STANDARDISATION GUIDE 006:

RULES FOR THE STRUCTURE AND DRAFTING OF AUSTRALIAN STANDARDS

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Contents

1 PURPOSE

This Guide specifies rules for the structure and drafting of Australian Standards and joint Australian/New Zealand Standards where the secretariat is held by Standards Australia (SA). As far as practicable, these rules also apply to Interim Standards and Technical Specifications. All these document types are referred to collectively hereinafter as documents, unless otherwise necessary.

The rules are intended to ensure that such documents prepared by the Drafting Team/Drafting Leader are drafted in as uniform a manner as practicable, irrespective of the technical content.

This Guide also provides some guidance with regard to presentation.

NOTE: This Guide refers to and should be used in conjunction with SG-003: Standards and Other Publications, which defines the range of publications and their purpose.

2 REFERENCES

The following documents are referred to in this document.

- AS ISO 1000, The international system of units (Sl) and its application
- AS 1046 (series), Letter symbols for use in electrotechnology
- AS/NZS 1102 (series), Graphical symbols for electrotechnical documentation
- AS 2900 (series), Quantities and units
- AS 2929, Test methods—Guide to the format, style and content
- AS/NZS 4383 (series), Preparation of documents used in electrotechnology
- AS/NZS ISO 9001, Quality management systems—Requirements
- AS 60417 (series), Graphical symbols for use on equipment
- Standardisation Guide No.3, *SG-003: Standards and Other Publications*
- Standardisation Guide No.7, *SG-007: Adoption of International Standards*
- Standardisation Guide No.9, *SG-009: Preparation of Standards for Legislative Adoption*
- ISO 78-2, Chemistry—Layouts for standards, Part 2: Methods of chemical analysis
- ISO 690, Information and documentation—Guidelines for bibliographic references and citations to information resource
- ISO 704, Terminology work—Principles and methods
- ISO 7000, Graphical symbols for use on equipment—Index and synopsis
- ISO 10241, International terminology standards—Preparation and layout
- ISO/IEC 17007, Conformity assessment—Guidance for drafting normative documents suitable for use for conformity assessment
- IEC 61175, Industrial systems, installations and equipment and industrial products—Designation of signals

- IEC 61346 (series), Industrial systems, installations and equipment and industrial products — Structuring principles and reference designations
- ISO/IEC Directives, Part 1: Procedures for the technical work
- ISO/IEC Directives, Part 2: Rules for the structure and drafting of International Standards
- ISO/IEC Guide 21.1, Regional or national adoption of International Standards and other International Deliverables—Part 1: Adoption of International Standards

3 GENERAL PRINCIPLES

3.1 Objective

The objective of documents published by SA is to define clear and unambiguous provisions in order to facilitate trade and communication, provide public benefit and achieve national goals. To achieve this objective, the document shall—

- be as complete as necessary within the limits specified by its scope;
- be consistent, clear and accurate;
- take full account of the state of the art (see Definitions);
- provide a framework for future technological development; and
- be comprehensible to qualified persons who have not participated in its preparation.

3.2 Performance approach

Whenever possible, requirements shall be expressed in terms of performance rather than design or descriptive characteristics. This approach leaves maximum freedom for technical development.

3.3 Homogeneity

Uniformity of structure, of style and of terminology shall be maintained not only within each document, but also within a series of associated documents. The structure of associated documents and the numbering of their clauses shall, as far as possible, be identical. Analogous wording shall be used to express analogous provisions; identical wording shall be used to express identical provisions.

The same term shall be used throughout each document or series of associated documents to designate a given concept. The use of an alternative term (synonym) for a concept already defined shall be avoided. As far as possible, only one meaning shall be attributed to each term chosen.

3.4 Consistency of documents

In order to achieve the aim of consistency within the complete corpus of documents published by SA, the text of every document shall be in accordance with the relevant provisions of existing basic documents. This relates particularly to—

- standardised terminology;
- principles and methods of terminology;
- quantities, units and their symbols;
- abbreviated terms;
- bibliographic references,

- technical drawings and diagrams;
- technical documentation; and
- graphical symbols.

In addition, specific technical aspects shall be drafted in accordance with the provisions of general documents dealing with the following subjects:

- Limits, fits and surface properties.
- Tolerancing of dimensions and uncertainty of measurement.
- Preferred numbers.
- Statistical methods.
- Environmental conditions and associated tests.
- Safety.
- Chemistry.
- Electromagnetic compatibility.
- Conformity and quality.

A list of basic reference works is given in Appendix A.

3.5 Adopted text documents

Style requirements for adopted text documents are given in Appendix G, which deals with the content and structure of adopted text documents, and the inclusion of a national Preface.

4 STRUCTURE

4.1 Subdivision of the subject matter

4.1.1 General

There are two ways to present provisions for standardisation of a subject. An individual document may be prepared for each subject to be standardised, and published as a complete entity. Alternatively, the subject matter may be split into separate parts under the same main title and number. Examples where the latter may be considered are where—

(a) an individual document is likely to become too voluminous;

(b) subsequent portions may need to be added at a later date;

(c) portions could be referred to in regulations;

(d) portions are intended to serve for certification purposes; or

(e) portions need to be changed separately as the need arises.

In particular, the aspects of a product or service which will be of separate interest to different parties (e.g. manufacturers, certification bodies, legislative bodies) shall be clearly distinguished, preferably as parts of a document or as separate documents.

Such individual aspects are, for example—

- health and safety requirements;
- performance requirements;
- maintenance and service requirements;
- installation requirements; and
- quality assessment.

The terms which shall be used to designate the divisions and subdivisions that a document may have are shown in Table 1.

TABLE 1
NAMES OF DIVISIONS AND SUBDIVISIONS

Name	Example of numbering	
	Multi-section	**Single section**
Section	1	
Clause	1.1	1
Clause	1.1.1	1.1
Clause	1.1.1.1	1.1.1
Clause	1.1.1.1.1	1.1.1.1
paragraph	[no number]	[no number]
Appendix	A	A
Paragraph	A1	A1
Paragraph	A1.1	A1.1
Paragraph	A1.1.1	A1.1.1

4.1.2 Subdivision of the subject matter within a series of parts

There are two ways of dividing the subject matter into a series of parts, as follows:

(a) Each part deals with a specific aspect of the subject and can stand alone.

EXAMPLE 1

Part 1: Vocabulary

Part 2: Requirements

Part 3: Test methods

Part 4: ...

EXAMPLE 2

Part 1: Vocabulary

Part 2: Harmonics

Part 3: Electrostatic discharge

Part 4: ...

(b) There are both common and specific aspects to the subject. The common aspects should be given in Part 1. Specific aspects (which may modify or supplement the common aspects and therefore cannot stand alone) shall be given in individual parts.

EXAMPLE 3

Part 1: General requirements

Part 2: Thermal properties

Part 3: Air purity requirements

Part 4: Acoustics

EXAMPLE 4 In terms of numbering, subdivision of part numbers is permitted.

Part 1: General requirements

Part 2.1: Particular requirements—Plasma displays

Part 2.2: Particular requirements—Monitors

Part 2.3: Particular requirements—LCDs

Where the system described in (b) is used, care shall be taken that the references from one part to another are valid.

Each part of a multipart document shall be drafted in accordance with the rules for an individual document.

4.1.3 Subdivision of the subject matter within an individual document

The elements that together form a document may be classified in two different ways:

(a) By their normative/informative nature and their position within the structure, i.e.—

- informative preliminary elements (see 5.1);
- normative general and technical elements (see 5.3); and
- informative supplementary elements (see Definitions).

(b) By their required or optional presence.

An example of a typical arrangement is given in Table 2, which also lists the permitted content of each of the elements constituting the arrangement.

TABLE 2
EXAMPLE OF A TYPICAL ARRANGEMENT OF ELEMENTS IN A DOCUMENT

Type of element	Arrangement of elements[a] in document	Permitted content[a] of element(s) in document
Informative preliminary	*Title page*	**Title**
	Preface	***Text*** *Notes* *Footnotes*
	Table of contents	*(generated content; see 6.1.2)*
	Foreword	*Text* *Figures* *Tables* *Notes* *Footnotes*
Normative general	**Title**	**Text**
	Scope	**Text** Figures Tables *Notes* *Footnotes*
	Normative references	References *Footnotes*
Normative technical	Definitions Symbols and abbreviated terms **Body text** Normative appendix	Text Figures Tables *Notes* *Footnotes*
Informative supplementary	*Informative appendix*	*Text* *Figures* *Tables* *Notes* *Footnotes*
	Bibliography	*References* *Footnotes*
	Indexes	

[a]**Bold type** = required element; upright type = normative element; *italic type* = informative element

A document need not contain all the normative technical elements shown and it may contain normative technical elements other than those shown. Both the nature of the normative technical elements and their sequence are determined by the nature of the document in question.

A document may also contain notes and footnotes to figures and tables (see 5.6.5.8, 5.6.5.9, 5.6.6.6 and 5.6.6.7).

Terminology Standards have additional requirements for the subdivision of content (see Appendix B).

4.2 Description and numbering of divisions & subdivisions

4.2.1 Part

The number of a part shall be indicated by Arabic numerals, beginning with 1, following the document number and preceded by a full stop as follows:

9999.1, 9999.2, etc.

See also the examples in 4.1.2.

The title of a part shall be composed in the same way as that of a document as described in 5.1.1. All the individual titles in a series of parts shall contain the same introductory element (if present) and main

element, while the complementary element shall be different in each case in order to distinguish the parts from one another. The complementary element shall be preceded in each case by the designation “Part xx:” or Method xx:”.

4.2.2 Section

A section is a clause or group of clauses with a common purpose. Multi-section documents shall comprise two or more sections. Section one shall comprise the normative general clauses, i.e. Scope, Objective and Normative references, and normative technical clauses, such as Terms and Definitions, which apply to the whole document.

The sections in each document shall be numbered with Arabic numerals beginning with 1. The numbering shall be continuous up to but excluding any appendices (see 4.2.6).

4.2.3 Clause

A clause is the basic component in the subdivision of the content of a document.

The clauses in a multi-section document shall be numbered with Arabic numerals, such that the section number appears first, followed by sequential numbering beginning with 1 so that the “Scope” clause is 1.1. The numbering shall be continuous up to the end of the section.

Each clause shall have a title, placed immediately after its number, on a line separate from the text that follows it.

A clause in an appendix is called a “Paragraph” for the purpose of referencing, e.g. “refer to Paragraph A9”. The word “Paragraph”, in this context, should only be used together with the Paragraph number to avoid confusion with the generic term.

4.2.4 Paragraph

A paragraph is an unnumbered subdivision of a clause.

The document shall not contain “hanging paragraphs”, such as those shown in the following example, since reference to them is ambiguous.

EXAMPLE

In the following example, the hanging paragraphs indicated cannot be uniquely identified as being in “Clause 2.5” since strictly speaking the paragraphs in 2.5.1 and 2.5.2 are also in Clause 2.5. To avoid this problem it is necessary to identify the unnumbered paragraphs as clause “2.5.1 General” (or other suitable title) and to renumber the existing 2.5.1 and 2.5.2 accordingly (as shown), to move the hanging paragraphs elsewhere, or to delete them.

Incorrect	Correct
2.5 Designation	**2.5 Designation**
The quick brown fox jumps over the lazy dog.	**2.5.1 General**
The quick brown fox jumps over the lazy dog.	The quick brown fox jumps over the lazy dog.
The quick brown fox jumps over the lazy dog. } hanging paragraphs	The quick brown fox jumps over the lazy dog.
2.5.1 Xxxxxxxxxx	The quick brown fox jumps over the lazy dog.
The quick brown fox jumps over the lazy dog.	**2.5.2 Xxxxxxxxxx**
2.5.2 Xxxxxxxxxx	The quick brown fox jumps over the lazy dog.
The quick brown fox jumps over the lazy dog.	**2.5.3 Xxxxxxxxxx**
The quick brown fox jumps over the lazy dog. The quick brown fox jumps over the lazy dog. The quick brown fox jumps over the lazy dog.	The quick brown fox jumps over the lazy dog.
2.6 Test report	The quick brown fox jumps over the lazy dog. The quick brown fox jumps over the lazy dog. The quick brown fox jumps over the lazy dog.
	2.6 Test report

4.2.5 Lists

Every list shall have an introduction. Lists may be introduced by a sentence or a complete grammatical proposition followed by a colon (see Example 1), or by the first part of a proposition followed by a long dash (—) (see Example 2), completed by the items in the list.

Each item in a list shall be preceded by a lower case letter within parentheses {(a), (b), (c)}. If it is necessary to subdivide further an item in the latter type of list, or if more than one list appears in a clause, Paragraph of an appendix, Preface or Foreword, up to three additional levels may be used, in the following order:

(a) Lower case Roman numbering {(i), (ii), (iii)}.

(b) Upper case letters {(A), (B), (C)}.

(c) Arabic numerals {(1), (2), (3)}.

EXAMPLE 1

If it is necessary to subdivide an item further, the following three levels shall be used, in the following order:

(a) Lower case Roman numbering [(i), (ii), (iii)].

(b) Upper case letters [(A), (B), (C)].

(c) Arabic numerals [(1), (2), (3)].

EXAMPLE 2

Lists may be introduced by—

(a) a sentence or complete grammatical proposition followed by a colon; or

(b) the first part of a proposition followed by a long dash.

If the verb “shall” is used in the introduction to a list, that list shall contain requirements only; a recommendation may be included in a note only, inserted under the appropriate list item or at the end of the list.

If a list comprises recommendations and requirements, that list shall have a non-restrictive introduction, for example, “the following provisions apply:”.

4.2.6 Appendix

Appendices may be normative or informative. For the description of the two types of appendix, see 5.3.7 and 5.4.1.

Appendices should appear either in the order in which they are cited in the text or grouped, with normative appendices preceding informative appendices, in the order in which they are cited within each group. Each appendix shall be designated by a heading comprising the word “Appendix” followed by a capital letter designating its serial order, beginning with “A”, e.g. “Appendix A”. The appendix heading shall be followed by the indication “(normative)” or “(informative)”, and by the title, each on a separate line. Numbers given to the Paragraphs, formal tables, figures and mathematical formulae of an appendix shall be preceded by the letter designating that appendix. The numbering shall start afresh with each appendix. A single appendix shall be designated “Appendix A”.

EXAMPLE Paragraphs, formal tables, figures and equations in Appendix A are designated “A1”, “A2”, “A3”, etc.

4.2.7 Bibliography

A bibliography, if present, shall appear after the last appendix. For the drafting rules, see 5.4.2.

4.2.8 Indexes

Indexes, if present, shall appear as the last element.

5 DRAFTING

5.1 Preliminary informative elements

5.1.1 Title page

The wording of the title shall be established with the greatest care; while being as concise as possible, it shall indicate, without ambiguity, the subject matter of the document in such a way as to distinguish it from that of other documents, without going into unnecessary detail. Any necessary additional particulars shall be given in the scope.

The title shall be composed of separate elements, each as short as possible, proceeding from the general to the particular. In general, not more than the following three elements shall be used:

(a) An *introductory element* (optional) indicating the general field to which the document belongs (this can often be based on the title of the committee that prepared the document).

(b) A *main element* (obligatory) indicating the principal subject treated within that general field.

(c) A *complementary element* (optional) indicating the particular aspect of the principal subject or giving details that distinguish the document from other documents, or other parts of the same document.

Detailed rules for the drafting of titles are given in Appendix C.

5.1.2 Preface

The Preface shall not contain requirements or recommendations. It also shall not contain background information on the subject area; this material belongs in a Foreword (see 5.1.4).

It consists of a general part and a specific part. The general part gives information relating to whether the document is a joint Australian/New Zealand or Australian Standard and the designation and name of the committee that prepared the document.

The specific part shall give as many of the following as are appropriate:

(a) A statement that the document cancels and replaces other documents in whole or in part.

(b) The relationship of the document to other documents. When a document is published in the form of a number of separate parts, the first part may include in its Preface an explanation of the intended structure, or a reference to the titles of all other parts that have been published.

(c) The objective of the document, if there is no objective clause (see 5.2.2).

NOTE: In the case of a revised Standard, the objective of the revision should also be given in the Preface.

(d) For adopted text documents, origin of content of the document, e.g. IEC, ISO, other national Standard or work by a recognised body, and whether it is identical, modified or not equivalent.

(e) Principal differences between the new and old edition.

(f) Where the document contains one or more appendices, the following text as appropriate:

(i) The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is for information and guidance only.

(ii) The term ‘normative’ has been used in this Standard to define the application of the appendix to which it applies. A ‘normative’ appendix is an integral part of a Standard.

(iii) The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

(g) Where notes and/or footnotes to tables and/or figures contain requirements, use the following text, altered as necessary:

Statements expressed in mandatory terms in notes and/or footnotes to figures and/or tables are deemed to be requirements of this Standard.

(h) Where an exemption for a publication is approved by the Standards Development and Accreditation Committee (SDAC), details of when and how the exemption was granted shall be incorporated into the Preface of the document.

5.1.3 Table of contents

The table of contents is an optional preliminary element, but is necessary if it makes the document easier to consult. The table of contents shall be entitled “CONTENTS”. The title shall be centred above the table. The table of contents shall list sections, first-level clauses, appendices, the bibliography, and indexes. The table of contents shall be generated automatically and not composed manually.

5.1.4 Foreword

The Foreword is an optional preliminary element used, if required, to give specific information or commentary about the technical content of the document, and about the reasons prompting its preparation. It shall not contain requirements.

5.2 General elements

5.2.1 Scope

This element shall appear at the beginning of each document and define without ambiguity the subject of the document and the aspects covered, thereby indicating the limits of applicability of the document or particular parts of it. It shall not contain requirements.

In documents that are subdivided into parts, the scope of each part shall define the subject of that part of the document only. The scope shall be succinct (not more than half a page) so that it can be used as a summary for bibliographic purposes.

This element shall be worded as a series of statements of fact.

Forms of expression such as the following shall be used:

“This Standard

- specifies
  - the dimensions of …”
  - a method of …”
  - the characteristics of …”
  - requirements for…”
- establishes
  - a system for …”
  - general principles for …”
- gives guidelines for …”
- defines terms …”

Statements of applicability of the document shall be introduced by wording such as the following:

"This Standard is applicable to ..."

5.2.2 Objective

The objective of the document states the purpose that the document is intended to serve.

The objective statement shall be located either as a paragraph in the Preface or in a dedicated "Objective" clause immediately following the Scope clause.

The objective shall be presented in a brief "what/for whom/why" format. (See example.)

EXAMPLE The objective of this Standard is to provide manufacturers and suppliers of landscaping soils with requirements and test methods that will ensure that soils can culture and maintain plant growth.

5.2.3 Application

The application clause is an optional element and is only required in those situations where the reader may be unclear as to how to apply the document.

The application clause provides information about how the document is intended to be used.

This should not be confused with defining the boundaries of the subject area covered by the document, which is the purpose of the scope clause. In general, statements beginning with the words "this Standard applies to . . ." belong in the Scope rather than the application clause.

EXAMPLE 1 This Standard is intended to be read in conjunction with the relevant mandatory requirements for cigarette lighters under the Commonwealth Competition and Consumer Act 2010.

EXAMPLE 2 This Standard is suitable for use under a third-party certification programme; however, certification is not a requirement of the Standard and the Standard may equally well be applied on a self-assessment basis within an organization.

EXAMPLE 3 This Standard is intended for use by the governing body of a hospital, the administration, the physicians, nurses, engineers and all other people concerned with the use of electrical appliances in the vicinity of the patient.

The application clause may contain requirements, provided these pertain to the application of the document only—for example, "This Standard shall be read in conjunction with AS/NZS 2243.1."

5.2.4 List of referenced documents

5.2.4.1 General

The designation and title of every document cited in the body and appendices of the document shall appear on a list of referenced documents. This list may comprise normative references only (see 5.2.4.3) with informative references provided separately in a bibliography or appendix, or comprise both normative and informative references (see 5.2.4.4).

Referenced documents shall be listed in numerical order, in the following sequence:

(a) Australian Standards.

(b) Australian/New Zealand Standards.

(c) IEC and ISO Standards.

(d) EN Standards.

(e) Other national Standards in alphabetical order.

(f) Industry Standards.

(g) Non-Standards documents.

5.2.4.2 Dated references

The documents on the reference list should not be dated. See also 5.6.7.5.

5.2.4.3 Normative references

This optional element shall give a list of the normative referenced documents cited (see 5.2.4) in the document where it is required that normative and informative referenced documents be listed separately.

Documents published by other bodies may be referred to in a normative manner provided that the referenced document is recognised by the committee concerned as having wide acceptance and authoritative status as well as being publicly available. The list is introduced as follows:

> "The following are the normative documents referenced in this Standard:"

Where there are informative references listed in a Bibliography or Appendix, the following Note is added after the list introduction:

NOTE Documents for informative purposes are listed in the Bibliography/Appendix X.

See Bibliography (Clause 5.4.2).

5.2.4.4 Referenced documents

This optional element shall give a list of referenced documents where it is not necessary to list normative and informative referenced documents separately or where the document does not contain normative provisions. The list is introduced as follows:

> "The following documents are referred to in this Standard:"

5.3 Technical elements

5.3.1 Definitions

This is an optional element giving definitions necessary for the understanding of certain terms used in the document. It shall not contain requirements. The following introductory wording shall be used where all terms and definitions are given in the document itself:

> "For the purposes of this document, the following definitions apply:"

In the case where terms defined in one or more other documents also apply (for example, in the case of a series of associated documents where Part 1 specifies the terms and definitions for several or all of the parts), the following introductory wording shall be used, altered as necessary:

> "For the purposes of this document, the definitions given in … and the following apply:"

Rules for the drafting and presentation of terms and definitions are given in Appendix B, together with special rules for terminology Standards, such as vocabularies or nomenclatures.

Note that the introductory text is not a hanging paragraph, as described in 4.2.4, as the terms and definitions make up a definitions list and not a series of clauses.

Each definition shall be numbered for purposes of cross-referencing, even if there is only one.

5.3.2 Symbols & abbreviated terms

This is an optional element giving a list of the symbols and abbreviated terms necessary for the understanding of the document. Unless there is a need to list symbols in a specific order to reflect technical criteria, all symbols should be listed in alphabetical order in the following sequence:

- Upper case Latin letter followed by lower case Latin letter (A, a, B, b, etc.).

- Letters without indices preceding letters with indices, and with letter indices preceding numerical ones (B, b, C, C_{m}, C_2, c, d, d_{ext}, d_{int}, d_1, etc.).
- Greek letters following Latin letters (Z, z, A, α, B, β, …, Λ, λ, etc.).
- Any other special symbols.

For convenience, this element may be combined with 5.3.1 in order to bring together terms and their definitions, symbols, abbreviated terms and perhaps units under an appropriate composite title, for example “Definitions, symbols, units and abbreviated terms”.

5.3.3 Body text

The body text shall contain the following:

(a) All characteristics relevant to the aspects of the products, processes or services covered by the document, either explicitly or by reference.

(b) The required limiting values of quantifiable characteristics.

(c) For each requirement, either a reference to the test method for determining or verifying the values of the characteristic, or the test method itself (see 5.3.4).

A clear distinction shall be made between requirements, statements and recommendations (see 5.6.1).

Contractual requirements (concerning claims, guarantees, covering of expenses, etc.) and legal or statutory requirements shall not be included.

In some product Standards, it may be necessary to specify that the product shall be accompanied by warning notices or by instructions to the installer or user, and to specify their nature. However, requirements concerning installation or use as such shall be included in a separate part or a separate document, since they are not requirements applicable to the product itself.

Documents listing characteristics for which suppliers are required to state values not specified by the document itself shall specify how such values are to be measured and stated.

Requirements shall not assign an action to a specific party, i.e. a requirement shall state *what*, but not *who*. Any request to assign an action to a specific party requires formal approval from the Standards Development and Accreditation Committee (SDAC).

EXAMPLE:

Incorrect: “The mine supervisor shall keep accurate records of all stages of the remote control mining equipment’s life cycle.”

Correct: “Accurate records shall be kept of all stages of the remote control mining equipment’s life cycle.”

[AS/NZS 4240.3:2013]

It is important to note that a person’s “consideration” cannot be a requirement, as “consideration” cannot be verified. The act of consideration should be recommended only.

EXAMPLE:

Incorrect: “The following shall be considered:”

Correct: “The following should be considered:”

5.3.4 Test methods

5.3.4.1 General

This optional element gives all the provisions concerning the procedure for determining the values of characteristics or checking conformity to stated requirements, and for ensuring the reproducibility of the results. If appropriate, tests shall be identified to indicate whether they are type tests, routine tests, sampling tests and so on. In addition, the document shall specify the sequence of testing if the sequence can influence the results.

Test methods may be subdivided in the following order (where appropriate):

(a) Principle.

(b) Reagents and/or materials (see 5.3.4.2).

(c) Apparatus (see 5.3.4.3).

(d) Preparation and preservation of test samples and test pieces.

(e) Procedure.

(f) Expression of results, including method of calculation and, if appropriate, precision of the test method and the measurement uncertainty.

(g) Test report.

Test methods should either be presented as appendices (see 5.3.7) or as separate parts (see 4.2.1). A test method shall be prepared as a separate document if it is likely to be referred to in a number of other documents.

When a test method is presented as an appendix, all general provisions pertaining to the test method should appear in the body of the document. The appendix should contain only those provisions that govern the test and its related material, such as the test report. Reference shall be made to the test method at the appropriate place(s) in the document.

EXAMPLE 1

“The aerosol generator and its mounting bracket shall withstand the corrosion test as described in Appendix D, Paragraph D9.”

[AS 4487—2013]

EXAMPLE 2

“NOTE: Refer to Appendix C for toxicity assessment techniques.”

[AS 4487—2013]

When drafting test methods, account shall be taken of documents for general test methods and of related tests for similar characteristics in other documents. Non-destructive test methods shall be chosen whenever they can replace, within the same level of confidence, destructive test methods.

For the drafting of methods of chemical analysis, see AS 2929 or ISO 78-2. Much of ISO 78-2 is also applicable to test methods for products other than chemical products.

Documents specifying test methods involving the use of hazardous products, apparatus or processes shall include a general warning and appropriate specific warnings. For recommended wording, refer to ISO/IEC Guide 51 (see A13).

If a statistical method for the assessment of the conformity of a product, process or service is specified in the document, any statements of compliance with the document only relate to the conformity of the population or the lot.

If test methods are in use that differ from that most acceptable for general application, this shall not be a reason for not specifying the most acceptable in a document.

5.3.4.2 Reagents and/or materials

This is an optional element giving a list of the reagents and/or materials used in the document.

The content of a reagents or materials clause will usually comprise an optional introductory text together with a list detailing one or more reagents and materials.

The introductory text shall be used only to specify general provisions to which cross-reference is not made. Any item to which it is necessary to cross-refer shall not be included in this text but shall be listed as a distinct entry as described below.

Note that the introductory text explaining the general provisions is not a hanging paragraph as described in 4.2.4 since the list detailing the reagents and/or materials is not a series of clauses but a list. It would be unreasonable to expect every document to include at least two reagents and/or materials whereas it is not permissible to have a single subdivision of a clause within a clause (see 4.2.3).

Each reagent and/or material entry shall be numbered for purposes of cross-referencing, even if there is only one.

The following example shows the presentation style used (for further examples of drafting, see ISO 78-2:1999, A10.1).

EXAMPLE

3 Reagents

Only reagents of recognized analytical grade and distilled water or water of equivalent purity shall be used.

3.1 Cleaning medium

For example, methanol or water containing a few drops of liquid detergent.

Alternatively, reagents and/or materials may be presented as a list, introduced by wording such as the following: “The following reagents/materials are required:”

5.3.4.3 Apparatus

This is an optional element giving a list of the apparatus used in the document. The rules for the structure, numbering and presentation of the “Apparatus” clause are identical to those for the “Reagents and/or materials” clause (see 5.3.4.2). Wherever possible, equipment produced by a single manufacturer should not be specified. Where such equipment is not readily available, this clause shall include such specifications for the equipment as to ensure that comparable testing can be conducted by all parties. See also 5.6.3 regarding the use of trade names.

5.3.4.4 Procedure

This is a required element for all test methods setting out the steps to be followed in the test, which may include measurements and observations to be recorded.

A normative procedure shall be introduced by the words: "The procedure shall be as follows:".

The steps of the procedure shall be presented in sequence. Each step shall consist of a single action or manipulation. The steps of the procedure shall be expressed in the imperative mood.

EXAMPLE

Correct: “Compress the spring and engage the trigger mechanism.”

Incorrect: "The spring shall be compressed and the trigger shall be engaged."

5.3.4.5 Alternative test methods

If more than one adequate test method exists for a characteristic, only one should, where appropriate, be the subject of a document. If, for any reason, more than one test method is to be standardised, the referee (often called "reference") method shall be identified in the document to resolve doubts or dispute.

5.3.4.6 Choice of test methods according to accuracy

The accuracy of the chosen test method shall be such as to allow unambiguous determination of whether the value of the characteristic to be assessed lies within the specified tolerance. When it is considered technically necessary, each test method shall incorporate a statement as to its limit of accuracy.

5.3.4.7 Avoidance of duplication & unnecessary deviations

Avoidance of duplication is a general principle in the methodology of standardisation but the greatest danger of duplication appears in the field of test methods because a test method is often applicable to more than one product, or type of product, with little or no difference. Before any test method is standardised, it shall therefore be determined whether an applicable test method already exists.

If a test method is, or is likely to be, applicable to two or more types of product, a document shall be prepared on the method itself, and each document dealing with a given product shall refer to it (indicating any modifications that may be necessary). This will help to prevent unnecessary deviations.

If, in preparing a document related to a product, it is necessary to standardise some kind of testing equipment that is likely to be used for testing other products also, the testing equipment shall be dealt with in a separate document, prepared in consultation with the committee dealing with such equipment.

5.3.5 Classification, designation & coding

This optional element may establish a system of classification and/or coding of products, processes or services that conform to stated requirements. For convenience, this element may be combined with element 5.6.3. It is left to the relevant committee to decide whether requirements concerning designation are to be included in a given document. This element may be supplemented by an informative appendix, giving an example of ordering information.

5.3.6 Marking, labelling & packaging

Documents containing a reference to the marking of the product should specify, where applicable, the following:

- The content of any marking that is used to identify the product including, where applicable, the manufacturer (name and address) or responsible vendor (trade name, trademark or identification mark), or the marking of a product itself [e.g. manufacturer's or vendor's trademark, model or type number, designation], or the identification of different sizes, categories, types and grades.
- Requirements for the labelling and/or packaging of the product (e.g. handling instructions, hazard warnings, date of manufacture).
- The means of presentation of such marking, for example by the use of plates (sometimes called "name-plates"), labels, stamps, colours, threads (in cables) as appropriate.
- The location on the product, or in some cases on the packaging, where such marking is to appear.
- Other information as may be required.

If the application of a label is required by the document, the document shall also specify the nature of the labelling and how it is to be attached, affixed or applied to the product or its packaging.

Symbols specified for marking shall conform to relevant documents published by SA, ISO and IEC. Documents listing characteristics for which suppliers are required to state values that are not specified shall specify how the values are to be stated.

A product standard should carry the following note at the end of the marking clause:

NOTE: Manufacturers making a statement of compliance with this Australian (Australian/New Zealand) Standard on a product, or on packaging or promotional material, are advised to ensure that such compliance is capable of being verified.

5.3.7 Normative appendices

Normative appendices give provisions additional to those in the body of the document. Their presence is optional. An appendix's normative status (as opposed to informative—see 5.4.1) shall be made clear by the way in which it is referred to in the text and by an indication under the heading of the appendix. See also 5.1.2(f).

In the first instance, a normative appendix shall be referred to in the body text, not in a note.

5.4 Supplementary informative elements

5.4.1 Informative appendices

Informative appendices give additional information intended to assist the understanding or use of the document. They shall not contain requirements. Their presence is optional. An appendix's informative status (as opposed to normative—see 5.3.7) shall be made clear by the way in which it is referred to in the text and by an indication under the heading of the appendix. See also 5.1.2(f).

Informative appendices shall be referred to in notes only.

5.4.2 Bibliography

The main purpose of the bibliography is to list the designation and title of informative referenced documents, which cannot be listed in the normative references clause. Additional bibliographic references may be listed either in the bibliography, following the informative referenced documents, or in an informative appendix.

Where full bibliographic details are required the relevant rules are set out in ISO 690.

For online referenced documents, information sufficient to identify and locate the source shall be provided. Preferably, the primary source of the referenced document should be cited, in order to ensure traceability. Furthermore, the reference should, as far as possible, remain valid for the expected life of the document. The reference shall include the full network address, with the same punctuation and use of upper case and lower case letters as given in the source (see ISO 690).

EXAMPLE Available at <http://www.abc.def/directory/filename_new.htm>

5.5 Other informative elements

5.5.1 Notes & examples integrated in the text

Notes and examples integrated in the text of a document shall only be used for giving additional information intended to assist the understanding or use of the document. These elements shall not contain requirements or any information considered indispensable for the use of the document.

EXAMPLE The following note is incorrectly drafted as a note since it contains an implied requirement (highlighted in italics) and clearly does not constitute "additional information".

NOTE Alternatively, *test* at a load of …

Notes and examples should preferably be placed at the end of the clause or after the paragraph, to which they refer.

A single note in a clause shall be preceded by "NOTE:", placed at the beginning of the first line of the text of the note. When several notes occur within the same clause they shall be listed under the heading "NOTES:" and designated "1", "2", "3", etc.

A single example in a clause shall be entitled "*Example*:". The example shall be placed on the following line. When several examples occur within the same clause, they may be entitled "*Examples:*" and numbered 1, 2, 3, etc., or entitled "*Example 1*:", "*Example 2:*", "*Example 3:*" etc., as appropriate. When examples are long or numerous, they may be presented in an appendix.

5.5.2 Footnotes to the text

Footnotes to the text give additional information; their use shall be kept to a minimum. A footnote to the text shall not contain requirements or any information considered indispensable for the use of the document.

Footnotes to figures and tables follow different rules (see 5.6.5.9 and 5.6.6.7).

Footnotes to the text shall be placed at the foot of the relevant page and be separated from the text by a short thin horizontal line on the left of the page.

Footnotes to the text shall be distinguished by reference marks, such as symbols (*, †, ‡, §, ‖, ¶), or Arabic numerals, beginning with 1, followed by one parenthesis and forming a continuous numerical sequence throughout the document: 1), 2), 3), etc. The footnotes shall be referred to in the text by inserting the same reference mark after the word or sentence in question: [1) 2) 3)] etc.

5.6 Common rules & elements

5.6.1 Verb forms for the expression of provisions

A document does not in itself impose any obligation upon anyone to follow it. However, such an obligation may be imposed, for example, by legislation or by a contract. In order to be able to claim compliance with a document, the user needs to be able to identify the requirements he/she is obliged to satisfy.

Clear rules for the use of verb forms are therefore essential.

Appendix D gives, in the first column of each table, the verb form that shall be used to express each kind of provision.

5.6.2 Spelling & abbreviations of names, organisations, style, reference works & abbreviated terms

The spelling of the names of organisations, and their abbreviations, shall be as used by those organisations. To facilitate understanding by all readers, the style shall be as simple and concise as possible. The following reference works for language are suggested:

The Macquarie Dictionary

Style manual for authors, editors and printers (refer to http://australia.gov.au/publications/style-manual)

Abbreviated terms shall be used with care, and their use shall be limited to those cases where the abbreviation is not likely to cause confusion.

If a list of abbreviated terms is not given in the document (see 5.3.2), then the first time an abbreviated term is used the full term shall be given with the abbreviated term following in parentheses.

An abbreviated term shall be specified only if used subsequently in the document.

The general rule is that an abbreviated term comprises capital letters, without a full stop after each letter. Exceptionally, abbreviated terms consisting of the initial letters of words printed in lower case letters with a full stop placed after each letter are used (for example, "a.c." for "alternating current"). However, technical specifications regarding marking may impose other requirements.

When a sentence begins with an abbreviated term, which, within the sentence, would consist of several lower case letters, all the letters of the abbreviated term shall be capital letters, e.g. “A.C.”.

5.6.3 Use of trade names

A correct designation or description of a product shall be given rather than a trade name (brand name).

The use of proprietary trade names (i.e. trademarks) for a particular product should as far as possible be avoided, even if they are in common use.

If, exceptionally, trade names cannot be avoided, their nature shall be indicated, e.g. by the symbol ® for a registered trademark (see Example 1).

EXAMPLE 1 Instead of “Teflon®”, write “polytetrafluoroethylene (PTFE)”.

If it is known that only one product is currently available that is suitable for the successful application of the document, the trade name of the product may be given in the text of the document but shall be associated with a footnote as shown in Example 2.

EXAMPLE 2 “1) ... [trade name of product] ... is the trade name of a product supplied by ... [supplier] .... This information is given for the convenience of users of this Standard and does not constitute an endorsement by Standards Australia of the product named. Equivalent products may be used if they can be shown to lead to the same results.”

If it is considered essential to give an example (or examples) of commercially available products suitable for successful application of the document because the product characteristics are difficult to describe in detail, trade names may be given in a footnote as shown in Example 3.

EXAMPLE 3 “1) ... [trade name(s) of product(s)] ... is (are) an example(s) of a suitable product(s) available commercially. This information is given for the convenience of users of this Standard and does not constitute an endorsement by Standards Australia of this (these) product(s).”

5.6.4 Patent rights

For patented items information is given in *SG-003: Standards and Other Publications* and the ISO/IEC Directives, Part 1.

5.6.5 Figures

5.6.5.1 Usage

Figures should be used when they are the most efficient means of presenting information in an easily comprehensible form. Each figure shall have a designation and title so that it is possible to refer to it explicitly within the text.

Figures may be photographs, illustrative diagrams or technical drawings, depending on which best conveys the information at hand.

5.6.5.2 Designation

Figures shall be designated “FIGURE” and numbered with Arabic numerals. For single section formats, numbering begins at 1. Where multi-section formatting is used, numbers given to figures may be preceded by the number designating that section followed by a full stop. The numbering shall start afresh with each section. If section-numbering is used for figures, this numbering shall be independent of the numbering of the clauses and of any tables.

Alternatively, figures may be designated by the number of the clause in which the figure is referenced, provided this method is used consistently throughout the document.

Each figure shall be numbered for purposes of cross-referencing, even if there is only one.

For the numbering of figures in appendices, see 4.2.6. For the numbering of subfigures, see 5.6.5.10.

5.6.5.3 Layout of figure designation & title

The figure designation and title shall be centred horizontally below the figure and laid out as in the following example:

FIGURE # DETAILS OF APPARATUS

5.6.5.4 Choice of letter symbols, style of lettering & labelling

Letter symbols used in figures to represent general cases of angular or linear quantities should be in accordance with AS 2900.1, subscripts being used where necessary to distinguish between different applications of a given symbol.

For a series of symbols indicating various lengths on a drawing use l_1, l_2, l_3, etc. and not, for instance, *A, B, C*, etc. or *a*, *b*, *c*, etc.

Inclined (italic) letters in Times New Roman shall be used for—

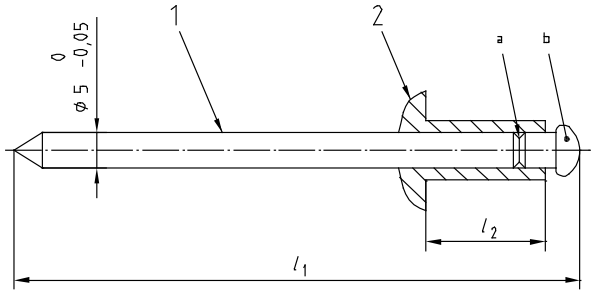
- symbols for quantities;
- subscripts representing symbols for quantities; and
- symbols representing numbers.

The vertical (upright) style shall be used for all other lettering.

While textual descriptions are generally used in artwork, these may be replaced by item references (as shown in the example below). Where item references are used, their meaning shall be explained in a key or figure footnote (see 5.5.2) depending on their content. In graphs, labelling on the axes shall not be replaced by item references to avoid any possible confusion between the number representing an item reference and a number representing a value on the axis.

When all units for a quantity are the same, a suitable statement (for example, "DIMENSIONS IN MILLIMETRES") shall be placed under the figure.

EXAMPLE



l_1	l_2
50	10.5
70	15
90	19

LEGEND

1 = mandrel shank

2 = blind rivet head

[a] The break area shall be milled.

[b] The mandrel head is commonly chromium plated.

NOTE This figure illustrates a type A rivet head.

DIMENSIONS IN MILLIMETRES

FIGURE # BLIND RIVET

5.6.5.5 Technical drawings

Technical drawings shall be prepared in accordance with relevant Standards (see A8).

Graphical symbols for use on equipment shall be in accordance with the AS 60417 series and ISO 7000.

5.6.5.6 Diagrams

Electrical diagrams, such as circuit diagrams and connection diagrams, for example for test circuits, shall be prepared in accordance with the AS/NZS 4383 series. Graphical symbols used in schematic diagrams shall be in accordance with the AS/NZS 1102 series. Reference designations and signal designations shall be in accordance with the IEC 61346 series and IEC 61175 respectively.

Schematic diagrams other than electrical may be presented in any suitable format. Compliance with requirements for technical drawings is not essential.

5.6.5.7 Continuation of figures

When a figure is continued over more than one page, the figure designation shall be repeated, and followed by "(in part)", as in the following example:

FIGURE # (in part)

Any statements concerning units shall be repeated on all pages after the first, where applicable.

5.6.5.8 Notes to figures

Notes to figures shall be treated independently of notes integrated in the text (see 5.5.1). They shall be located above the designation of the relevant figure and shall precede figure footnotes. A single note in a figure shall be preceded by "NOTE:", placed at the beginning of the first line of the text of the note. When several notes occur in the same figure, they shall be listed under the heading "NOTES:" and designated "1", "2", "3", etc. A separate numbering sequence shall be used for each figure.

Although it is preferable to house provisions relating to the figure in the text, notes to figures may contain requirements provided the following paragraph is added to the Preface:

> "Statements expressed in mandatory terms in notes to figures are deemed to be requirements of this Standard."

5.6.5.9 Footnotes to figures

Footnotes to figures shall be treated independently from footnotes to the text (see 5.5.2). They shall be located immediately above the designation of the relevant figure.

Footnotes to figures shall be distinguished by reference marks (∗, †, ‡, §, ‖, ¶), or by superscript lower case letters, beginning with "a". The footnotes shall be referred to in the figure by inserting the same reference mark.

Footnotes to figures may contain requirements provided the following paragraph is added to the Preface:

> "Statements expressed in mandatory terms in footnotes to figures are deemed to be requirements of this Standard."

5.6.5.10 Subfigures

5.6.5.10.1 Usage

Subfigures should only be used when this is essential for comprehension of the subject matter.

5.6.5.10.2 Designation & layout

Only one level of subdivision of a figure is permitted. Subfigures shall be identified by a lower case letter [e.g. Figure 2.1 may comprise subfigures a), b), and c)]. Other forms of identification of the subfigures such as 2.1.1, 2.1.2, ..., 2.1-1, 2.1-2, ..., etc. shall not be used.

The following example illustrates the layout of elements in a subdivided figure; it does not illustrate the typographic presentation. Frames are employed in the example only to illustrate the logical grouping of elements; frames shall not be used around figures or their constituent elements.

EXAMPLE

Graphic	Graphic
(a) Subtitle	**(b) Subtitle**

LEGEND
Footnotes to the figure
Notes to the figure
STATEMENT CONCERNING UNITS

FIGURE # TITLE

Where each of the subfigures contains a legend, notes and footnotes (this case is not illustrated in the Example above), an independent numbering sequence shall be applied per subfigure.

5.6.6 Tables

5.6.6.1 Usage

Tables should be used when they are the most efficient means of presenting information in an easily comprehensible form.

Tables may be formal or informal. Formal tables have a designation and title, and are referred to in the text by the table designation.

Informal tables do not have a designation or title and shall be introduced by the preceding text, preferably by an introductory sentence ending with a colon; they shall not be referred to elsewhere in the document.

5.6.6.2 Designation of formal tables

Formal tables shall be designated “TABLE” and numbered with Arabic numerals. For single section formats numbering begins with 1. Where multi-section formatting is used, numbers given to tables may be preceded by the number designating that section followed by a full stop. The numbering shall start afresh with each section. If section numbering is used for formal tables, the numbering shall be independent of the numbering of the clauses and of any figures.

Alternatively, a formal table may be designated by the number of the clause in which the formal table is referenced, provided this method is used consistently throughout the document.

Each formal table shall be numbered for purposes of cross-referencing, even if there is only one.

For the numbering of formal tables in appendices, see 4.2.6.

5.6.6.3 Layout of formal table designation & title

The table designation and title shall be centred horizontally above the table. The designation shall be placed on the first line and the title shall be placed on the second line, laid out as in the following example:

TABLE #

MECHANICAL PROPERTIES

5.6.6.4 Headings

The first word in the heading of each column or row shall begin with a capital letter. The units used in a given column shall generally be indicated under the column heading. (See also 5.6.10.1, last paragraph.)

EXAMPLE 1

Type	Linear density kg/m	Inside diameter mm	Outside diameter mm

As an exception to this rule, when all units are the same, a suitable statement (e.g. “millimetres”) shall instead be placed above the right-hand corner of the table.

EXAMPLE 2

millimetres

Type	Length	Inside diameter	Outside diameter

5.6.6.5 Continuation of tables

When a table is continued over more than one page, the table designation shall be repeated, and followed by “(*continued*)”, as in the following example:

TABLE # (*continued*)

The text *“(continued)”* shall also appear under the right hand corner of the table, on the first and any subsequent pages, other than the last.

The column headings together with any statement concerning units shall be repeated on all pages after the first.

5.6.6.6 Notes to tables

Notes to tables shall be treated independently from notes integrated in the text (see 5.5.1). They shall be located within the frame of the relevant table and shall precede table footnotes (see the following Example). A single note in a table shall be preceded by "NOTE:", placed at the beginning of the first line of the text of the note. When several notes occur in the same table, they shall be listed under the heading "NOTES:" and designated "1", "2", "3", etc. A separate numbering sequence shall be used for each table.

EXAMPLE

TABLE 2

RECOMMENDED INSPECTION SCHEDULE FOR Ex 'e' INSTALLATIONS

Type of equipment	Frequency and type of examination		
	External inspection[a]	Internal inspection[a]	Overhaul to AS/NZS 3800
Mobile equipment	D	6M	4Y
Portable equipment	D	3M	2Y
Transportable equipment	D	6M	4Y
Longwall equipment	D	6M	4Y
Fixed equipment	W	6M	6Y

LEGEND:
Frequency: D = daily (once each production day)
W = weekly (once each production week)
M = monthly
Y = yearly

[a] Inspection of cables should include protective coverings, whether integral or in the form of a hose.

NOTES:

1 The overhaul of increased safety equipment is recommended to coincide with major relocations or machine overhaul. Where the overhaul or relocation period is extended, an internal inspection should be completed at the recommended inspection frequency.

2 Consideration should be given to periodic replacement of lamps in increased safety luminaries before they reach the end of their life, as this might affect the temperature classification of the luminaire.

[AS/NZS 2290.1:2014]

Although it is preferable to house provisions relating to the table in the text, notes to tables may contain requirements provided the following paragraph is added to the Preface:

> "Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard."

5.6.6.7 Footnotes to tables

Footnotes to tables shall be treated independently from footnotes to the text (see 5.5.2). They shall be located within the frame of the relevant table, and shall appear at the foot of the table (see the Example in 5.6.6.6).

Footnotes to tables shall be distinguished by reference marks (∗, †, ‡, §, ‖, ¶), or by superscript lower case letters, beginning with "a". The footnotes shall be referred to in the table by inserting the same reference mark. See Example above.

Footnotes to the tables may contain requirements provided the following paragraph is added to the Preface:

> "Statements expressed in mandatory terms in footnotes to tables are deemed to be requirements of this Standard."

5.6.7 References

5.6.7.1 General

As a general rule, references to particular pieces of text shall be used instead of repetition of the original source material, since such repetition involves the risk of error or inconsistency and increases the length of the document. However, if it is considered necessary to repeat such material, its source shall be identified precisely.

References shall be made in the forms indicated in 5.6.7.2 to 5.6.7.5 and shall not be made to page numbers.

Where reference is made to a particular element (e.g. clause, figure, table or appendix) of another standard, the date of that standard should be included. This convention is intended to cover the possibility that designations of elements may change when the referenced standard is revised. Where a requirement depends on a dated reference document that is subsequently superseded or withdrawn it may be necessary to update the reference by amendment. Consideration of these factors should be taken before using this convention.

EXAMPLE Instructions shall be supplied in accordance with Appendix C of AS/NZS 1754:2013.

5.6.7.2 References to the document as a whole in its own text

For all Standards, the form "this Standard" shall be used to refer to the document in its own text, except in the introductory texts for the "Normative references" (see 5.2.4.3) and the "Definitions" (see 5.3.1) clauses.

The following form shall be used to refer to a whole series of parts: "The AS/NZS 4347 series". Such references are understood to include all amendments and revisions to the document.

5.6.7.3 References to elements of text

The following forms should be used:

- "In accordance with Section 3".
- "According to Clause 3.1".
- "As specified in Item 3.1(b)".
- "Details as given in Clause 3.1.1".
- "See Appendix B".
- "The requirements given in Paragraph B2".
- "See the Note in Table 2".
- "See Clause 6.6.3, Example 2".
- "See Clause 3.1, Equation 3".

The term "subclause" shall not be used.

If there is a need to refer to an unordered list item in another document, the following formulation shall be used:

> "as specified in ISO/IEC 15888:1996, Clause 3.1, second list item".

5.6.7.4 References to figures & formal tables

Every figure and formal table included in the document shall be referred to in the text.

Use, for example, the following forms:

- "Shown in Figure A6".
- "(See Figure 3)".
- "Given in Table 2".
- "(See Table B2)".

5.6.7.5 References to other documents in the body of the document and appendices

A standard shall be referred to by its designation. The title of the standard shall not be given in the text; this shall appear on the list of referenced documents. When the standard referred to is part of a series, the part number shall be given—for example, "in accordance with AS/NZS 4280.1". To refer to a whole series of parts, the following form shall be used: "the AS/NZS 4280 series".

Documents that do not have a designation shall be referred to by their title, with full citation details provided on the list of referenced documents. The title of the document shall be italicised in the text.

5.6.8 Representation of numbers & numerical verses

The decimal sign shall be a full stop on the line.

If a value less than 1 is written in decimal form, the decimal sign shall be preceded by a zero.

EXAMPLE 0.001

Each group of three digits reading to the left or to the right of a decimal sign shall be separated by a space from preceding digits or following digits respectively, except for four-digit numbers designating years.

EXAMPLE 23 456 2 345 2.345 2.345 6 2.345 67 but the year 1997

For clarity, the symbol × rather than a point shall be used to indicate multiplication of numbers and numerical values.

EXAMPLE Write 1.8×10^{-3} (not $1.8 . 10^{-3}$ or $1.8 \cdot 10^{-3}$)

To express values of physical quantities, Arabic numerals followed by the international symbol for the unit (see the AS 2900 series, AS ISO 1000 and the AS 1046 series) shall be used.

5.6.9 Quantities, units, symbols & signs

The International System of units (SI) as set out in the AS 2900 series shall be used. Symbols for quantities shall be chosen, wherever possible, from the various parts of AS 2900 and AS 1046. For further guidance on application, see AS ISO 1000.

The units in which any values are expressed shall be indicated.

The unit symbols for degree, minute and second (for plane angle) shall immediately follow the numerical value; all other unit symbols shall be preceded by a space (see Appendix E).

Mathematical signs and symbols shall be in accordance with AS 2900.11.

A list concerning quantities and units to be used is given for information in Appendix E.

Where a document makes extensive use of quantity symbols, a notation clause o may be used.

EXAMPLE

1.5 NOTATION

The following quantity symbols are used in this Standard:

Quantity symbol	Term	Unit and unit symbol
I_l	Line current	ampere, A

Refer to ISO 3898 for requirements and information on the usage of different types of letters for symbols.

5.6.10 Mathematical formulae

5.6.10.1 Types of equations

Equations between quantities are preferred to equations between numerical values. Equations shall be expressed in mathematically correct form, the variables being represented by letter symbols the meanings of which are explained in connection with the equations, unless they appear in a “Symbols and abbreviated terms” clause (see 5.3.2).

The style shown in Example 1 shall be followed.

EXAMPLE 1

$$v = \frac{l}{t}$$

where

v = the speed of a point in uniform motion

l = the distance travelled

t = the duration

If, exceptionally, an equation between numerical values is used, the style shown in Example 2 shall be followed.

EXAMPLE 2

$$v = 3.6 \times \frac{l}{t}$$

where

v = the numerical value of the speed, expressed in kilometres per hour (km/h), of a point in uniform motion

l = the numerical value of the distance travelled, expressed in metres (m)

t = the numerical value of the duration, expressed in seconds (s)

However, the same symbol shall never be used within a document both for a quantity and for its corresponding numerical value. For example, use of the equation in Example 1 and of the equation in Example 2 in the same context would imply that 1 = 3.6 which obviously is not true.

Descriptive terms or names of quantities shall not be arranged in the form of an equation. Names of quantities or multi-letter abbreviated terms, for example, presented in italics or with subscripts, shall not be used in the place of symbols.

EXAMPLE 3 Write

$$\rho = \frac{m}{V}$$

and not

$$density = \frac{mass}{volume}$$

EXAMPLE 4 Write

$$\dim(E) = \dim(F) \times \dim(l)$$

where

E = energy
F = force
l = length

and not

$$\dim(\text{energy}) = \dim(\text{force}) \times \dim(\text{length})$$

or

$$\dim(\textit{energy}) = \dim(\textit{force}) \times \dim(\textit{length})$$

EXAMPLE 5 Write

$$t_i = \sqrt{\frac{S_{\text{ME},i}}{S_{\text{MR},i}}}$$

where

t_i = the statistical value for the system i
$S_{\text{ME},i}$ = the residual mean square for the system i
$S_{\text{MR},i}$ = the mean square due to regression for the system i

and not

$$t_i = \sqrt{\frac{MSE_i}{MSR_i}}$$

where

t_i = the statistical value for the system i
MSE_i = the residual mean square for the system i
MSR_i = the mean square due to regression for the system i

Notations such as—

$\frac{V}{\text{km/h}}$, $\frac{L}{\text{m}}$ and $\frac{t}{\text{s}}$ or V/(km/h), L/m, and t/s,

for numerical values may be used; they are particularly useful on the axes of graphs and in the headings of columns in tables.

5.6.10.2 Presentation

Further guidance on the presentation of formulae may be found at the websites of ISO and IEC (www.iso.ch and www.iec.ch) in the areas dealing with tools for Standards preparation. As far as possible, symbols having more than one level of subscript or superscript (see Example 1) should be avoided, as should any symbols and formulae that would involve printing more than two lines of type.

EXAMPLE 1 $D_{1,\,\max}$ is preferable to $D_{1_{\max}}$.

EXAMPLE 2 In the text, a / b is preferable to $\frac{a}{b}$.

Further examples of the presentation of mathematical formulae are given in Examples 3 to 5.

EXAMPLE 3

$$-\frac{\partial W}{\partial x}+\frac{\mathrm{d}}{\mathrm{d}t}\frac{\partial W}{\partial \dot{x}}=Q\left[\left(-\mathbf{grad}\,V-\frac{\partial A}{\partial t}\right)_x+(\boldsymbol{v}\times\mathbf{rot}\,A)_x\right]$$

where

W = the dynamic potential
x = the x-coordinate
t = time
$\dot{x}$ = the time derivative of x
Q = the electric charge
V = the electric potential
A = the magnetic vector potential
υ = the velocity

EXAMPLE 4

$$\frac{x(t_1)}{x(t_1+T/2)}=\frac{\mathrm{e}^{-\delta t_1}\cos(\omega t_1+\alpha)}{\mathrm{e}^{-\delta(t_1+T/2)}\cos(\omega t_1+\alpha+\pi)}=-\mathrm{e}^{\delta T/2}\approx -1.39215$$

where

x = the x-coordinate
t_1 = the time at the first turning point
T = the period
ω = the angular frequency
α = the initial phase
δ = the damping coefficient
π = the number 3.141 592 6...

EXAMPLE 5 To express a mass fraction the following method of expression is sufficient:

$$w=\frac{m_D}{m_S}$$

However, the following equation is also acceptable:

$$w=\frac{m_D}{m_S}\times 100\ \%$$

but note that expressions such as “the percentage by mass” should be avoided.

5.6.10.3 Numbering

If it is necessary to number some or all of the formulae in a document in order to facilitate cross-reference, an Arabic number preceded by an ellipsis shall be used. For single section formats, numbering begins with 1. Where multi-section formatting is used, numbers given to equations may be preceded by the number designating that section followed by a full stop. The numbering shall start afresh with each section:

EXAMPLE The first equation in section two would appear as follows:

$$x^2+y^2<z^2 \qquad \text{...2.1}$$

The numbering shall be continuous within each section and independent of the numbering of clauses, tables and figures. Subdivision of formulae [e.g. 2.1(a), 2.1(b)] is permitted.

For the numbering of formulae in appendices, see 4.2.6.

5.6.11 Values, dimensions & tolerances

Values and dimensions shall be indicated as being minimum or maximum, and specified with their tolerances in an unambiguous manner.

EXAMPLE 1 80 mm × 25 mm × 50 mm (not 80 × 25 × 50 mm)

EXAMPLE 2 $80 \pm 2\ \mu F$ or $(80 \pm 2)\ \mu F$

EXAMPLE 3 $80\ ^{+2}_{0}$ (not $80\ ^{+2}_{-0}$)

EXAMPLE 4 $80\ \text{mm}\ ^{+50}_{-25}\ \mu m$

EXAMPLE 5 10 kPa to 12 kPa (not 10 to 12 kPa or 10 – 12 kPa)

EXAMPLE 6 0°C to 10°C (not 0 to 10°C or 0 – 10°C)

In order to avoid misunderstanding, tolerances on values expressed in per cent shall be expressed in a mathematically correct form.

EXAMPLE 7 Write “from 63% to 67%” to express a range.

EXAMPLE 8 Write “(65 ± 2) %” to express a centre value with tolerance.

The form “65 ± 2%” shall not be used.

See also Appendix E.

Any value or dimension that is mentioned for information only shall be clearly distinguishable from requirements.

5.7 Product conformity & conformity assessment

The question of how compliance with a Standard may be demonstrated is a separate issue from the requirements of the Standard itself; however, the following drafting principles should cover most situations.

Standards containing requirements for products, processes, services, persons, systems and bodies shall be written in accordance with the ‘neutrality principle’, such that conformity can be assessed by a manufacturer or supplier (first party), a user or purchaser (second party) or an independent body (third party).

No Standard containing requirements for products, processes, services, persons, systems and bodies shall make conformity dependent upon a quality management systems Standard, i.e. it shall not, for example, make normative reference to AS/NZS ISO 9001.

Standards containing specific requirements for products, processes, services, persons, systems and bodies shall not include elements related to conformity aspects other than testing provisions and associated sampling parameters. That is, such Standards shall not include requirements related to conformity assessment other than requirements that are necessary to provide repeatable and reproducible conformity assessment results.

Committees wishing to specify conformity assessment may only do so in a separate Standard containing the specific requirements for assessment of conformity or for a relevant conformity assessment scheme.

NOTE: Guidance on how to write appropriate specified requirements and subsequent conformity assessment schemes is provided in ISO/IEC 17007. See also subclause 6.7 of the ISO/IEC Directives, Part 2.

For performance-based requirements in Standards, the following elements shall be identified and addressed:

1. Specified performance measure: Once the objectives of the Standard have been established, the quantifiable performance measure associated with these objectives needs to be defined.
2. Test method(s): Used to provide the means of verification whether the product has passed or failed the performance based requirements.
3. Acceptance criteria: Whether the results of the initial assessment of the production process and initial testing meet the specified requirements.

Where a committee agrees that testing provisions and associated sampling are to be included, the committee should take into account subclause 5.3.4 of this Guide, and can set out its product conformity acceptance criteria in a manner that follows the example given in Appendix F.

There may be some exceptional situations where there is a preference to include conformity assessment requirements within a product Standard. Standardisation Guide SG-009: Preparation of Standards for Legislative Adoption provides further guidance on Standards writing for use in regulation.

If the need for conformity assessment requirements within a product Standard is identified by the committee, it may be appropriate for the committee responsible for the product Standard to develop the specific conformity assessment regime or scheme. However, this exercise should not be embarked upon lightly, and will require expertise in conformity assessment in addition to expertise on the product or service. Any such development will be considered on a case by case basis as part of the project proposal process and can only proceed after approval has been sought and granted from the Standards Development and Accreditation Committee (SDAC).

5.8 Spelling

Spelling shall be in accordance with the first preference of *The Macquarie Dictionary* except that, for words for which there is an alternative “s” or “z” spelling (e.g. organize, standardization), the “z” spelling shall be used. (This aligns with the ISO practice.)

Appendix A – Basic reference works

A1 Introduction

This Appendix gives the reference works for language and a non-exhaustive list of the most generally applicable basic reference works. For specific subjects, the provisions of other, less generally applicable, documents will be relevant.

A2 Reference works for language

The Macquarie Dictionary

Style manual for authors, editors and printers (refer to http://australia.gov.au/publications/style-manual)

A3 Standardised terminology

AS 1189 (series), Data processing—Vocabulary

IEC 60050 (series), International Electrotechnical Vocabulary

A4 Principles & methods of terminology

ISO 704, Terminology work—Principles and methods

ISO 10241, International terminology standards—Preparation and layout

A5 Quantities, units & their symbols

AS ISO 1000, The international system of units (SI) and its application

AS 1046 (series), Letter symbols for use in electrotechnology

AS 2900 (series), Quantities and units

ISO 3898, Bases for design of structures—Notations—General symbols

A6 Abbreviated terms

AS 2632 (series), Codes for the representation of names of countries and their subdivisions

ISO 639 (series), Codes for the representation of names of languages

ISO 1951, Lexicographical symbols and typographical conventions for use in terminography

A7 Bibliographic references

ISO 690, *Information and documentation—Guidelines for bibliographic references and citations to information resource*

A8 Technical drawings

AS 1100 (series), Technical drawing

AS 1101 (series), Graphical symbols for general engineering

AS/NZS 4383 (series), Preparation of documents used in electrotechnology

IEC 61175, Industrial systems, installations and equipment and industrial products—Designation of signals

IEC 61346 (series), Industrial systems, installations and equipment and industrial products—Structuring principles and reference designations

A9 Technical documentation

IEC 61355, Classification and designation of documents for plants, systems and equipment

IEC 61360 (series), Standard data element types with associated classification scheme for electric components

A10 Graphical symbols

AS 60417 (series), Graphical symbols for use on equipment

AS/NZS 1102 (series), Graphical symbols for electrotechnical documentation

ISO 7000, Graphical symbols for use on equipment—Index and synopsis

IEC 80416-1, Basic principles for graphical symbols for use on equipment, Part 1: Creation of symbol originals

IEC 81714-1, Design of graphical symbols for use in the technical documentation of products, Part 1: Basic rules

IEC 81714-2, Design of graphical symbols for use in the technical documentation of products, Part 2: Specification for graphical symbols in a computer sensible form including graphical symbols for a reference library, and requirements for their interchange

A11 Statistical methods

ISO 3534 (series), Statistics—Vocabulary and symbols

A12 Environmental conditions & associated tests

ISO 554, Standard atmospheres for conditioning and/or testing—Specifications

ISO 558, Conditioning and testing—Standard atmospheres—Definitions

ISO 3205, Preferred test temperatures

ISO 4677-1, Atmospheres for conditioning and testing—Determination of relative humidity, Part 1: Aspirated psychrometer method

ISO 4677-2, Atmospheres for conditioning and testing—Determination of relative humidity, Part 2: Whirling psychrometer method

ISO Guide 64, Guide for the inclusion of environmental aspects in product standards

IEC Guide 109, Environmental aspects—Inclusion in electrotechnical product standards

A13 Safety

ISO/IEC Guide 50, Child safety and standards—General guidelines

ISO/IEC Guide 51, Safety aspects—Guidelines for their inclusion in standards

IEC Guide 104, The preparation of safety publications and the use of basic safety publications and group safety publications

A14 Chemistry

ISO 78-2, Chemistry—Layouts for standards, Part 2: Methods of chemical analysis

A15 EMC (electromagnetic compatibility)

IEC Guide 107, Electromagnetic compatibility—Guide to the drafting of electromagnetic compatibility publications

A16 Conformity & quality

AS/NZS ISO 9000, Quality management systems—Fundamentals and vocabulary

AS/NZS ISO 9001, Quality management systems—Requirements

AS/NZS ISO 9004, Quality management systems—Guidelines for performance improvements

ISO/IEC 17007, Conformity assessment—Guidance for drafting normative documents suitable for use for conformity assessment

HB 18.7, Guidelines for third-party certification and accreditation, Guide 7—Guidelines for drafting of Standards suitable for use for conformity assessment

HB 18.22, Guidelines for third-party certification and accreditation, Guide 22—Information on manufacturer's declaration of conformity with Standards or other technical specifications

HB 18.23, Guidelines for third-party certification and accreditation, Guide 23—Methods of indicating conformity with Standards for third-party certification systems

IEC Guide 102, Electronic components—Specification structures for quality assessment (Qualification approval and capability approval)

A17 Adoption of International Standards

ISO/IEC Guide 21, Adoption of International Standards as regional or national standards

Appendix B – Drafting & presentation of definitions

B1 General principles

B1.1 Rules for development

The principles and methods for terminology work are specified in ISO 704. Rules for the development of standardised terminology in particular subject fields are given in ISO 10241:1992, from which all examples in this Appendix are reproduced or adapted.

B1.2 General presentation

Definitions should be presented in the “Definitions” clause (see 5.3.1).

B1.3 Choice of concepts to be defined

Any term which is not self-explanatory or commonly known and which can be differently interpreted in different contexts shall be clarified by defining the relevant concept. Common dictionary or current technical terms shall be included only if they are used with a specific meaning in the relevant context.

Trade names (brand names) and archaic and colloquial terms shall be avoided.

For individual standards, only concepts that are used in the document shall be defined, apart from any additional concepts and their terms that may be deemed necessary for the understanding of these definitions. For a series of standards, general terms and definitions for the series may be compiled in one part and be referred to from the “Definitions” clause of the other parts (see 5.3.1).

B1.4 Avoidance of duplications & contradictions

Before a term and a definition are established for a concept, it should be ascertained that no other term and definition for that concept exist in another Standard. In the case of electrotechnical terms, refer to the *International Electrotechnical Vocabulary*.

If the concept is used in several documents, it should be defined in the most general of those documents, or in an independent terminology Standard. The other documents should then refer to this Standard, without repeating the definition of the concept.

When the repetition of a definition is necessary, an informative reference shall be made to the document from which it is reproduced. The reference shall appear in square brackets after the definition, on the next line.

Where a standardised definition has to be adapted, an explanation shall be given in a note.

If a term and a definition for a concept are established in one document, the introduction in another document of a different term (synonym) for the defined concept is deprecated.

B1.5 Drafting of definitions

Rules for the drafting of definitions are given in ISO 10241.

A definition shall not take the form of, or contain, a requirement.

The form of a definition shall be such that it can replace the term in context.

B2 Arrangement

Terms should be arranged in alphabetical order.

B3 Presentation

B3.1 Rules

Rules for the presentation of standardised terminology are given in ISO 10241.

The following rules are taken from ISO 10241:1992.

B3.2 Layout

The preferred term (set in bold type in the printed publication) shall be placed alongside its reference number. The definition shall be placed on a new line.

2.4.1 Delamination
Separation of two adjacent plies resulting from a lack of adhesion.

B3.3 Grammatical form of terms

Terms shall in general be presented in their basic grammatical form, i.e. nouns in the singular, verbs in the infinitive.

B3.4 Parentheses & brackets

Parentheses and square brackets shall be used only if they constitute part of the normal written form of the term. They shall not be used to show alternative terms.

2.4.2 Bis(dimethylthiocarbamyl) disulphide

Appendix C – Drafting of the title of a document

C1 Elements of the title[1)]

C1.1 The introductory element

The introductory element is necessary if, without it, the subject indicated in the main element is not well defined.

EXAMPLE 1

Correct: *Fork-lift trucks* — *Hook-on type fork arms* — *Vocabulary*

Incorrect: *Hook-on type fork arms* — *Vocabulary*

If the main element of the title (together with the complementary element, where present) unequivocally covers the subject treated in the document, the introductory element shall be omitted.

EXAMPLE 2

Correct: *Sodium perborates for industrial use* — *Determination of bulk density*

Incorrect: *Chemicals* — *Sodium perborates for industrial use* — *Determination of bulk density*

C1.2 The main element

The main element shall always be included.

C1.3 The complementary element

The complementary element is necessary if the document covers only one or a few aspects of the subject indicated in the main element.

In the case of a document published as a series of parts, the complementary element serves to distinguish and identify the parts [the introductory element (if present) and the main element remaining the same for each part].

EXAMPLE 1

AS 6074.1 *Semiconductor devices* — *Discrete devices* — Part 1: *General*

AS 6074.2 *Semiconductor devices* — *Discrete devices* — Part 2: *Rectifier diodes*

If the document covers several (but not all) aspects of the subject indicated in the main element, the aspects covered shall be referred to by a general term such as “specification” or “mechanical requirements and test methods” rather than be enumerated one by one.

The complementary element shall be omitted if the document both—

- covers all essential aspects of the subject indicated in the main element; and
- is (and is intended to remain) the only document relating to this subject.

1) See also 6.1.1.

EXAMPLE 2

Correct: *Coffee grinders*

Incorrect: *Coffee grinders — Terminology, symbols, material, dimensions, mechanical properties, rated values, test methods, packaging*

C2 Avoidance of unintentional limitation of the scope

The title shall not contain details that might imply an unintentional limitation of the scope of the document.

However, if the document pertains to a specific type of product, this fact shall be reflected in the title.

EXAMPLE *Aerospace—Self-locking, fixed, single-lug anchor nuts, classification* 1100 MPa/235°C

C3 Wording

Uniformity shall be maintained in the terminology used in the titles of documents for indicating the same concept.

For documents dealing with test methods, whenever possible one of the following expressions shall be used: “Test method” or “Determination of ...”. Expressions such as “Test code for the measurement of ...”and “Test on ...”, shall be avoided.

Appendix D – Verb forms for the expression of provisions

D1 Requirement

The verb forms shown in Table D1 shall be used to indicate requirements strictly to be followed in order to conform to the document and from which no deviation is permitted. They shall not be used in the same sentence as the word “should”. They shall not appear in an informative element of the document; this includes notes and footnotes to text and informative tables, figures and appendices. See 5.5, 5.6.5.8, 5.6.5.9, 5.6.6.6, and 5.6.6.7

TABLE D1

REQUIREMENT

Verb form	**Meaning** (see 6.6.1)
shall	is to is required to it is required that has to only ... is permitted it is necessary
shall not	is not allowed [permitted] [acceptable] [permissible] is required to be not is required that ... be not is not to be
Do not use “must” as an alternative for “shall”. (This will avoid any confusion between the requirements of a document and external statutory obligations.) Do not use “may not” instead of “shall not” to express a prohibition. Do not use synonyms for “shall”, such as those listed in the “Meaning” column above, to express requirements. To express a direct instruction, for example referring to steps to be taken in a procedure, use the imperative mood (see 5.3.4.4). EXAMPLE “Switch on the recorder.”	

D2 Recommendation

The verb forms shown in Table D2 shall be used to indicate that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited.

TABLE D2

RECOMMENDATION

Verb form	**Meaning** (see 6.6.1)
should	it is recommended that ought to
should not	it is not recommended that ought not to

D3 Permission & the existence of an option

The verb forms shown in Table D3 shall be used to indicate a course of action permissible within the limits of the document. The verb “may” is also used to express an option.

TABLE D3

PERMISSION

Verb form	**Meaning** (see 6.6.1)
may	is permitted is allowed is permissible is optional
need not	it is not required that no ... is required
Do not use “possible” or “impossible” in this context. Do not use “can” instead of “may” in this context. NOTE “May” signifies permission expressed by the document, or the existence of an option, whereas “can” refers to the ability of a user of the document or to a possibility open to him/her.	

D4 Possibility & capability

The verb forms shown in Table D4 shall be used for statements of possibility and capability, whether material, physical or causal.

TABLE D4

POSSIBILITY AND CAPABILITY

Verb form	**Meaning** (see 6.6.1)
can	be able to there is a possibility of it is possible to
cannot	be unable to there is no possibility of it is not possible to
NOTE See Note to Table D3.	

D5 Defining verb forms

Where definitions of the verb forms are required in the Definitions clause the following wording shall be used:

- Shall—indicates that a statement is mandatory.
- Should—indicates a recommendation.
- May—indicates the existence of an option.

Appendix E – Quantities and units

This list comprises provisions that are specified elsewhere in this Guide, or in the particular Standards dealing with quantities and units.

(a) The decimal sign shall be a full stop.

(b) Standards shall use only—

- SI units, as given in the various parts of AS 2900; and
- a few additional units used with the SI, namely minute (min), hour (h), day (d), degree (°), minute (′), second (″), litre (L), tonne (t), electronvolt (eV) and unified atomic mass unit (u).

(c) Do not mix symbols and names of units. Write, for example, either “kilometres per hour” or “km/h”, and not “km per hour” or “kilometres/hour”.

(d) Combine numerical values written in figures with unit symbols, e.g. “5 m”. Avoid such combinations as “five m” and “5 metres”. There shall be a space between the numerical value and the unit symbol except in the case of superscript-type unit symbols used for plane angle, e.g. 5°6′7″. However, the degree should preferably be subdivided decimally.

(e) Do not use non-standardised abbreviated terms for units, such as “sec” (instead of “s” for seconds), “mins” (instead of “min” for minutes), “hrs” (instead of “h” for hours), “cc” (instead of “cm3” for cubic centimetres), “lit” (instead of “L” for litres), “amps” (instead of “A” for amperes), “rpm” (instead of “r/min” for revolutions per minute), “microns” (instead of “μm” for micrometers).

(f) Do not mix information with unit symbols. Write, for example, “the water content is 20 mL/kg” and not “20 mL H_2O/kg” or “20 mL of water/kg”.

(g) Unit symbols shall always be in roman type. Quantity symbols shall always be in italic type.

EXAMPLE *X* kg

(h) Equations between quantities are preferred to equations between numerical values.

(i) The quantity “weight” is a force (gravitational force) and is measured in newtons (N). The quantity “mass” is measured in kilograms (kg).

(j) Distinguish between an object and any quantity describing the object, e.g. between “surface” and “area”, “body” and “mass”, “resistor” and “resistance”, “coil” and “inductance”.

(k) Write, for example:

“10 mm to 12 mm” and not “10 to 12 mm” or “10–12 mm”

“24 mm × 36 mm” and not “24 × 36 mm” or “(24 × 36) mm”

(l) Two or more physical quantities cannot be added or subtracted unless they belong to the same category of mutually comparable quantities. Accordingly, the method of expression for a relative tolerance such as 230 V ± 5 % does not conform to this basic law of algebra. The following methods of expression may be employed instead:

“(230 ± 11.5) V”; or “230 V, with a relative tolerance of ±5%”

NOTE: The following form is often used, although not correct: (230 ± 5%) V.

(m) Do not write “log” in formulae if the base needs to be specified. Write “lg”, “ln”, “lb” or “$\log_a$”.

Use the mathematical signs and symbols recommended in AS 2900.11 e.g. “tan” and not “tg”.

Appendix F – Example of how to set out product conformity requirements

The following clause can be included in the body of the Standard.

X EVALUATION OF PRODUCT CONFORMITY EVALUATION

In order to claim that a product is manufactured to this Australian Standard, the products must meet the product conformity requirements.

Product conformity is demonstrated by:

(a) initial type testing; and

(b) factory production control that includes a minimum sampling and testing frequency plan.

Product conformity requirements are detailed in Appendix X.

If the evaluation of the product conformity is not completed, or the product does not fulfil the requirements stated in this Standard, claims cannot be made that products meet the requirements of this Standard.

APPENDIX X

PRODUCT CONFORMITY

(Normative)

X1 SCOPE

X1.1 This appendix sets out the minimum requirements for evaluating product conformity to this Standard. Product conformity shall be evaluated through—

(a) initial type testing; and

(b) factory production control, including a minimum sampling and testing frequency plan.

X1.2 These product conformity requirements enable conformity assessment to be undertaken by a manufacturer or supplier (first party), a user or purchaser (second party), or an independent body (third party).

NOTE: These provisions are based on ISO/IEC Directives, Part 2.

X2 TERMS AND DEFINITIONS

X2.1 Type testing (TT)

Testing performed to prove that the material, component, joint or assembly is capable of conforming to the requirements of the relevant Standard.

X2.2 Factory production control (FPC)

Operational techniques and all measures necessary to regulate and maintain the conformity of the product to the requirements of the relevant product Standard. [Ref: ISO 9229]

X2.3 Sample

One of more units of product drawn from a batch or lot, selected at random without regard to quality.

NOTE: The number of units of product in the sample is the sample size.

X2.4 Batch

A clearly identifiable collection of units, manufactured consecutively or continuously under the same conditions, using material or compound to the same specification.

X2.5 Batch release test (BRT)

A test performed by the manufacturer on a batch of components, which has to be satisfactorily completed before the batch can be released.

X2.6 Lot

A clearly identifiable sub-division of a batch for inspection purposes.

X2.7 Inspection by attributes

Inspection whereby either the item is classified simply as conforming or non-conforming with respect to a specified requirement or set of requirements, or the number of non-conformities in the item is counted. [See AS 1199.1 (ISO 2859.1)]

X2.8 Inspection by variables

A method that consists of measuring a quantitative characteristic for each item of a population or a sample taken from this population. [See AS 2490 (ISO 3951)]

X2.9 Statistical process control (SPC)

Application of statistical methods to the monitoring and control of a process to ensure that it operates at its full potential to produce conforming product.

X2.10 Process verification test (PVT)

A test performed by the manufacturer on materials, components, joints or assemblies at specific intervals to confirm that the process continues to be capable of producing components conforming to the requirements given in the relevant Standard.

NOTE: Such tests are not required to release batches and are carried out as a measure of process control.

X2.11 Acceptance quality limit (AQL)

Quality level that is the worst tolerable process average when a continuous series of lots is submitted for acceptance sampling. [See AS 1199.1 (ISO 2859.1)]

NOTE: The designation of an AQL does not imply that a manufacturer has the right knowingly to supply any non-conforming unit of product.

X3 INITIAL TYPE TESTING

X3.1 The initial type testing program comprises intensive routine testing to establish the capabilities of the manufacturing process to produce the product(s) and component(s). Refer to Table X1 for minimum requirements.

TABLE X1

PRODUCTS AND COMPONENTS

INITIAL TYPE TESTING

Characteristic	Clause	Requirement	Test Method	Frequency
Product Type Tests				
Material properties and composition				At any new material formulation or design or every five years, whichever occurs first.
Performance and other properties				

X4 FACTORY PRODUCTION CONTROL

X4.1 The manufacturer shall establish, document and maintain a factory production control system to ensure that the products placed on the market consistently fulfil the product requirements of this Standard. The factory production control system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control raw and other incoming material or components, equipment, the production process and the product.

X4.2 The minimum sampling and testing frequency plan that must form part of the factory production control system is detailed in Table X2.

TABLE X2

PRODUCTS AND COMPONENTS

MINIMUM SAMPLING AND TESTING FREQUENCY PLAN

Characteristic	Clause	Requirement	Test Method	Frequency
Product Batch Release Tests				
Dimensions				
Freedom from defects				
Material properties and composition *				
Marking				
Performance and other properties				
Coating and linings				

* All batches (or lots) to be tested for material composition

X5 NON-CONFORMING PRODUCT

X5.1 Retesting

X5.1.1 In the event of a test failure, the products manufactured since the previous test(s) conforming to the requirements outlined in Table A1 shall be quarantined as a batch. A further set of samples shall be selected randomly from the quarantined batch using a sampling plan to AS 1199 for an acceptable quality level (AQL) of 2.5 and an inspection level of S3, unless otherwise specified.

X5.1.2 If the retest requirements are met, the batch may be released and compliance to the Standard(s) for the quarantined batch may be claimed.

X5.2 Rejection after retest

X5.2.1 Should a failure on retesting occur, then the quarantined batch shall be rejected and claims and/or marking indicating compliance to the Standard(s) shall be suspended until the cause of the failure has been identified and corrected.

X5.2.2 In the event of a quarantined batch being rejected after retesting, it may be 100% retested for the failed requirement(s) and only those items found to comply may be claimed and/or marked as complying to the Standard(s).

X6 STATISTICAL PROCESS CONTROL (SPC)

X6.1 Application

X6.1.1 SPC is used to control manufacturing lines, and control charts are the key tools. Examples of these are shown in ISO 7966, AS 3940, AS 3941, AS 3942 and AS 3944.

X6.1.2 Where a group of products is manufactured from the same materials, under the same conditions, and the product characteristics are normally distributed, then by application of SPC it may be possible to verify process acceptance of product.

X7 DOCUMENTATION

X7.1 The results of the initial type testing program shall be recorded and such records shall be maintained and be made available for inspection for a period of at least 10 years after the date when that last product to which the test program refers was delivered.

X7.2 Documentation shall include information to be supplied to the purchaser, plus manufacturing process, physical and mechanical properties, inspection and testing, and test procedures.

X8 REFERENCED DOCUMENTS

AS 1199.0 (see note) Sampling procedures for inspection by attributes, Part 0: Introduction to the ISO 2859 attribute sampling system

AS 1199.1 (see note) Sampling procedures for inspection by attributes, Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

AS 2490 (see note) Sampling procedures and charts for inspection by variables for percent nonconforming

AS 3940 Quality control—Guide to the use of control chart methods including Cusum techniques

AS 3941 Quality control—Guide for number nonconforming charts

AS 3942 Quality control—Variables charts—Guide

AS/NZS 3944 Shewhart control charts

ISO 7966 Acceptance control charts

NOTE: AS 1199.0 and AS 1199.1 are national adoptions of ISO 2859 Parts 0 and 1, and AS 2490 is a national adoption of ISO 3951. These ISO Standards have been revised but the revisions have not yet been adopted nationally in Australia.

Appendix G – Adopted text documents

G1 Introduction

Adopted text documents are those where the text of the Australian or Australian/New Zealand document is reproduced from an international document (without being re-keyed). See *SG-007: Adoption of International Standards* for policy guidelines.

The original text of the source document is preserved with the exception of the covers and, usually, the Foreword. However, a national Preface shall be added and certain editorial modifications shall be made, as set out in this Appendix.

G2 Steps for adoption of Standards

G2.1 General

The main features which apply are—

- replacement of adopted document covers with Australian or Australian/New Zealand Standard covers;
- addition of a national Preface to the base document;
- inclusion in the national Preface of information regarding normative references;
- removal of the source document Foreword;
- inclusion in the national Preface of any relevant information given in the Foreword of the source document;
- inclusion, in the Australian or Australian/New Zealand document, of any applicable source document amendments and corrigenda as separate pages following the source text, and an explanation of this in the national Preface (see G2.2, items (e) and (f));
- addition of any Australian or Australian/New Zealand variations in an appendix, designated ‘ZZ’;
- addition of Australian or Australian/New Zealand requirements or guidance in appendices, designated ‘ZA’, ‘ZB’, ‘ZC’, etc.; and
- as an option, the Preface may include a list of the normative references that have been adopted as Australian or Australian/New Zealand Standards. Such a list shall be introduced by the following statement:

  “References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards as follows:”

NOTE: *For additional information and guidance, refer to ISO/IEC Guide 21.*

G2.2 National Preface

A Preface to the national edition, titled “Preface”, shall appear in each adopted text publication, between the title page and the contents list.

The national Preface shall consist of a general part and a specific part. The general part shall provide information relating to whether the document is a joint Australian/New Zealand or Australian Standard and the designation and name of the committee that prepared the document.

The specific part shall give as many of the following as are appropriate:

(a) A statement that the document supersedes other documents in whole or in part.

(b) The relationship of the document to other documents.

(c) The objective of the document.

NOTE: In the case of a revised standard, the objective of the revision should also be given in the Preface.

(d) Identification of the source document which forms the basis of the adopted text standard (i.e. the ISO or IEC Standard) and the degree of alignment, i.e. whether it is identical or modified, in accordance with Appendix H.

EXAMPLE 1

This Standard is identical with and has been reproduced from {ISO or IEC}.

EXAMPLE 2

This Standard is an adoption with national modifications and has been reproduced from {ISO or IEC}.

(e) Where the source document has been amended, an explanation in the following form:

This Standard is identical with and has been reproduced from ISO XXXX:2009, <Title> and its Amendment No.1 (2012), which has been added at the end of the source text/incorporated into the source text.

(f) Where the source document includes the contents of a corrigenda, an explanation in the following form:

This Standard is identical with and has been reproduced from ISO XXXX: 2009, <Title> and its Corrigendum 1 (2012), which has been added at the end of the source text/incorporated into the source text.

(g) For a modified text (MOD) adoption of an ISO adoption, the reasons for the need to modify the international standard and references to the national variations, introduced by the following statement:

"Appendix ZZ lists the variations to {ISO or IEC} for the application of this Standard in Australia {and New Zealand}."

(h) For a modified text adoption of an IEC document, instructions on how the variations are presented and reasons for the need to modify the international standard.

EXAMPLE

This document is structured as follows:

(a) Preface

(b) IEC XXXXXX (unedited from the contents page to the final clause of the source document)

(c) Appendix ZZ—Australian/New Zealand variations to the source document.

The variations listed in Appendix ZZ address issues including the following:

(i) Alternate requirements for thermoplastic materials.

(ii) Appropriate test of AS/NZS 3112.

(iii) Australian/New Zealand requirements for flexible cords.

(i) A brief overview of the principal differences between the new and the old editions.

(j) For adoptions of IEC documents, the following text relating to AS/NZS 3820, if applicable:

The essential safety requirements in AS/NZS 3820, *Essential safety requirements for electrical equipment*, that could be applicable to <insert the name of the products> are covered by this Standard.

(k) For adoptions of IEC documents, the following text relating to AS/NZS 3100, if applicable:

This Standard is one of a series of approval and test specifications to be read in conjunction with AS/NZS 3100, *Approval and test specification—General requirements for electrical equipment*. The purpose of this series is to outline conditions that must be met to secure approval for the sale and use of electrical equipment. Only safety matters and related conditions are covered.

(l) For Standards used in the IECEE CB scheme, the following text:

— "The variations described in Appendix ZZ form the Australian and New Zealand variations for the purposes of the CB scheme for recognition of testing to standards for safety of electrical equipment (the CB Scheme).

(m) Any information from the Foreword of the international document that is deemed relevant.

NOTE: Relevant parts of the international Foreword may be included after the table of contents.

(n) The introductory statement below, followed by two items dealing with general presentation:

"As this Standard is reproduced from an International Standard, the following applies:

- In the source text 'this International Standard {or this part of IEC/ISO XXXX}' should read 'this Australian {or Australian/New Zealand} Standard'.
- A full point substitutes for a comma when referring to a decimal marker."

(o) Either of the following statements, with regard to normative references, as appropriate:

- "None of the normative references in the source document have been adopted as Australian or Australian/New Zealand Standards."
- "Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific standards."

(p) For a document with annexes and/or appendices, the text explaining the terms 'normative' and 'informative' as set out in 5.1.2(f).

G3 Structure

G3.1 General

The text of the adopted text documents shall include the full content of the source document, commencing with the first clause and concluding with the last annex. The content of the source document shall not be altered in any way (see G3.3). The title page and generic ISO/IEC or other information contained in the Foreword and following the last annex or bibliography shall be removed.

G3.2 First page of text

The first page of the text of the document shall be headed as shown in the following example:

AUSTRALIAN/NEW ZEALAND STANDARD

Occupational protective footwear

Part 5:
Specification for protective footwear (ISO 20347:2004, MOD)

G3.3 Australian variations appendix

Where there are national variations to the source document, these shall be presented in an appendix, designated Appendix ZZ.

Variations shall not be applied to the text of the source document, i.e. in the form of strikeouts, highlights or marginal bars.

The Australian variations appendix shall be identified as normative in accordance with 4.2.6. An example follows:

APPENDIX ZZ

VARIATIONS TO ISO 20347:2004 FOR APPLICATION
IN AUSTRALIA AND NEW ZEALAND

(Normative)

The text of the variations shall then follow, presented in the format of an amendment.

EXAMPLE Clause 3.2 *Delete* the word “shallow”.

Numbers given to the Paragraphs, formal tables, figures and equations of the Australian variations appendix shall be preceded by “ZZ”.

G3.4 Additional Australian appendices

Where a significant amount of additional material (either normative or informative) is to be provided in the Australian document, it may be necessary to provide additional appendices (see 5.3.7). These appendices shall be designated ZA, ZB, ZC, etc. and shall follow the variations Appendix ZZ. The additional appendices shall be identified as either normative or informative in accordance with 5.3.7 and shall be set out as follows:

APPENDIX ZA

ADDITIONAL DEFINED TERMS

(Informative)

Numbers given to the Paragraphs, formal tables, figures and equations of the Australian variations appendix shall be preceded by the letters designating that appendix, for example, “FIGURE ZA1”.

Appendix H – Indication of alignment with International Standards

H1 Degrees of alignment

H1.1 General

When describing the degree of alignment between an Australian and an International Standard, the Australian Standard shall be described as either being identical (IDT), modified (MOD) or not equivalent (NEQ), in relation to the International Standard. These terms shall be used with the meanings defined below, which are based on those of ISO/IEC Guide 21.

H1.2 IDT (IDENTICAL)

The expression “Identical” is used when a national Standard is identical in technical content, and is either identical in presentation to the International Standard, or includes only minimal editorial changes. The title need not be exactly the same.

The “vice versa principle” is fulfilled in that anything which is acceptable under the International Standard is acceptable under the national Standard and vice versa.

NOTE: Replacing reference documents in an ISO or IEC Standard with Australian or Australian/New Zealand Standards that are not identical may not satisfy the “vice versa principle” so that the adoption cannot be regarded as “identical”.

H1.3 MOD (MODIFIED)

The expression “Modified” is used where technical differences from the International Standard (generally minor differences) exist and are clearly identified. The national Standard reflects the structure of the International Standard, and permits easy comparison of the content.

The “vice versa principle” is not fulfilled with a “modified” Standard.

H1.4 NEQ (NOT EQUIVALENT)

The expression “Not Equivalent” is used where the national Standard is not equivalent in technical content and structure and any changes have not been clearly identified and there is no clear correspondence with the International Standard.

This category does not constitute an adoption and accordingly would not be the basis of an adopted text document.

H2 Designation

Where an Australian Standard has a defined relationship (identical or modified) to an International Standard, it is common to use the number of the International Standard as the number of the Australian Standard. Care must be taken to avoid misunderstanding among users arising from the use of internationally related numbers.

ISO/IEC Guide 21 suggests the use of the international identifier, including the prefix ISO or IEC, combined with the national identifier, either alone as shown in Example 1 (single line dual numbering) or together with a separate national identifier as shown in Example 2.

EXAMPLE 1 AS IEC 61234:2002

EXAMPLE 2 AS 5678:2002
IEC 61234:1998
(This being two line dual numbering.)

In both cases, because the use of the full international designation is used, (and thus the national Standard is presented as being the actual International Standard), Guide 21 only allows these forms of numbering to be used on identical adoptions of International Standards.

Where some flexibility is required it is appropriate to use a national number that is the same as the international number, usually without including the international prefix (ISO or IEC). In these cases the title line of the Standard shall include the status of its international alignment if it is not identical.

EXAMPLE 3 Designation: AS 61234:2002

Title: Tests for widgets (ISO 61234:1995, MOD)

One application of the approach would be where a series or multi-part International Standard is being adopted and it is desired to have internationally consistent numbering, though the degree of alignment may be different for different parts in the series.

Appendix I – Definitions

For the purpose of this Guide, the following definitions apply. For more detailed definitions and guidance on terms and definitions and the range of Standards Australia (SA) publications, refer to *SG-003: Standards and Other Publications*.

Term	Definition
Australian Standard	A national Standard issued by SA and developed in accordance with the processes described in the series of Standardisation Guides (SGs). *NOTES:* 1. *The name "Australian Standard" is a registered trademark.* 2. *The Standards Development and Accreditation Committee (SDAC) may also accredit other bodies to develop Australian Standards.*
Joint Australian/New Zealand Standard	A Standard jointly developed by Standards Australia and Standards New Zealand as a joint Standard, which applies in both Australia and New Zealand.
Interim Standard	An Interim Standard (which can be either an Australian or a joint Australian/New Zealand Standard) is a provisional Standard with a two-year life. It is prepared in a subject field where not all requirements have been finally determined or where national consensus is anticipated but has yet to be realised. An Interim Standard provides both a guide to the direction that future standardisation in the specified field may take and a mechanism to collect public feedback on the subject. Its designation follows the rules for 'full' Standards except that '(Int)' is included after the number.
Standard	Standards are published documents setting out specifications and procedures designed to ensure products, services and systems are safe, reliable and consistently perform the way they were intended to. They establish a common language that defines quality and safety criteria. Standards are practical and set achievable goals. They are based on sound industrial, scientific and consumer experience and are regularly reviewed to ensure that they keep pace with advances in technology.
Technical Specification	A Technical Specification (which is also referred to as an Australian Technical Specification, or SA TS, to differentiate it from an International Technical Specification) is a normative document that has been subject to a limited form of transparency and does not have the support of the full consensus process normally associated with an Australian Standard.
Normative elements	Elements that describe the scope of the document, and which set out provisions.
Informative elements	**Preliminary elements** Elements that identify the document, introduce its content and explain its background, its development and its relationship with other documents. **Supplementary elements** Elements that provide additional information intended to assist the understanding or use of the document.
Required element	An element, the presence of which in a document is obligatory.
Optional element	An element, the presence of which in a document is dependent on the provisions of the particular document.
Provisions	**Requirement**

	Expression in the content of a document conveying criteria to be fulfilled if compliance with the document is to be claimed and from which no deviation is permitted. *NOTE: Table D1 specifies the verb forms for the expression of requirements.* **Recommendation** Expression in the content of a document conveying that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited. *NOTE: Table D2 specifies the verb forms for the expression of recommendations.* **Statement** Expression in the content of a document conveying information. *NOTE: Table D3 specifies the verb forms for indicating a course of action permissible within the limits of the document. Table D4 specifies the verb forms to be used for statements of possibility and capability.*
State of the art	Developed stage of technical capability at a given time as regards products, processes and services, based on the relevant consolidated findings of science, technology and experience.

DOCUMENT HISTORY

The following details the history of this document:

Date	Author	Amendment Details
29/10/09	Policies & Procedures Officer	v1.0 - First release. Converted Handbook (HB 162) into SG-006.
25/11/09	Policies & Procedures Officer	v1.1 - Update address on cover page & re-issued.
19/07/10	Policies & Procedures Officer	v1.2 - Clarified Conformity Assessment policy & re-issued
29/10/10	Process & Procedures Officer	v2.0 - Clarified the requirements for adopting International Standards & re-issued.
6/10/11	Process & Procedures Officer	v2.1 - Minor amendments throughout to reflect current practice & re-issued.
23/11/11	Process & Procedures Officer	v2.2 - Clarified product conformity requirements/exceptions, added Annex F & re-issued.
21/02/12	Process & Procedures Officer	v2.3 - Update hyperlinks after new corporate website released & re-issued
03/04/12	Process & Procedures Officer	v2.4 - Fix incorrect clause, replaced reference to Trade Practices Act with Competition & Consumers Act & re-issued.
11/07/12	Process & Procedures Officer	v2.5 - Clarified that conformity assessment should be considered as part of the project proposal process & re-issued.

17/10/12	Process & Procedures Coordinator	v2.6 - Added 'reference marks' to Clause 6.6.6.7 & re-issued.
16/01/13	Process & Procedures Coordinator	v2.7 - Reconfirmed/updated Document History & re-issued.
28/02/13	Process & Procedures Coordinator	v2.8 - Fix broken hyperlinks.
30/08/13	Process & Procedures Coordinator	v2.9 - Update invalid clause references.
24/09/13	Process & Procedures Coordinator	v2.10 - Fix corrupted/faulty Appendix lists & associated references & update Style Manual hyperlink in 6.6.2 & A2.
10/12/13	Process & Procedures Coordinator	v2.11 - Minor clarification in 6.2.4.1 re: cross references.
01/09/14	Process & Procedures Coordinator	v2.12 - Detailed review of Guide to ensure it reflects current practice and is aligned with Drafting Training content.
04/09/14	Process & Procedures Coordinator	v2.13 - Minor editorial & formatting amendments.
22/01/15	Process & Procedures Coordinator	v2.14 - Correction of minor editorial/grammar errors. No technical changes.
29/01/16	Process & Procedures Coordinator	v2.15 - Updated SDC references to SDAC & updated ABSDO references.
25/05/16	Process & Procedures Coordinator	v2.16 - Remove reference to SG-009 as it has been withdrawn.
02/11/16	Process & Procedures Coordinator	v2.17 - Replace references to "clone" with adopted text document, amend 5.3.3 to clarify rule re: assigning actions to a specific party, add requirement to 5.1.2 to include SDAC exemptions in Preface, amend G2.1 & G2.2 re: policy for recognising normative references in adopted Standards.
06/03/17	Process & Procedures Coordinator	v2.18 - Replace references to SG-017: Drafting of Standards Referenced Under WHS Legislation with SG-009: Preparation of Standards for Legislative Adoption.