmental conditions at location(s) of structure(s)	See annex E and ISO 12944-2.
1.1.6	References to standards and regulations	
1.2	**TYPE OF PROJECT**	For definitions of project, structure and constituent element, see clause 3.
1.2.1	New construction without protection	
1.2.2	New construction blast-cleaned and coated	
1.2.3	Touch-up and final paint work	
1.2.4	Maintenance	See annexes H, I, J and K.
1.2.5	New construction and maintenance combined	
1.2.6	Items not to be coated	
1.3	**TYPES OF STRUCTURE AND CONSTITUENT ELEMENT**	Each project should preferably be divided on the basis of corrosion stresses and be described taking into account special design requirements.
1.3.1	Design	See ISO 12944-3.
1.3.2	Assembly method(s)	For example bolting, welding.
1.3.3	Connection(s)	See ISO 12944-3 and ISO 12944-5.
1.3.4	Galvanic couples (cells)	See ISO 12944-3.
1.3.5	Accessibility, e.g. manholes	See ISO 12944-3.
1.3.6	Box members and hollow components	See ISO 12944-3.

*) These items are recommended. If, however, a particular sub-item is included in the specification any instructions in the remarks column shall be followed.

No.	MAIN ITEM/Sub-item *)	Remarks
1.4	**DESCRIPTION OF EACH CONSTITUENT ELEMENT**	Each structure should preferably be divided into constituent elements on the basis of the protective paint system(s) to be used and the corrosion stresses associated with each constituent element.
1.4.1	Substrate(s)	See ISO 12944-4. Includes substrates with metallic coatings, e. g. zinc.
1.4.2	Existing paint system and its condition	See annex K and ISO 12944-5.
1.4.3	Areas (m^2)	
1.5	**DESCRIPTION OF ENVIRONMENT OF EACH CONSTITUENT ELEMENT**	Descriptions are given in ISO 12944-2. See also annex E.
1.5.1	Atmospheric environmental conditions	See annex E, E.1.1.
1.5.2	Special situations	See annex E, E. 4.1.
1.5.3	Special stresses	See annex E, E.4.2 (including the effects of exposure to strong UV radiation).
1.6	**DURABILITY**	
1.6.1	Durability range	See ISO 12944-1.
1.7	**PROTECTIVE PAINT SYSTEMS - PARTICULAR CONSTRAINTS WITH RESPECT TO SURFACES AND SURFACE PREPARATION**	Details of types of surface, surface preparation grades, surface profiles and surface preparation methods can be found in ISO 12944-4. In the specification, the required surface preparation grade shall be given for each individual protective paint system to be used.
1.7.1	Types of surface and surface preparation grade(s) for new work and maintenance	Besides the surface preparation grade, the specification shall give details of the surface preparation work required. See also annexes G and H and table 3.
1.7.2	Surface preparation method(s)	See ISO 12944-4
1.8	**PROTECTIVE PAINT SYSTEMS - PARTICULAR CONSTRAINTS WITH RESPECT TO PAINT MATERIALS**	
1.8.1	Protective paint systems for new, touch-up and maintenance work	See ISO 12944-5, ISO 12944-7 and annexes G, H and table 2.
1.8.2	Particular constraints relating to coatings and paint work	For example: compatibility with existing coatings, edge protection (see ISO 12944-5 and ISO 12944-7), non-skid coatings or spraying with airless rather than conventional equipment.
1.8.3	Special requirements regarding, in particular: - health and safety - environmental protection	For example: low level of harmful substances, protection against pollution by such substances, waste disposal

*) These items are recommended. If, however, a particular sub-item is included in the specification any instructions in the remarks column shall be followed.

No.	MAIN ITEM/Sub-item *)	Remarks
1.9	**PROTECTIVE PAINT SYSTEMS - PARTICULAR CONSTRAINTS WITH RESPECT TO PAINT WORK**	
1.9.1	Location of paint work: Workshop and/or on site	See ISO 12944-7.
1.9.2	Conditions for paint work	For example: timetable and climatic conditions (to be taken into account by the operator). See also ISO 12944-7.
1.9.3	Method of application of protective paint systems for new, touch-up and maintenance work	See ISO 12944-7. Any particular requirements shall be given. Special methods of application shall be described in full detail.
1.9.4	Constraints relating to paint work	For example: compatibility with existing coatings, masking of areas to be welded (see ISO 12944-7), edge protection (see ISO 12944-5 and ISO 12944-7).
1.9.5	Special requirements regarding, in particular: - health and safety - environmental protection	For example: low level of harmful substances, protection against pollution by such substances, waste disposal.
1.10	**PROPERTIES (OTHER THAN ANTI-CORROSIVE) OF PROTECTIVE PAINT SYSTEMS**	
1.10.1	Colours	Colour should preferably be based on colour designations such as those of the Munsell Colour System, RAL 840 HR, NF X 08-002, BS 4800, NS 4054, UNE 48103, JPMA Standard Paint Colours or NCS, in accordance with the relevant national standard where applicable. The colours of all coats of a paint system should normally be different from each other. The last but one coat should normally be of such a colour that the top coat fully hides it.
1.10.2	Stability of top-coat colour	See also No. 1.5.3, this table.
1.11	**QUALITY MANAGEMENT**	
1.11.1	Quality control, quality assurance and records	
1.12	**INSPECTION AND ASSESSMENT**	See table 4.
1.12.1	Inspection by internal bodies	
1.12.2	Inspection by external (e.g. independent) bodies	
1.12.3	Names of external inspection bodies and/or the inspectors themselves	Such bodies and/or inspectors, if any, shall be nominated by the specifier.
1.12.4	Methods of inspection	The specifier shall indicate the methods and types of instrument required, using International Standards, wherever possible. The specifier shall also indicate the recording and reporting procedures to be used.
1.12.5	Inspection steps	Details of inspection steps, if any, shall be described.

*) These items are recommended. If, however, a particular sub-item is included in the specification any instructions in the remarks column shall be followed.

No.	MAIN ITEM/Sub-item *)	Remarks
1.13	**REFERENCE AREAS**	
1.13.1	Records	The specifier should normally specify for which constituent element(s) of each structure of the project reference areas are to be provided. If not specified, any of the interested parties may also request the preparation of reference areas (conditions to be agreed). Reference areas shall normally be prepared in the presence of all parties concerned, e.g. owner, paint manufacturer, sub-contractors and main contractor. See ISO 12944-7 and annex B.
1.13.2	Responsibility for records	
1.13.3	Location and number of reference area(s)	
1.13.4	Size of reference area(s)	
1.13.5	Marking of reference area(s)	
1.14	**HEALTH AND SAFETY; ENVIRONMENTAL PROTECTION**	
1.14.1	Applicable regulations	The regulations applicable on site shall be observed. If appropriate, these shall be described by the specifier. See ISO 12944-7.
1.15	**SPECIAL REQUIREMENTS**	
1.15.1	Procedure for dealing with deviations from the specification, limits of inspection and assessment	Shall be specified by the specifier.
1.15.2	Special factors related to execution and supervision of paint work	Shall be specified by the specifier.
1.15.3	Any further requirements	Requirements concerning transport, loading and unloading, and storage shall be indicated, if any.
1.16	**MEETINGS**	
1.16.1	Prebid meeting and kick-off meeting	Details of prebid and kick-off meetings should preferably be specified. The purpose of the kick-off meeting is to settle any remaining questions concerning paint work (see annexes C and D) and whether previously coated surfaces are acceptable.
1.17	**DOCUMENTATION**	Types of document required shall be specified, as appropriate, by the specifier.
1.17.1	Documents on surface preparation and protective paint system(s)/ paints comprising information on - paint work - constraints, see main items 1.7 to 1.9, this table - properties, see main item 1.10, this table - inspection and assessment - reference areas - other aspects	

*) These items are recommended. If, however, a particular sub-item is included in the specification any instructions in the remarks column shall be followed.

Table 2 – Contents of a protective paint system specification

No.	MAIN ITEM/Sub-item *)	Remarks
2.1	**GENERAL INFORMATION**	
2.1.1	Name of projet	
2.1.2	Name of owner	
2.1.3	Name of specifier	State organization and person.
2.2	**STEEL DRESSING**	
2.2.1	Edges	See ISO 12944-3.
2.2.2	Steel surface imperfections	
2.2.3	Irregularities in welds	See ISO 12944-3.
2.2.4	Welding areas for welding on site	See ISO 12944-3 and ISO 12944-7.
2.3	**SURFACE PREPARATION**	
2.3.1	Surface preparation grade(s), including preparation of remaining coatings	See ISO 12944-4. Further details on cleaning, degreasing and contaminants, and the condition of any existing coating shall be provided.
2.3.2	Surface profile (roughness)	See ISO 8503-1 to ISO 8503-4.
2.3.3	Welding areas for welding on site	See ISO 12944-3 and ISO 12944-7.
2.4	**PROTECTIVE PAINT SYSTEM(S)**	
2.4.1	Description of protective paint system(s) in accordance with annexes G and H	See annex A and ISO 12944-5, ISO 12944-6 and ISO 12944-7.
2.4.2	Edge protection	
2.4.3	Overcoating interval(s)	Requirements regarding overcoating intervals are to be indicated. See also manufacturers' technical data sheets and instructions for application.
2.4.4	Technical data sheets and safety data sheets for paint materials	These data sheets are prepared and provided by paint manufacturers.
2.4.5	Performance test results	Results of laboratory tests in accordance with ISO 12944-6 and/or other suitability tests are to be provided.

*) These items are recommended. If, however, a particular sub-item is included in the specification any instructions in the remarks column shall be followed.

No.	MAIN ITEM/Sub-item *)	Remarks
2.5	**PAINT MANUFACTURER**	
2.5.1	Qualification of paint manufacturer	Procedures should preferably be specified.
2.5.2	List of paint manufacturers	A list of qualified suppliers of the paint materials specified is desirable. If products from other suppliers are to be used, the selection procedure should normally be described.
2.6	**QUALITY CONTROL AND QUALITY ASSURANCE FOR PAINT MATERIALS**	See table 4.
2.6.1	Inspection, quality of inspection and verification	
2.6.2	Inspection by internal bodies	
2.6.3	Inspection by external (e.g. independent) bodies	
2.6.4	Inspectors' names	
2.6.5	Methods of inspection	Methods of inspection to be carried out by the manufacturer shall be described, if any.
2.6.6	Inspection steps	Details of inspection steps, if any, shall be described.
2.6.7	Conformity certificate(s)	Requirements for conformity certificates for paint materials shall be specified, if appropriate.
2.6.8	Reference area(s)	See table 1, No. 1.13
2.6.8.1	Records	
2.6.8.2	Responsibility for records	
2.6.8.3	Location and number of reference area(s)	
2.6.8.4	Size of reference area(s)	
2.6.8.5	Marking of reference area(s)	

*) These items are recommended. If, however, a particular sub-item is included in the specification any instructions in the remarks column shall be followed.

Table 3 – Contents of a paint work specification

No.	MAIN ITEM/Sub-item *)	Remarks
3.1	**GENERAL INFORMATION**	
3.1.1	Name of project	
3.1.2	Name of owner	
3.1.3	Name of specifier	State organization and person.
3.2	**PAINT CONTRACTOR/APPLICATOR**	
3.2.1	List of paint contractors/applicators	A list of qualified paint contractors/applicators is desirable. If other companies are to do the work, the company-selection procedure should normally be described.
3.2.2	Qualification of paint contractors/applicators	The requirements shall be specified.
3.2.3	Qualification of personnel	The personnel may for instance be internal inspectors, supervisors, workmen. See also ISO 12944-7:1998, sub-clause 3.1.
3.3	**PLANNING OF NEW AND MAINTENANCE WORK**	
3.3.1	Steps in planning	See annexes C and D.
3.4	**EXECUTION OF NEW AND MAINTENANCE WORK**	
3.4.1	Tasks of paint contractors/applicators and procedures for paint work	The individual tasks and procedures shall be described (including the erection of scaffolding, illumination, the use of machinery and equipment, health and safety and environmental protection). See also ISO 12944-3, ISO 12944-4 and ISO 12944-7.
3.4.2	Environment-tolerable waste disposal	In accordance with national and regional regulations.
3.5	**QUALITY CONTROL AND QUALITY ASSURANCE**	See table 4.
3.5.1	Inspection, quality of inspection and verification	
3.5.2	Inspection by internal bodies	
3.5.3	Inspection by external (e.g. independent) bodies	
3.5.4	Inspectors' names	
3.5.5	Methods of inspection	The methods of inspection shall be described.
3.5.6	Inspection steps	Details of inspection steps, if any, shall be described.

*) These items are recommended. If, however, a particular sub-item is included in the specification any instructions in the remarks column shall be followed.

No.	MAIN ITEM/Sub-item *)	Remarks
3.5.7	Reference area(s)	See table 1, No. 1.13.
3.5.7.1	Records	
3.5.7.2	Responsibility for records	
3.5.7.3	Location and number of reference area(s)	
3.5.7.4	Size of reference area(s)	
3.5.7.5	Marking of reference area(s)	

*) These items are recommended. If, however, a particular sub-item is included in the specification any instructions in the remarks column shall be followed.

Table 4 – Contents of an inspection and assessment specification

No.	MAIN ITEM/Sub-item *)	Remarks
4.1	**GENERAL INFORMATION**	
4.1.1	Name of project	
4.1.2	Name of owner	
4.1.3	Name of specifier	State organization and person.
4.2	**INSPECTORS**	
4.2.1	List of inspectors and inspection bodies	A list of names and addresses of inspectors such as third-party inspectors and clients' inspectors, together with their tasks and responsibilities, shall be provided. The list may be limited to one name only.
4.2.2	Methods of inspection	See table 1, No. 1.12.4.
4.2.3	Procedure for dealing with deviations from the specifications	See table 1, Nos. 1.15.1 and 1.15.2.
4.3	**QUALITY CONTROL AND QUALITY ASSURANCE**	
4.3.1	Qualification of inspectors	For the qualification of inspectors, the applicable national regulations, international standards and other documents shall be taken into account.
4.3.2	Inspection, quality of inspection and recording of inspection results	See Nos. 4.3.7 and 4.3.8, this table.
4.3.3	Inspection by internal bodies	
4.3.4	Inspection by external (e.g. independent) bodies	
4.3.5	Quality assurance and inspection plan	The inspection plan shall describe the inspection tasks and the extent of the inspection work. The extent of inspection shall be in reasonable relation to the size and type of project, structure or constituent element. The severity of the corrosion stresses involved shall also be taken into account.
4.3.6	Inspection steps	Details of inspection steps, if any, shall be described.
4.3.7	Reference area(s) and responsibility for keeping records on reference area(s)	See table 1, No. 1.13, annex B and Nos. 4.3.2 and 4.3.8, this table.
4.3.8	Requirements concerning quality-control and quality-assurance records	Quality-control and quality assurance records should normally be restricted to surface preparation work, general information on the paint materials used, application of the paint materials, environmental conditions during work and results of measurements. Persons shall be nominated to keep such records for the various parts of the work. See annexes I, J and K.
4.3.9	Distribution of records	The sender and the recipients of records shall be stated.

*) These items are recommended. If, however, a particular sub-item is included in the specification any instructions in the remarks column shall be followed.

Annex A
(informative)
Basic information for inclusion in a protective paint system specification for new work and maintenance

PROJECT

Name of project
Owner of project
Location of project
Name of specifier

CONSTITUENT ELEMENT:

CORROSIVITY CATEGORY:

PROTECTIVE PAINT SYSTEM:

ISO 12944-5 PAINT SYSTEM No. (if applicable):

REQUIRED DURABILITY:

WORKSHOP APPLICATION

SURFACE PREPARATION, IF PREFABRICATION PRIMER IS TO BE USED:

PREFABRICATION PRIMER, IF ANY:

SURFACE PREPARATION:

PRIMING COAT(S) (TYPE AND NOMINAL DRY FILM THICKNESS):
1st coat* µm
2nd coat* µm

EDGE PROTECTION
STRIPE COAT(S), IF ANY: µm

INTERMEDIATE COAT(S) (TYPE AND AND NOMINAL DRY FILM THICKNESS):
1st coat* µm
2nd coat* µm
3rd coat* µm

TOP COAT(S) (TYPE AND AND NOMINAL DRY FILM THICKNESS):
1st coat* µm
2nd coat* µm
3rd coat* µm

TOTAL NOMINAL DRY FILM THICKNESS: µm

*Cross out or underline as appropriate.

SITE APPLICATION

SURFACE PREPARATION:

PRIMING COAT(S) (TYPE AND AND NOMINAL DRY FILM THICKNESS):

1st coat* COMPLETE/TOUCH UP*
µm

2nd coat* COMPLETE/TOUCH UP*
µm

INTERMEDIATE COAT(S) (TYPE AND AND NOMINAL DRY FILM THICKNESS):

1st coat* COMPLETE/TOUCH UP*
µm

2nd coat* COMPLETE/TOUCH UP*
µm

3rd coat* COMPLETE/TOUCH UP*
µm

TOP COAT(S) (TYPE AND AND NOMINAL DRY FILM THICKNESS):

1st coat* COMPLETE/TOUCH UP*
µm

2nd coat* COMPLETE/TOUCH UP*
µm

3rd coat* COMPLETE/TOUCH UP*
µm

TOTAL NOMINAL DRY FILM THICKNESS: µm

COLOURS (in accordance with table 1, No. 1.10.1.):

*Cross out or underline as appropriate.

Annex B
(informative)

Reference areas

Reference areas are suitable areas on the structure used

- to establish a minimum acceptable standard for the work;
- to check that data provided by a manufacturer or contractor are correct; and
- to enable the performance of the coating to be assessed at any time after completion.

Thus reference areas become the standard against which subsequent surface preparation and paint work is judged. They are also a means of deciding whether the performance of the specified protective paint system is as expected.

Reference areas should preferably be prepared on each important constituent element of the structure. This is achieved by the painting contractor preparing the surface and applying each of the specified coats of paint under supervision by an inspector approved by the specifier, the paint manufacturer and/or the owner, or as otherwise specified. Each step in the preparation and painting shall be approved as complying with the specification before the next step is undertaken.

Different environments are likely to exist at different locations on the structure once the steel structure is operational. The reference areas shall therefore be placed so as to take this into account, e.g. by siting them in both the potentially most severe and the mildest environments. Reference areas should normally include welds and other joints, edges, corners and any other areas of the structure which are considered to present a high risk of corrosion.

Reference areas shall be clearly and permanently marked by the contractor/applicator. Detailed records of the reference areas shall be kept and steps taken to ensure they are not destroyed, e.g. by overpainting.

For further details see ISO 12944-7.

Recommended form for a report on reference areas

Report on reference areas for corrosion protection work

Owner:
Specifier:

Project:
Constituent element:

	Company	Person responsible
Surface preparation:		
Paint work:		
Supplier of paint materials:		

Reference area [1)]
Location and marking:

Size, in m^2

Original condition of the surface:

Uncoated surface (information in accordance with ISO 8501-1)

Rust grade ☐ A ☐ B ☐ C ☐ D

Supplementary information:

Zinc-coated steel surface, if any:

☐ Hot-dip-galvanized surface
☐ Thermally sprayed surface
☐ Electroplated surface

Zinc corrosion (e.g. white rust) ☐ YES ☐ NO

Supplementary information:

Painted surface

Type(s) of coat (including thickness and age, if known):
Degree of rusting in accordance with ISO 4628-3:
Degree of blistering in accordance with ISO 4628-2:
Degree of cracking in accordance with ISO 4628-4:
Degree of flaking in accordance with ISO 4628-5:

Supplementary information:

Surface preparation:

Preparation grade (ISO 8501-1/ISO 8501-2)

☐ Sa 1 ☐ Sa 2 ☐ Sa 2½ ☐ Sa 3 ☐ PSa 2

☐ PSa 2½ ☐ PSa 3 ☐ St 2 ☐ St 3 ☐ PSt 2

☐ PSt 3 ☐ PMa ☐ Fl

Other information relating to preparation method and grade achieved [2)]:

Remarks:

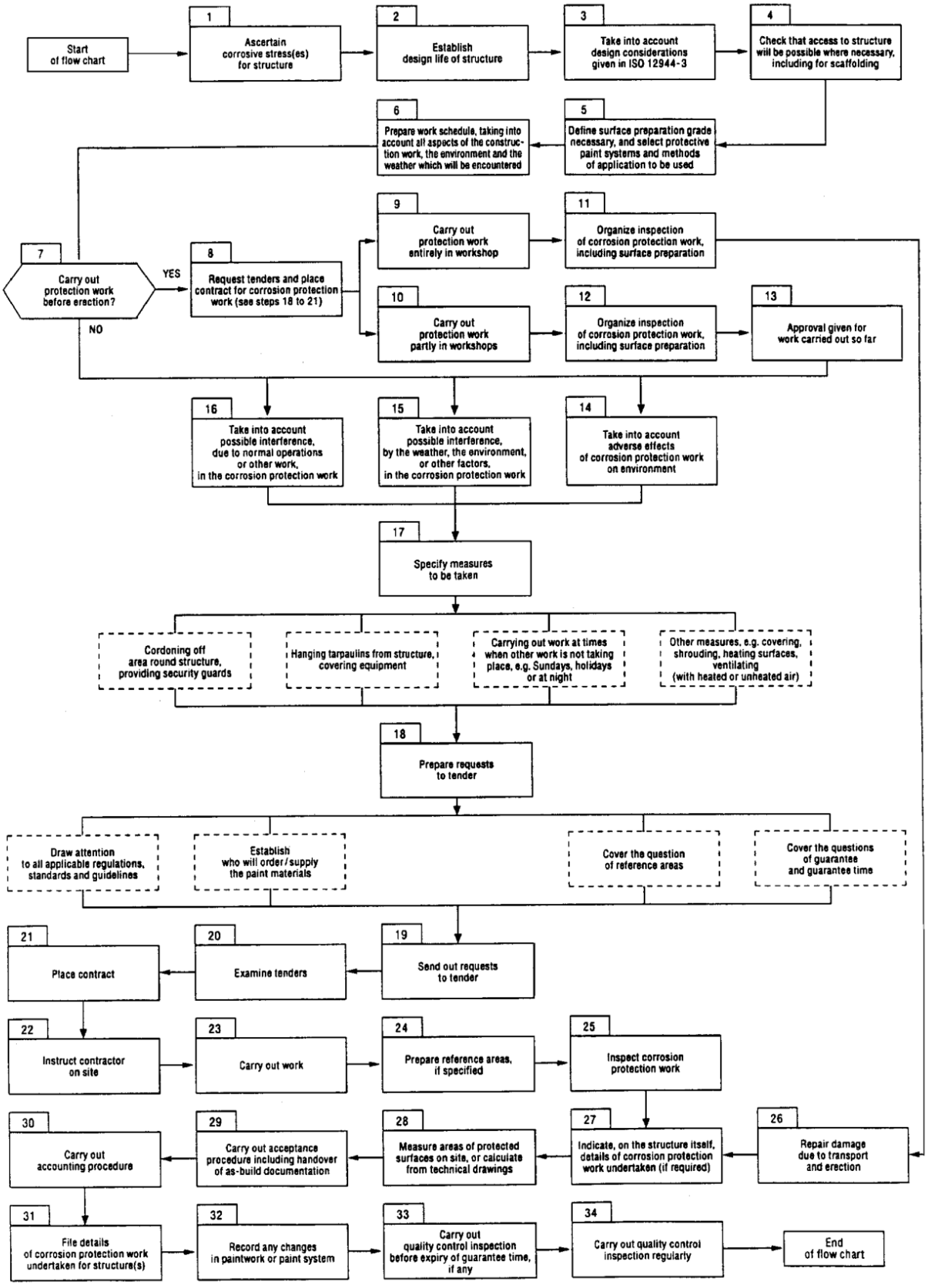
1) Fill in a new sheet for each reference area
2) For example for preparation grades St 2 and St 3, whether hand tools or power tools were used

	1	2	3	4	5	6
	Pre-fabrication primer	**Priming coat**	3)	3)	3)	**Top coat**
Paint material - Manufacturer - Brand name - Batch and/or production No.						
Colour [4]						
Application method [5]						
Air temperature, °C						
Relative humidity, %						
Surface temperature, °C						
Dew point, °C						
Weather conditions (brief description)						
Thinner (type and amount) of paint material, if added						
Average film thickness, µm [6] - wet instrument used - dry instrument used						
Other measurements, if specified [6]						
Date Time						
Location of paint work [7]						
Company name(s) Signature(s) of person(s) responsible						

3) Possible further operations, e.g. application of further coats, edge protection.
4) See table 1, No. 1.10.
5) See ISO 12944-7:1998, sub-clause 5.3.
6) List the individual measurements on a separate sheet.
7) E.g. steel mill, workshop or on site.

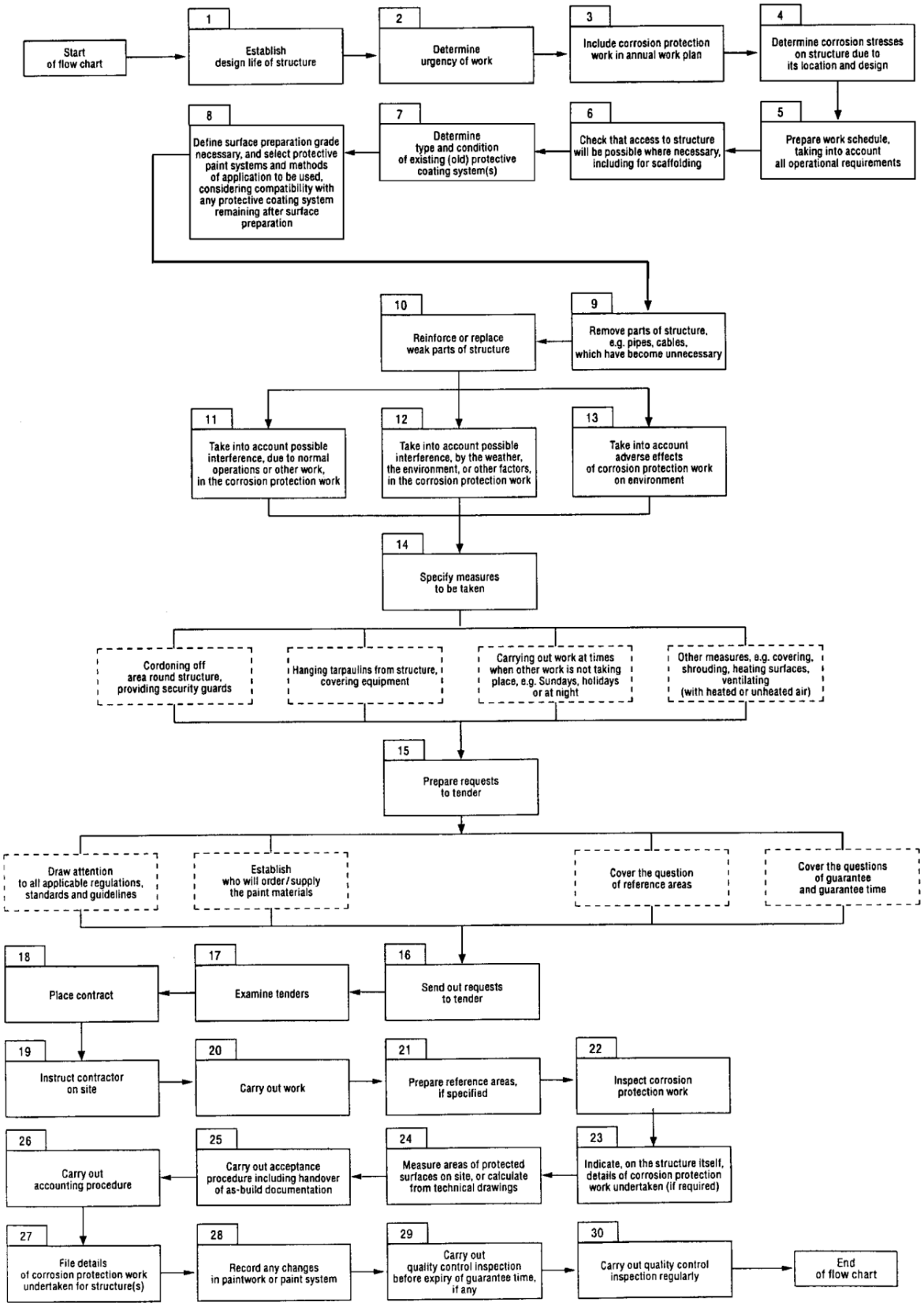
Annex C
(informative)

Flow chart for planning new work



Annex D
(informative)

Flow chart for planning maintenance work



Annex E
(informative)
Classification of environments - Checklist
(derived from ISO 12944-2)

E.1 Environment categories and associated types of atmosphere

E.1.1 Atmospheric corrosivity categories

C1	very low
C2	low
C3	medium
C4	high
C5-I	very high (industrial)
C5-M	very high (marine)

E.1.2 Types of atmosphere

rural
urban
industrial
marine

E.2 Categories for water and soil

Im1	Fresh water
Im2	Sea or brackish water
Im3	Soil

E.3 Climatic conditions

Extremely cold
Cold
Cold temperate
Warm temperate
Warm dry
Mild warm dry
Extremely warm dry
Warm damp
Warm damp, equable

E.4 Special cases

E.4.1 Special situations

Corrosion inside buildings
Corrosion in box members and hollow components

E.4.2 Special stresses

Chemical stresses
Mechanical stresses
Stresses due to condensation
Stresses due to medium or high temperatures
Increased corrosion due to combinations of stresses

For details see ISO 12944-2.

Annex F
(informative)
Example of a simple project specification
(using table 1 as the basis)

No.	Main and sub-items	Remarks
1.1	**GENERAL INFORMATION**	
1.1.1	Tjörn bridge	
1.1.2	The Swedish National Road Administration	
1.1.3	West coast of Sweden	
1.1.4	Bjørn Christensson Swedish National Road Administration	
1.1.5	C4 high	ISO 12944-2
1.1.6	ISO 12944-1 to ISO 12944-8	
1.2	**TYPE OF PROJECT** Suspension bridge, main span 366 m	
1.2.1	Not relevant	
1.2.2	New construction blast-cleaned and coated	Surface preparation and priming and intermediate coats to be applied in the workshop
1.2.3	Touch-up and final paint work	To be executed after erection on site
1.2.4	Not relevant	
1.2.5	Not relevant	
1.2.6	Not relevant	
1.3	**TYPES OF STRUCTURE AND CONSTITUENT ELEMENT** The project includes the following structures and constituent elements: Low-alloy steel structure, steel cables, railings, staircases, ladders.	
1.3.1	The construction is designed in accordance with ISO 12944-3.	
1.3.2	The main steel structure is assembled by welding; only minor parts are bolted.	
1.3.3	Surfaces of steel members joined by bolting are only to be painted with priming and intermediate coats after surface preparation. Gaps and blind crevices of bolted connections must be carefully closed after assembly by a specified coating material.	Nominal dry film thickness 190 µm to 250 µm
1.3.4	Connections forming galvanic couples (cells) are to be avoided.	See ISO 12944-3.

No.	Main and sub-items	Remarks
1.3.5	Inside surfaces of box members which are accessible by manholes are only to be painted by priming and intermediate coats after surface preparation.	See ISO 12944-3.
1.3.6	Box members and hollow components which are not accessible by manholes are to be airtight and tested by air pressure.	See ISO 12944-3.
1.4	**DESCRIPTION OF EACH CONSTITUENT ELEMENT**	
1.4.1	Substrates are steel and hot-dip-galvanized steel.	
1.4.2	Not relevant.	
1.4.3	Not relevant.	
1.5	**DESCRIPTION OF ENVIRONMENT OF EACH CONSTITUENT ELEMENT**	See ISO 12944-2.
1.5.1	Steel structure and cables are exposed to corrosion stresses corresponding to corrosivity category C4 high	
1.5.2	Inside surfaces of box members which are accessible by manholes are exposed to corrosive stresses corresponding to corrosivity category C2 low	
1.5.3	Exterior surfaces are exposed to strong UV radiation.	
1.6	**DURABILITY**	
1.6.1	The required durability range for this project is >15 years **(high).**	See ISO 12944-1.
1.7	**PROTECTIVE PAINT SYSTEMS - PARTICULAR CONSTRAINTS WITH RESPECT TO SURFACES AND SURFACE PREPARATION**	
1.7.1	Steel: surface preparation in accordance with ISO 8501-1 Sa 2½ and ISO 8503-2 "medium (G)". Hot-dip-galvanized steel cables: mechanical and chemical cleaning. Due to the particular importance of the corrosion protection of the cables, special corrosion protection treatment, as outlined in the appendix, is necessary. *) Hot-dip-galvanized steel: prepared by sweep blast-cleaning to surface roughness "fine (G)" in accordance with ISO 8503-2.	

*) A complete specification would give details of a special method of this kind in an appendix to the specification.

No.	Main and sub-items	Remarks
1.7.2	Blast-cleaning to be used for steel and sweep blast-cleaning for hot-dip-galvanized steel. Mechanical and chemical cleaning as outlined in the appendix for hot-dip-galvanized cables. *)	See ISO 12944-4.
1.8	**PROTECTIVE PAINT SYSTEMS -PARTICULAR CONSTRAINTS WITH RESPECT TO PAINT MATERIALS**	
1.8.1	On steel, priming coat shall be epoxy zinc paint and intermediate coats shall be epoxy paint with iron oxide pigment. On hot-dip-galvanized steel, priming coat shall be epoxy paint with iron oxide pigment. On cables, top coat shall be polyurethane paint. Due to the particular importance of the corrosion protection of cables, additional corrosion protection treatment, as outlined in the appendix, is necessary. *)	
1.8.2	Epoxy paint shall be applied using airless-spray equipment. Polyurethane paint shall be applied manually. Spraying is not permitted.	
1.9	**PROTECTIVE PAINT SYSTEMS - PARTICULAR CONSTRAINTS WITH RESPECT TO PAINT WORK**	
1.9.1	Contractor shall apply priming and intermediate coats in shop and top coats on site.	See ISO 12944-7.
1.9.2	Parts welded on site are to be protected, even in good weather conditions.	See ISO 12944-7.
1.9.3	Methods of application. Stripe coats on edges are to be applied by brush, minimum 20 mm on each side of edge.	
1.9.4	Not relevant.	
1.9.5	Contractors shall ensure that all health and safety regulations are observed for erection of scaffolding and use of the paints chosen. Local-authority regulations with regard to the environment shall be observed.	

*) A complete specification would give details of a special method of this kind in an appendix to the specification.

No.	Main and sub-items	Remarks
1.10	**PROPERTIES (OTHER THAN ANTI-CORROSIVE) OF PROTECTIVE PAINT SYSTEMS**	
1.10.1	Colour	
	Each coat, including stripe coats, shall have a different colour.	The colour of the last intermediate coat shall be such that it is hidden by the top coat.
	The colour of the top coat shall be NCS1080-Y80R.	
1.10.2	The top-coat colour at the end of the guarantee period shall still be NCS1080-Y80R.	
1.11	**QUALITY MANAGEMENT**	
1.11.1	Quality assurance shall be carried out in accordance with BSK and ISO 9002 (BSK = Swedish regulations for steel structures).	
1.12	**INSPECTION AND ASSESSMENT**	
1.12.1	Inspection shall be carried out in accordance with BSK by the contractor.	
1.12.2	Extra inspection shall be carried out in accordance with the inspection plan by external bodies.	
1.12.3	The names of the external inspection bodies and inspectors will be given later (on site).	
1.12.4	Inspection shall be in accordance with ISO 8501-1, ISO 8503-2 and SS 18 41 60. *)	
1.12.5	Quality-control steps shall be in accordance with inspection plan.	
1.13	**REFERENCE AREAS**	
	NOT USED IN THIS PROJECT.	

*) Swedish Standard SS 18 41 60:1992, *Paints and varnishes - Determination of thickness of a dry film on a metal substrate - Magnetic flux and eddy current methods.*

No.	Main and sub-items	Remarks
1.14	**HEALTH AND SAFETY, ENVIRONMENTAL PROTECTION**	
1.14.1	The Swedish health and safety regulations shall be observed by the contractor, regarding use of solvents and epoxy and polyurethane products. Local regulations dealing with pollution of the environment by used blast-cleaning abrasives and dust, solvents and paint shall be observed by the contractor.	
1.15	**SPECIAL REQUIREMENTS**	
1.15.1	Deviations from this specification, the inspection plan or standards referred to shall be reported to the client by the contractor.	
1.15.2	Not relevant.	
1.15.3	Not relevant.	
1.16	**MEETINGS**	
1.16.1	The contractor shall participate in the prebid meeting and kick-off meeting to settle any questions concerning paint work. During the project, the contractor shall participate in meetings once a month to review progress, inspection results and any other matters regarding the work.	Details will be sent by Swedish National Road Administration.
1.17	**DOCUMENTATION**	
1.17.1	Documentation shall comply with the requirements laid down in the Swedish Bridge Regulations.	

Annex G
(informative)
Recommended form for a protective paint system specification - New work
(To be filled in for each constituent element of the structure)

Project:

Name of owner:

Project: Location:	Protective paint system: ISO 12944-5 paint system No.:
Constituent element:	Environment:
Drawing No./area:	Required durability:
Position No.:	Sheet No.:

SHOP APPLICATION
SURFACE PREPARATION GRADE:
TYPE OF PREFABRICATION PRIMER (if used):
Paint manufacturer: Area: ..... m^2

PROTECTIVE PAINT SYSTEM	Nominal dry film thickness µm	Overcoating interval minimum h	Overcoating interval maximum h	Drying time at .....°C h
1st coat _____ 2nd coat _____ 3rd coat _____ 4th coat _____				
TOTAL:				

NOTE For touch-up of damage, see "site application" below.

SITE APPLICATION
SURFACE PREPARATION GRADE
Touch-up:
Complete:
Paint manufacturer: Area: ..... m^2

PROTECTIVE PAINT SYSTEM	Nominal dry film thickness µm	Overcoating interval minimum h	Overcoating interval maximum h	Drying time at ..... °C h
1st coat _____ 2nd coat _____ COMPLETE 1st coat _____ 2nd coat _____ 3rd coat _____ 4th coat _____				
TOTAL:				

Annex H
(informative)
Recommended form for a protective paint system specification - Maintenance
(To be filled in for each constituent element of the structure)

Project:

Name of owner:

Project: Location:	Protective paint system: ISO 12944-5 paint system No.:
Constituent element:	Environment:
Drawing No./area:	Required durability:
Position No.:	Sheet No.:

TOUCH-UP:
SURFACE PREPARATION GRADE:

Paint manufacturer: Area: ..... m^2

CONDITION OF SUBSTRATE (See annex K, section C)				
PROTECTIVE PAINT SYSTEM	Nominal dry film thickness µm	Overcoating interval minimum h	Overcoating interval maximum h	Drying time at ..... °C h
1st coat _____ 2nd coat _____ 3rd coat _____ 4th coat _____				
TOTAL:				

SITE APPLICATION
SURFACE PREPARATION GRADE
Touch-up:
Complete:
Paint manufacturer: Area: ..... m^2

PROTECTIVE PAINT SYSTEM	Nominal dry film thickness µm	Overcoating interval minimum h	Overcoating interval maximum h	Drying time at ..... °C h
1st coat _____ 2nd coat _____ COMPLETE 1st coat _____ 2nd coat _____ 3rd coat _____ 4th coat _____				
TOTAL:				

Annex I
(informative)
Recommended form for a report on paint work progress and application conditions

Project: Location:			Drawing No: Corrosion protection plan No.: Position No.: Area:					Inspected by:					Comments:		
Constituent element:															
1	2	3	4	5	6	7		8	9	10	11	12	13	14	
Date	Time	Type of work (i.e. surface preparation, application of priming coats, intermediate coats, top coats)	Method used	General weather conditions	Temperature			Relative air humidity	Dew point	Blast-cleaning abrasive (abrasive designation/ material No.)	Paint batch No.	Colour	Remarks (e.g. ISO standard, surface preparation grade, irregularities)	Signature/ initials	
					Air °C	Structure/ constituent element °C		%	°C						

(Place) (Date) (1st signature) (2nd signature) (3rd signature)

Annex J
(informative)
Recommended form for final report on corrosion protection work

Name of structure:	Project No.:		Drawing No.:		
	Protective paint system: ISO 12944-5 paint system No. (if applicable):				
	1st coat	2nd coat	3rd coat	4th coat	5th coat
Paint work contractor:					

New work	Maintenance
Rust grade of steel surface (ISO 8501-1) ☐ A ☐ B ☐ C ☐ D ☐ Milling imperfections found ☐ Sharp edges and burrs removed ☐ Welding residues, including weld spatter, not removed	☐ Degree of rusting Ri ..... (ISO 4628-3) ☐ Not known ☐ Washed, give details

Specified surface preparation grade (ISO 8501-1 or ISO 8501-2):

Blast-cleaning	☐ Sa 2 ☐ PSa 2	☐ Sa 2½ ☐ PSa 2½	☐ Sa 3 ☐ PSa 3
Flame cleaning	☐ Fl		
Hand- and power-tool cleaning	☐ St 2 ☐ PSt 2	☐ St 3 ☐ PSt 3	
Machine abrading	☐ PMa		

Specified surface profile (ISO 8503-1):

Comparator G ☐	Fine ☐	Medium ☐	Coarse ☐
Comparator S ☐	Fine ☐	Medium ☐	Coarse ☐

	Details of surface preparation	Details of paint application				
		1st coat	2nd coat	3rd coat	4th coat	5th coat
Surface preparation grade achieved (ISO 8501-1, ISO 8501-2)						
Surface profile achieved (ISO 8503-2)						
Brand name(s)/types of blast-cleaning abrasive (e.g. in accordance with ISO 11124/ISO 11126 series of standards)						
Manufacturer(s) of abrasive						
Date						
Air temperature, °C						
Relative humidity, %						
Dewpoint, °C						
Surface temperature, °C						
Designation of paint and type of coat, product No.						
Colour						
Batch No.						
Paint manufacturer(s)						
Method of application						
NDFT µm						
DFT min. µm						
mean µm						
max. µm						
Complies with specification?		yes/no	yes/no	yes/no	yes/no	yes/no

Reference areas provided?	☐ yes, indicate report No(s).	☐ no
Date of preparation:		
Remarks: Use additional sheet, if necessary		
Date:	Name of inspector:	
Place:	Signature:	

Annex K
(informative)
Recommended form for a detailed inspection report on the condition of an existing protective paint system, including the assessment of the need for maintenance

A	BASIC INFORMATION
A1	Name of project: .....
A2	Name of owner: .....
A3	Location of project/structure: .....
A4	In order of: .....
A5	Paint manufacturer(s): .....
A6	Corrosion protection work carried out by: .....
A7	Structure: ..... Area: .....m^2
A8	Constituent element: ..... Area: .....m^2
A9	Drawing No.: ..... Position No.: .....
A10	Environmental conditions (see annex E and ISO 12944-2): .....
A11	Durability range of protective paint system (see ISO 12944-1): .....
A12	Guarantee time: ..... from: ..... to: .....

B	PROTECTIVE PAINT SYSTEM					
B1	Surface preparation (see ISO 12944-4):					
B2	Surface profile (roughness) (ISO 12944-4):					
B3	Substrate (e.g. steel, hot-dip-galvanized):					
B4	Prefabrication primer/batch No:					
B5	Priming coat/batch No:					
B6	Intermediate coat/batch No.:					
B7	Top coat/batch No.:					
B8	Period/end of application:					
B9	Date(s) and description of repair work (if any):					
B10	Dry film thickness (DFT) (see ISO 2808): ..... Date of measurement: ..... Measurement device used:					
	Spot/area:					
	DFT min. µm DFT mean µm DFT max. µm					

C	ASSESSMENT OF CONDITION OF PROTECTIVE PAINT SYSTEM					
	Type of defect	**Structure/constituent element**	**Degree of degradation**	**Photo No./ Computer photo No./ Sketch No.**	**Estimated cause of defect**	**Need for maintenance? (yes/no)**
C1	Degree of blistering ISO 4628-2	Designation: .... Location: .... Coat concerned: .... ☐ whole surface ☐ spots				
C2	Degree of rusting (Ri) ISO 4628-3	Designation: .... Location: .... Coat concerned: .... ☐ whole surface ☐ spots				
C3	Degree of cracking ISO 4628-4	Designation: .... Location: .... Coat concerned: .... ☐ whole surface ☐ spots				
C4	Degree of flaking ISO 4628-5	Designation: .... Location: .... Coat concerned: .... ☐ whole surface ☐ spots				

C5	Degree of chalking ISO 4628-6	Designation: .... Location: .... Coat concerned: .... ☐ whole surface ☐ spots				
C6	Rusting of welds, etc.	Designation: .... Location: .... Coat concerned: .... ☐ whole surface ☐ spots				
C7	Adhesion ISO 2409 and/or ISO 4624	Designation: .... Location: .... Coat concerned: .... ☐ whole surface ☐ spots				
C8	Filiform corrosion ISO 4623	Designation: .... Location: .... Coat concerned: .... ☐ whole surface ☐ spots				
C9	Other defects					

D	**MAINTENANCE**	
D1	Nature: a) Structure b) Constituent element c) Location of surface	
D2	Estimated cause (cross as appropriate):	☐ a) Normal wear and tear ☐ b) Inadequate protective paint system ☐ c) Errors of workmanship
D3	Recommended measures (cross as appropriate):	☐ a) Maintenance painting unnecessary before next inspection (number of years.....) ☐ b) Maintenance painting required before next inspection (number of years.....) ☐ c) Maintenance painting required within 1 year ☐ d) Maintenance painting required immediately (< 4 months)
D4	Remarks	

Date of inspection:

.....

Signature of inspector:

.....

.

ICS 87.020

Descriptors: paints, varnishes, steel construction, corrosion, corrosion prevention, protective coatings, paint coats, painting, specifications, contents lists.

Price based on 39 pages