INTERNATIONAL STANDARD

ISO/IEC 15910

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1999-12-15

Information technology — Software user documentation process

Technologies de l'information — Procédé de documentation d'utilisateur de logiciel

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 15910 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software engineering*.

Annexes A to H of this International Standard are for information only.

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Introduction

There are two major types of standards:

a) product standards, which specify the characteristics and functional requirements of a product;

b) process standards, which specify the way in which products are to be developed.

The ever-increasing application and complexity of computer software makes necessary the availability of complete, accurate and understandable documentation to those who use the software. This International Standard provides a tool for achieving this by specifying those activities (what is to be done, and who is to do it) that can affect the quality of software user documentation.

Documentation is often regarded as something done after the software has been implemented. However, for quality software documentation production, it should be regarded as an integral part of the software production process. If done properly, it is a big enough job to require process planning in its own right. The purpose of this International Standard is to encourage software developers to give this documentation process its due place. This International Standard also gives users and clients a tool to ensure that this process takes place.

This International Standard's main activity is the creation of a comprehensive plan for developing the documentation. This is necessary because results are more likely to happen if they are planned. To comply with this International Standard, the plan must include a style specification. This International Standard does not specify the content of this style specification (i.e. it does not specify a particular layout or typeface), but it specifies what a style specification must cover. This International Standard also specifies what kinds of information the acquirer is to make available to the documenter, and who is to review and reproduce the documentation.

Further information on this topic may be obtained by contacting relevant organizations or from other literature (see Bibliography).

This International Standard was prepared by ISO/IEC JTC 1 SC 7, based on Australian Standard AS 4258:1994. For a mapping between ISO/IEC 12207:1995 and this International Standard, see annex A.

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Information technology — Software user documentation process

1 Scope

This International Standard specifies the minimum process for creating all forms of user documentation for software which has a user interface. Such forms of documentation include printed documentation (e.g. user manuals and quick-reference cards), on-line documentation, help text and on-line documentation systems.

This International Standard conforms with ISO/IEC 12207:1995, *Information technology — Software life cycle processes,* as an implementation of the user documentation part of *6.1: Documentation*.

If effectively applied, this International Standard will support the development of documentation which meets the needs of the users.

This International Standard is intended for use by anyone who produces or buys user documentation.

This International Standard is applicable to not only printed documentation, but also help screens, the help delivery system, and the on-line text and delivery system. See the bibliography.

This International Standard is intended for use in a two-party situation and may be equally applied where the two parties are from the same organization. The situation may range from an informal agreement up to a legally binding contract. This International Standard may be used by a single party as self-imposed tasks.

NOTE Annex B provides further guidance on the use of this International Standard in a contract between acquirer and documenter.

2 Conformance

Conformance with this International Standard is defined as the demonstration that the process set out in clause 8 of this International Standard has been followed.

3 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 216:1975, *Writing paper and certain classes of printed matter — Trimmed sizes — A and B series.*

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4 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.

4.1
A4, A5
International Standard paper sizes, A4 is 210 mm by 297 mm and A5 is 148 mm by 210 mm; see ISO 216:1975

4.2
acquirer
an organization that acquires or procures a system or software product from a supplier

[ISO/IEC 12207:1995, definition 3.1]

NOTE The acquirer could be one of the following: buyer, customer, owner, user, purchaser. In this International Standard the acquirer is the party who requests the documentation. Note that the acquirer is not necessarily part of the audience for the documentation. Note also that the acquirer may belong to the same organization as the documenter, or may be the developer of the software.

4.3
audience
category of users sharing the same or similar characteristics and needs (e.g. purpose in using the documentation, tasks, education level, abilities, training, experience) that determine the content, structure and use of the intended documentation

NOTE There may be a number of different audiences for a software product's documentation (e.g. management, data entry, maintenance).

4.4
audience research
planned process of interview, and of the analysis of interview records and personnel records

NOTE The purpose of audience research is to determine the abilities, training, experience, limitations, prejudices and preferences of the intended readers of a document.

4.5
B5
International Standard paper size, 176 mm by 250 mm; see ISO 216:1975

4.6
back matter
material that appears at the end of a book or manual, such as an index

4.7
camera-ready originals
set of images on paper, photographic film or another suitable medium from which a printing plate can be made by direct photographic transfer, and where each image contains all of the necessary text and graphic elements for one complete page of paper documentation, with each element in the correct position

4.8
cut-off date
date after which changes to the software are reflected in the next, rather than the current, issue of the documentation

4.9
deliverables
items whose delivery to the customer is a requirement of the contract

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4.10
document
equivalent to an item of documentation (cf)

4.11
documentation
printed user manuals, on-line documentation and help text which describe how to use a software product

4.12
documentation development staff
all staff involved in any phase of the planning, writing, editing and production of documentation

NOTE This includes authors, designers, illustrators and project management staff.

4.13
documentation plan
document which sets out the essential elements of the documentation project

4.14
documenter
party preparing the documentation

NOTE The term *developer* (as defined in ISO/IEC 12207:1995, definition 3.8) is not used here, as in the case of documentation the *developer* of the software is often the *acquirer* of the documentation, and the use of the term *developer* might be confusing in this context. Consequently the term *documenter* is used.

4.15
electronic copy
computer disk or other computer-readable medium containing a file or files from which the document can be printed

4.16
en dash
dash the same width as a lower-case ‘n’

4.17
endnotes
notes collected at the end of a chapter or document

4.18
foldout
single page wider than the rest, normally folded so that it does not protrude, that may be unfolded by the reader - *Contrast with* Throwclear

4.19
footer
material repeated at the bottom of each page (e.g. page number)

4.20
footnote
text at the bottom of a page, usually in smaller type, which is referenced by means of a number or other device in the text on the same page

4.21
front matter
material that comes at the front of a book or manual, such as the title page and table of contents

4.22
header
material repeated at the top of each page

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4.23
heading
text that identifies the topic that will be covered in the following text

4.24
help system
see on-line documentation system

4.25
help text
text which is accessed by the user through the use of software, and which is automatically selected according to the context in which it is called up; i.e. help text is context-sensitive

4.26
item of documentation
information designed for a specific audience for a specific purpose, and using a specific medium (e.g. book, disk, quick-reference card, video) of a particular format

4.27
location reference
indicator following a heading or subheading in an index, showing to which part of the document the heading or subheading refers

4.28
mark-up
document with comments written on it indicating changes that need to be made; also the process of producing such a document

4.29
mechanicals
printing, binding, production and layout details for paper-based documentation

4.30
navigation
means by which a user moves from one part of a software application to another

4.31
on-line documentation
information accessed by the user through the use of software, but that may not be sensitive to context - *See also* Help text

4.32
on-line documentation system or help system
ancillary part of a program, or sometimes a separate program, that allows the user to view parts of the on-line documentation or help text on request - *See also* on-line documentation *and* Help text

4.33
orphan
line of text on its own at the end of a page

4.34
paper documentation
that part of the documentation which is in printed form

4.35
pixel
smallest element of a screen display; short for ‘picture element’

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4.36
point
measure of vertical distance; there are approximately 2,8 points to the millimetre (approximately 72 points to the inch)

4.37
process
a set of interrelated activities, which transform inputs into outputs

[ISO/IEC 12207:1995, definition 3.17]

4.38
product
complete set of computer programs, procedures and associated documentation and data designed for delivery to a user

NOTE Also referred to as a software product.

4.39
production
steps involved in taking draft text and turning it into camera-ready originals, completed help text or on-line documentation

4.40
proof
final copy of a paper document presented to the acquirer for review prior to publication

NOTE Unless alterations are requested, the finished document should be identical to the proof copy in all respects other than paper stock, binding and colours. Proofs are generally photocopies of the camera-ready originals.

4.41
prototype
model or preliminary implementation of a piece of software suitable for the evaluation of system design, performance or production potential, or for the better understanding of the software requirements

4.42
recto
page on the same side (i.e. right or left) as the front cover

4.43
screen dump
representation of what the user will see while using the software

4.44
system
an integrated composite that consists of one or more of the processes, hardware, software, facilities, and people, that provide a capability to satisfy a stated need or objective

[ISO/IEC 12207:1995, definition 3.31]

4.45
table of contents
list of the headings in a document in page number order, with page numbers shown against each heading

4.46
table of effective pages
list showing the latest version number of each page in a loose-leaf paper document; where individual pages are replaced, the table of effective pages shows the old version number for the unaltered pages, and the new version number for the replaced pages

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4.47
team selection plan
document specifying the qualifications, experience and training needs of documentation development staff

4.48
throwclear
foldout whose print area is such that all of the material on the page can be viewed with the book shut, so that it can be viewed at all times while looking at any of the preceding pages of the book

4.49
usability laboratory
typically, a suite of evaluation and observation rooms which may be fitted with video and audio equipment for recording user responses

4.50
usability testing
formal process for evaluating the suitability of documentation

4.51
user interface
interface that enables information to be passed between a human user and hardware or software components of a computer system

4.52
user
an individual or organization that uses the operational system to perform a specific function

[ISO/IEC 12207:1995, definition 3.34]

NOTE *See also* Audience.

4.53
verso
page on the opposite side (i.e. right or left) as the front cover

4.54
white space, active
area around textual or graphical elements, not including margins, which breaks up text, separates topic and sub-topic groupings, indicates hierarchical and topical relationships, highlights information and makes text easier to read

4.55
white space, passive
top, bottom, left and right margins which surround text

4.56
widow
line of text on its own at the start of a page

5 Quality management

If the development of the software being documented is subject to a quality management standard, the provisions of that standard apply equally to the development of software and to its documentation.

NOTE Even where a quality management standard is not referenced in a contract, documenters are encouraged to use a quality management system that complies with appropriate quality management standards. Regarding quality in general, see also ISO/IEC 12119:1994, *Information technology - Software packages - Quality requirements and testing*.

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6 Tailoring

This International Standard is one implementation of the documentation process as defined in ISO/IEC 12207:1995, *Information technology — Software life cycle processes*, and can be tailored to suit particular projects (see annex B).

7 Objectives

This International Standard is basically a process standard. It does not mandate any particular document layout, document content or any other aspect of the completed documentation; rather, it mandates the way in which the documentation process is to be planned and carried out.

8 Requirements

8.1 The documentation process

8.1.1 General

The activities of the documentation process shall be performed in the sequence shown in Figure 1, which has two shaded boxes. All of the activities within a shaded box shall be completed before beginning on the activities in the next shaded box. Within a shaded box, activities may be undertaken in parallel. Broken lines indicate possible iterations.

In cases where the minimum content of the documentation has been specified by the acquirer (ISO 6592 or ISO 9127:1988 may for example be used for this purpose), this should be taken into account by the documenter during development of the documentation plan.

8.1.2 Provision of source material

The acquirer shall provide to the documenter access to:

a) all relevant specifications, record formats, screen and report layouts, CASE tool output, and any other information necessary for the preparation of the documentation;

b) an operating copy of the software, if available;

c) the analysts and programmers of the software, including the timely and accurate resolution of questions raised by documentation development staff;

d) where possible, typical users for audience analysis and usability testing.

It shall be the documenter's responsibility to ensure that access to the acquirer's software development staff is kept to the minimum required to gain an understanding of the product and its audiences.

NOTE The documenter is not responsible for developing, checking or correcting source information, only for communicating it.

Whether or not the documenter is also the developer of the software, the acquirer shall supply copies of all applicable standards, style and format guidelines, and other related materials (unless generally available). The documenter shall distribute this material to those documentation development staff who require it.

It shall be the responsibility of the acquirer to ensure that all of the material delivered by the acquirer to the documenter is complete and correct when delivered, and that it is kept up to date after delivery.

The acquirer warrants that none of the material provided infringes the intellectual property rights of any other party.

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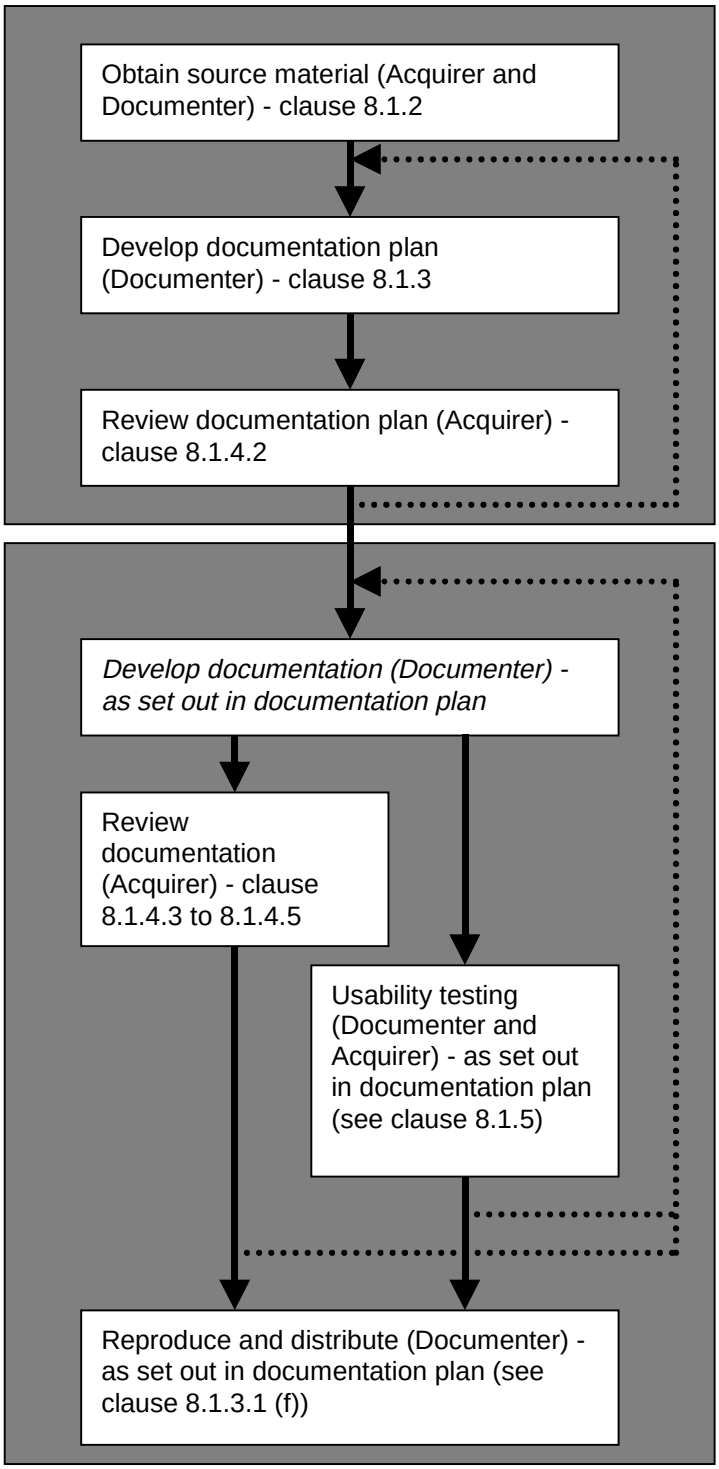

Figure 1 — Documentation process overview

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The documenter shall take all reasonable steps to ensure that the material provided by the acquirer is kept in good order, shall secure the information to the requirements of the acquirer, and shall return all material to the acquirer at the completion of the documentation project.

NOTE In some cases, not all material needs to be returned; this should be defined in the contract. In some cases, the material passed by the acquirer to the documenter is required to be kept confidential and secured. The contract should specify the level of confidentiality or security the acquirer requires from the documenter for material passed to the documenter.

8.1.3 Documentation plan

8.1.3.1 General

The documenter shall prepare a documentation plan which specifies the work to be carried out in creating the documentation. The documentation plan shall be formally agreed to by the acquirer to signify that it fully covers the acquirer's requirements.

NOTE The documentation plan will generally cover the whole documentation suite, including, for example, user manuals, on-line documentation, help text and quick-reference cards. See annex C for a sample plan. See also annex D for a description of the design process.

The documentation plan shall formally describe the scope and limitations of the planned documentation, as well as important documentation analysis and design decisions. It shall also specify the processes and controls to be implemented during documentation development.

The documentation plan shall include (but not be limited to) the following:

a) The working title, purpose, scope and limitations of the planned documentation.

b) A style specification, as set out in 8.2 of this International Standard.

c) An audience definition (see 8.1.3.2).

d) Reasons why the documentation would be used by the intended audience, and for what purpose.

e) Draft tables of contents for the documentation, with estimated page counts, and equivalent detail for other media.

f) The deliverables: number of printed copies, whether electronic copies are to be provided, disk and file formats (including software versions), and where they will be delivered.

g) Ownership of copyright, and any other proprietary rights.

NOTE The issue of proprietary rights is complex. All contracts for documentation should include references to the ownership of rights. This may involve assignment of the future copyright in the documentation from the documenter to the acquirer. The assignment of copyright is then effective when and as the documentation is produced.

h) Provision for translation into other languages.

NOTE Guidance: See annex E for further information.

i) Where appropriate, the level of security or confidentiality of each document.

j) The procedures and controls that will govern the documentation development process, including storage, retrieval, backup, disposal and quality assurance if required.

k) The production methods, tools and tool versions to be used.

l) The structure of the team in which the documentation development staff will work; optionally, a team selection plan.

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NOTE People involved in different phases of the writing and production of documentation need different skills. It may be that a writer requires a good knowledge of the system being documented, plus experience in writing documentation; an editor may require only editing experience and no systems knowledge; a layout artist may require no knowledge other than of the layout tools in use.

m) Project dependencies.

n) Person hours required, and costs (see annex F for guidelines on estimating).

o) Project resource requirements, including the information and other resources that the acquirer will provide, and when.

p) A method for passing information on software changes to the documenter during software development.

q) Plans for the change control and maintenance of the documentation (optional).

r) Plans for post-implementation review (optional).

s) A schedule showing appropriate milestones, including where appropriate:

    1) documentation plan approval;

    2) preparation, review and correction of each draft;

    3) usability testing;

    4) camera-ready artwork preparation;

    5) printing, binding and distribution.

Where appropriate, each of these elements shall be repeated for each item of documentation.

NOTE 1 It may also be useful to include in the documentation plan samples of similar documentation produced by the documenter, or even samples of documentation produced by others, to indicate the intended style or layout, or both.

NOTE 2 A documentation plan should be prepared and approved before the development of the documentation begins, to ensure that all parties agree on the objectives and methods to be used. After approval, the plan should be distributed as widely as possible; this distribution should include all documentation development staff, and may include acquirer staff and subcontractors (e.g. printers, typesetters, translators).

8.1.3.2 Audience definition

The documentation plan shall include a definition of the intended audience(s), defining the users in those audiences in terms of education level, abilities, training, experience and any other characteristics relevant to the content, structure and use of the documentation.

There are frequently a number of different groups of users, each with different characteristics, and each with a different purpose in using the documentation. Each type of user, including their characteristics and the tasks they are trying to perform with help from the documentation, shall be defined separately.

NOTE 1 Data for the audience definition can be obtained from:

a) audience research conducted by the acquirer or documenter;

b) definition supplied by the acquirer;

c) audience definition from another source.

NOTE 2 Wherever possible, documentation development staff should try to meet typical users in their work environments, and observe them at work.

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8.1.3.3 Control of documentation plan

After formal agreement, the documenter shall be responsible for the control and distribution of the documentation plan. A list shall be kept by the documenter of the distribution of accountable copies.

If subsequent changes are made to the documentation plan (and agreed to by the documenter and acquirer), the documenter shall ensure that all holders of accountable copies are notified of the change.

NOTE Because of the problems that may arise from the existence of outdated copies of the plan, the documenter should prohibit the uncontrolled copying of the plan, and institute procedures for auditing that all copies of the plan have been updated.

8.1.4 Review

8.1.4.1 General

Review shall be carried out by the acquirer, including discussions with the documenter as necessary.

NOTE The purpose of review is to ensure that submitted material is complete and correct, and that it meets the needs of the acquirer as defined in the contract and documentation plan.

Reviews should be performed by suitably qualified acquirer personnel, who shall be given the authority to request changes and to approve the content of the documentation.

NOTE The acquirer should limit the number of reviewers to those necessary for the review function.

The acquirer shall ensure that the safety and legal aspects of the documentation are correct before approving each draft of the documentation.

Documentation submitted for review shall include a covering letter from the documenter stating the purpose of the review and the responsibilities of the reviewer.

NOTE 1 The quality of the documentation and the success of reviews will be enhanced by maintaining good communication between acquirer and documenter throughout the development. This should include informal discussions and the provision of sample or preliminary material to the acquirer as early as is feasible.

NOTE 2 Where the changes requested are outside the scope of the contract and documentation plan, a contract change may be necessary.

NOTE 3 Note that the review process does not absolve the documenters from their responsibility of trying to ensure that the documentation is as accurate and complete as possible.

NOTE 4 Immediately prior to issuing a publication for approval, all screen dumps should be regenerated to ensure that these illustrations are current. This may be achieved by using the software after the code is frozen, and producing a dump of all screen representations contained in the publication.

NOTE 5 Acquirer comments resulting from a review should be in the form of either a mark-up of a draft, or written comments with appropriate references. The acquirer should keep a copy of the changes for comparison with the next draft. The comments should be such that the documentation development staff can implement the requested changes without further explanation by the reviewer.

NOTE 6 In large, complex systems, or systems under development while documentation is being written, it may be necessary to have more than two drafts and a proof. In these cases, the maximum number of drafts should be agreed between the acquirer and the documenter, and set out in the documentation plan.

NOTE 7 Revision marking (by the use of revision bars, colours, typeface changes or other methods) is an aid to efficient and effective inspection of drafts. The purpose of revision marking is to highlight those parts of the publication that require inspection. This avoids situations where multiple draft reviews are required, and reviewers repeatedly re-visit parts of the publication for no purpose. The use of document comparison tools for the generation of revision marking is strongly recommended, where such tools are available.

Guidelines for the use of revision marking are as follows:

a) No revision marking should be printed in the first draft of a new publication.

b) Revision marks should be used to show the changes from the original in a revised publication.

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c) In the second draft, revision marks with a number ‘1’ should be used to indicate places where changes occurred as a result of first draft review.

d) In a third draft, a number ‘2’ should be used to indicate changes.

e) After the third draft is accepted, all revision marking should be removed before the publication is submitted for proof review.

8.1.4.2 Documentation plan review

The purpose of this review shall be to ensure that the documentation defined by the documentation plan will, when completed, satisfy the documentation objectives of the acquirer. In approving the documentation plan, the acquirer is approving all characteristics of the deliverables defined in the plan.

NOTE Acquirers should pay particular attention to the structure, completeness, and usability of the documentation as set out in the draft table of contents. Where practicable, the documentation plan should be reviewed and approved prior to the start of work on the first draft. See annex G for guidance on the assessment of a documentation plan.

8.1.4.3 First draft review

The first draft shall contain the body of the documentation as described in the documentation plan, plus table(s) of contents, appendices and glossary. Where automated indexing tools are used, the index generated shall contain location references. The spelling, punctuation, style and layout shall be as described in the documentation plan.

The first draft of the documentation shall be reviewed by the acquirer. The purpose of this review is to check the technical accuracy and completeness of the documentation, to ensure that the draft meets the objectives of the documentation plan. The spelling, punctuation, style, and layout shall be as defined in the documentation plan.

In approving the first draft, the acquirer approves the technical accuracy, structure, clarity, and completeness of the documentation except for the changes requested.

NOTE 1 The first draft should be edited before delivery. There are two reasons for this:

a) it ensures that the reviewer is not distracted by having to correct typographic and layout errors;

b) it ensures that any technical inaccuracies caused by the editing process are caught by the reviewer.

NOTE 2 The draft should be reviewed against the objectives, audience definition, table of contents, and other characteristics approved in the documentation plan. Before returning the first draft with comments, the acquirer should be sure that the draft, including all corrections, will meet the documentation plan.

8.1.4.4 Second draft review

The second draft shall include all of the changes agreed with the acquirer in the review of the first draft, and shall contain the content of the deliverables defined in the documentation plan in as near final form as possible.

The purpose of this review is to check that the comments on the first draft have been correctly implemented.

In approving the second draft the acquirer approves all aspects of the documentation except that the physical form of the draft may not be exactly the same as that of the deliverables.

NOTE Before approving the second draft, the acquirer should be sure that the draft (with the inclusion of the acquirer's comments on the draft) is ready for proof preparation.

8.1.4.5 Proof review

The proof shall include all of the changes agreed to with the acquirer in the review of the second draft.

The purpose of this review is to check that the comments on the second draft have been correctly implemented. Any incorrectly implemented comments shall be promptly communicated to the documenter, who shall modify the documentation accordingly and return copies of the altered sections to the acquirer for further review.

By approving the proof, the acquirer accepts that the document is ready for production.

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8.1.5 Usability testing of documentation

8.1.5.1 General

The documentation plan shall set out the level of usability testing required.

At a minimum, there should be one usability test of the documentation using the release version of the software.

NOTE 1 Usability testing should be viewed as a complement to inspection and review. Testing during the development cycle should use a prototype to allow as complete a simulation as possible of the final version.

NOTE 2 When specifying the terms of the testing the usability standard to be measured should be fully defined. This includes specifying the measurement technique and recording process.

NOTE 3 Where appropriate, the documentation plan should specify a test environment that fully replicates the end user's operating area. The use of a usability laboratory should be considered. The acquirer may be responsible for the provision of the test environment.

NOTE 4 Usability testing can be used to measure usability as defined by ISO/IEC 12119:1994, *Information technology - Software packages - Quality requirements and testing.*

8.1.5.2 Planning

The terms of the usability testing shall be fully described in the documentation plan, including:

a) point(s) in the development cycle where testing will take place;

b) objectives of the test;

c) measures to be used (e.g. task response times);

d) test environment;

e) number and type of users to participate;

f) process for the recording of test results and recommendations;

g) process for ensuring that test recommendations are implemented;

h) process for communicating test results to all relevant documentation development staff, and to acquirer;

i) responsibilities of documentation development staff representatives present during testing;

j) process for determining the need for further testing.

NOTE 1 To perform usability testing of the documentation, the publications need to be tested with the software they describe. For effective usability testing, the testing needs to take place as soon as possible so that, if necessary, changes can be made to both the software and the documentation.

NOTE 2 In scheduling the testing, consideration should be given to the scheduled availability of stand-alone parts of the software, and the type of function they will provide.

8.1.5.3 Software

Where testing is scheduled to take place before software development is complete, provision shall be made for the use of a working model, or prototype, of the software. Testing which takes place after software development is complete shall use the release version of the software.

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8.1.5.4 Typical users

The acquirer shall provide people to participate in the usability tests. These people shall have the same characteristics as the defined audience. The purpose of the test shall be explained to them by the acquirer.

NOTE Where possible, the participants should be drawn from the intended audience.

8.1.6 Documentation development subcontracted to other companies

The documenter shall ensure that subcontracted documentation conforms to this International Standard, to the documentation plan and to the contract.

In subcontracted documentation, the documenter shall take the part of the 'acquirer' in this International Standard, and the subcontractor shall take the part of the 'documenter'.

NOTE The documenter should have an agreement with subcontractors that specifies this International Standard.

8.1.7 Change control and document maintenance

8.1.7.1 General

There are four types of changes that shall be considered in the documentation plan, as follows:

a) *This-version function changes:* Changes in the function of the software that are made while documentation is being written, and that are to be reflected in the documentation on publication.

b) *Next-version function changes*: Changes in the function of the software that are made while documentation is being written, that are not to be reflected in the documentation on publication, but which are to be reflected in a subsequent release of the documentation.

NOTE The difference between Items (a) and (b) is usually defined in terms of a 'cut-off date'.

c) *Post-publication software changes:* Changes to the function of the software made after the documentation has been published.

d) *Post-publication document changes:* Changes to the published documentation which are due either to software changes or to the discovery of deficiencies in the documentation.

8.1.7.2 Procedures

The documenter shall ensure that the documentation is designed in such a way that it is possible to incorporate all four types of changes. This will require:

a) a procedure for incorporating each of the four types of change into the document;

NOTE The documentation team usually receives copies of software change control paperwork that show what alterations have been made to the software after the cut-off date.

b) the document title and either the version number or the date and time to appear in the header or footer of the document;

c) for loose-leaf paper documentation, the use of a table of effective pages or similar device to ensure that the user can check that each page is in its proper place;

d) optionally, some means of ensuring that all copies of the document can be updated after issue;

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e) optionally, a way in which a user can check that a particular copy of the document matches the software version in use.

The contract should specify to what extent each of these types of changes has to be incorporated into the documentation by the documenter.

8.2 Content of a style specification

8.2.1 General

This clause sets out the content of a style specification.

NOTE See annex H. Specialized standards and style guidelines may be added to the style specification or referenced from the documentation plan.

8.2.2 Writing style

8.2.2.1 Language

The language shall be specified, with country-specific variant if appropriate [e.g. French (Canadian)].

8.2.2.2 Spelling

For languages where it is necessary, a spelling dictionary shall be specified, optionally with a list of exceptions.

NOTE A national standard dictionary appropriate to the nationality of the major audience should be specified. If possible the dictionary should be available as a spelling checker file.

8.2.2.3 Grammar and usage

A grammar and usage style manual shall be specified.

NOTE A national grammar and usage standard appropriate to the nationality of the major audience should be specified.

8.2.3 Paper documentation

8.2.3.1 Layout and mechanicals

8.2.3.1.1 Paper size

The paper size shall be specified.

NOTE In choosing a paper size, the following should be taken into account:

a) That A4, B5 and A5 are International Standard paper sizes (see 4.1 and 4.5).

b) How the documents are to be stored (some storage systems have problems with particular sizes).

c) Whether screen dumps are to be used (an A5 paper size is often too small to hold screen dumps large enough to be legible).

d) If the documentation is to be photocopied, the standard paper size in the country(ies) in which it will be used.

e) Portability and work space requirements.

8.2.3.1.2 Orientation

The page orientation shall be defined as either portrait or landscape — in other words, upright or sideways. For languages where there is an option, the text orientation (top to bottom, right to left, recto or verso front cover) shall also be specified.

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8.2.3.1.3 Single- or double-sided printing

Either single- or double-sided printing shall be specified.

NOTE A double-sided format should be used where the material is to be printed, as it uses less paper. Single-sided may have to be used where the material is to be photocopied. There may also be usability considerations which make single-sided reproduction a better choice.

8.2.3.1.4 Resolution of typesetting or laser printing

The minimum acceptable resolution shall be specified, normally in dots per inch.

NOTE 300 dots per inch is the suggested minimum.

8.2.3.1.5 Inside margin width (i.e. margin nearer binding)

The distance between the print area and the edge of the binding shall be specified.

8.2.3.1.6 Outside margins width

The distance between the print area and the edge of the paper shall be specified.

8.2.3.1.7 Ink colours

Ink colours shall be specified.

NOTE If the documentation plan or contract calls for more than one colour, any documenter not expert in the area of multiple-colour printing should seek advice from an expert before the page layout is presented to the acquirer.

8.2.3.1.8 Paper colour, weight and quality

The paper colour, weight and quality shall be specified.

NOTE If a particular paper stock is required, it should be specified.

8.2.3.1.9 Dividers

Dividers, if required, and their colour, weight, and quality, shall be specified. The style specification shall specify the information to be printed on the dividers, as well as its typeface, size and orientation.

8.2.3.1.10 Reproduction method and quality

The method of reproduction (printing, photocopying, etc.) shall be specified, as well as the quality measures to be met.

8.2.3.1.11 Binding

The method of binding shall be specified.

8.2.3.2 Numbering schemes

8.2.3.2.1 Page numbering

A page numbering scheme shall be specified.

NOTE 1 Each page should be uniquely numbered. The page numbers should show unambiguously the order in which the pages are to be collated.

NOTE 2 In a loose-leaf binding, a page numbering scheme that shows the current chapter/section number, plus a page number within that chapter/section, should be considered: ‘1-1’, ‘1-2’, etc. (This is so that pages can be added in the middle of the volume without renumbering all subsequent pages.)

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NOTE 3 Where the binding is not loose-leaf, consider using '1', '2', etc. It is often necessary for practical reasons to use a different page numbering scheme for the table of contents ('i', 'ii', etc.). However, care should be taken not to number the back matter (index, etc.) in the same way as the front matter, as there is likely to be confusion between the front and back matter if a page falls out and has to be replaced in its proper position.

8.2.3.2.2 Illustration and table numbering

If illustrations are to be numbered, an illustration numbering scheme shall be specified. If tables are to be numbered, a table numbering scheme shall be specified.

NOTE Illustrations and tables should be uniquely numbered within a volume. The illustration and table numbers should follow the order in which the illustrations and tables appear in the volume. The numbering of illustrations and tables in a single sequence may be used.

8.2.3.3 Use of footnotes or endnotes

The use of footnotes or endnotes shall be specified.

NOTE These are not usually used in software user documentation; their use should be disallowed by the style specification.

8.2.3.4 Pagination and gravity rules

Pagination rules (e.g. that headings may not fall at the foot of a page) shall be specified. Gravity rules (e.g. regulating the amount of white space, widows and orphans) shall be specified.

8.2.3.5 Front and back matter

Front and back matter shall be specified, including, when used, the required content and layout of:

a) title page;

b) warranty, copyright, indemnity and trademark information;

c) table of contents;

d) list of illustrations and tables;

e) appendices;

f) glossary;

g) lists of abbreviations and acronyms;

h) index.

The order in which these elements are to appear shall be defined.

NOTE It is not necessary to specify all of the above types of front and back matter; only the content and layout of those that are actually required needs to be specified.

8.2.3.6 Body text

8.2.3.6.1 Typeface and size

The typeface and type size of the body text shall be specified.

8.2.3.6.2 Number of columns

The number of columns to be used shall be specified.

NOTE Single-column layout is most common in software user documentation, but two-column layouts are used also.

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8.2.3.6.3 Horizontal and vertical spacing

The horizontal spacing (e.g. in Roman text, spacing at the left and right of a paragraph) and vertical spacing (e.g. in Roman text, spacing between lines, and before and after a paragraph) of body text shall be specified.

NOTE 1 In Roman languages, layouts which have a body text line length of more than 65 characters or less than 30 characters should be avoided.

NOTE 2 To calculate an appropriate line length, first set a line length of 5 cm and count how many characters (including spaces) there are in ten lines of normal text (no paragraph breaks) at that line length. Divide by 50 to get the average number of characters per centimetre. Decide how many characters you want per line (which should be between 30 and 65) and divide by the average number of characters per centimetre to get the required line length in centimetres.

8.2.3.6.4 Justification

Where appropriate to the language, the justification (e.g. flush left or justified) of the body text shall be specified.

8.2.3.7 Headings

8.2.3.7.1 Number and names of heading levels

The number of heading levels shall be specified, and each heading level shall be given a name or number.

NOTE Any more than three levels of heading within a volume should be avoided. Three levels of headings are normally sufficient.

8.2.3.7.2 Text style of headings

In languages where it is applicable, the text style of headings (e.g. ‘Sentence style’, ‘All caps’) shall be specified.

8.2.3.7.3 Typeface, size and spacing of each heading level

The typeface, size and horizontal and vertical spacing for each heading level shall be specified.

8.2.3.7.4 Graphic elements used in headings

Graphic elements (e.g. lines, tone, icons) used with each level of heading shall be specified.

8.2.3.8 Headers and footers

8.2.3.8.1 Content of headers and footers

The content of headers and footers shall be specified.

NOTE This is so that page numbers can be nearest the outside edge of each page, for example.

8.2.3.8.2 Typeface, size and position

The typeface, type size and horizontal and vertical position of headers and footers shall be specified. For double-sided printing, the content and layout of headers and footers for left-hand and right-hand pages shall be specified separately.

NOTE This is so that page numbers can be nearest the outside edge of each page, for example.

8.2.3.8.3 Graphic elements used

Graphic elements (e.g. lines, tone, icons) used with headers and footers shall be specified.

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8.2.3.9 Captions

8.2.3.9.1 Content

The content of captions shall be specified.

8.2.3.9.2 Typeface, size and position

The typeface, type size and positioning of captions shall be specified.

8.2.3.10 Tables

8.2.3.10.1 Layout rules

Layout rules for tables shall be specified, e.g. table headings must be repeated when a table splits across a page break.

8.2.3.10.2 Typeface and minimum size

The typeface and minimum type size to be used in tables shall be specified.

8.2.3.11 Reports

8.2.3.11.1 General

Reports are output from a software application which are usually printed or displayed on the screen. Sample reports are often included in user documentation.

8.2.3.11.2 Content

Content rules for reports may be specified.

NOTE Reports are easier to comprehend when they show realistic data in each field. Fictional data should be used.

8.2.3.11.3 Typeface and minimum size

The typeface and minimum type size of reports shall be specified.

8.2.3.11.4 Use of landscape layout and foldouts

Rules for the use of landscape (i.e. sideways) layouts for particularly wide or long reports shall be specified. Rules for the use of foldouts and throwclears shall be specified.

8.2.3.12 Screen dumps

8.2.3.12.1 Content

Rules for the content of screen dumps shall be specified.

NOTE Screen dumps are easier to comprehend when they show realistic data in each field. Fictional data should be used.

8.2.3.12.2 Layout

Layout rules for screen dumps shall be specified.

8.2.3.12.3 Layout rules for partial screen dumps

Rules for the layout of partial screen dumps shall be specified, if they are to be allowed.

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8.2.3.13 Illustrations

8.2.3.13.1 Minimum line width, typeface and type size

The minimum line width, typeface and the minimum type size for illustrations shall be specified.

8.2.3.13.2 Orientation

Orientation rules for illustrations shall be specified.

8.2.3.14 Warnings and cautions

8.2.3.14.1 Text style

For languages where it is appropriate, the text style (e.g. 'Sentence style', 'All caps') of warnings and cautions shall be specified.

8.2.3.14.2 Typeface, size and spacing

The typeface, size and horizontal and vertical spacing for warnings and cautions shall be specified.

8.2.3.14.3 Graphic elements

Graphic elements (e.g. lines, tone, icons) used with warnings and cautions shall be specified.

8.2.4 Electronic documentation

8.2.4.1 Types of help information

The style specification may call for one or more of the following:

a) *Context help:* Information about the field in which the cursor or program highlight is currently resting, including its required or intended content and the eventual effect and destinations of the information contained in it.

b) *Extended help:* Information about the current screen or window, including its purpose and intended mode of use.

c) *Keys help:* Information about keyboard usage, arranged by function and not by key name.

d) *Help for help:* Information about the use of the help system.

e) *Message help:* What the user should or can do in response to particular system messages, such as error messages.

f) *Reference phrase help:* Definitions of specific items, links to related topics, and explanations of abbreviations and acronyms.

g) *Intelligent help:* Help text that appears when it is apparent to the system that the user is having trouble. Help text can for example be 'structured' so that initially the user gets a brief help message, but gets more detail on repeating the same error; alternatively, the user can get detailed information on first making the mistake, then a brief reminder on subsequent occasions

8.2.4.2 Types of on-line documentation

The style specification may call for one or more of the following:

a) *User guide or reference:* Provides procedures for the use of the product.

b) *Command reference:* (command-driven systems only) Gives syntax, effect and intended usage of each command.

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c) *Message reference:* What the user should or can do in response to particular system messages, such as error messages.

d) *Administrator information:* Configuration, security and (if appropriate) installation information required by a system administrator.

8.2.4.3 Layout

8.2.4.3.1 General

The tools used to produce help and on-line documentation systems will dictate many aspects of the layout.

8.2.4.3.2 Related material

Rules about the placement of material which is related, shall be specified.

8.2.4.3.3 Highlighting and use of colour

Rules about the use of highlighting and colour shall be specified.

NOTE 1 The use of highlighting and colour for emphasis should be kept to a minimum, particularly where there is the risk of confusion between the emphasized text and hypertext links.

NOTE 2 Colour should be used conservatively and should not be relied on as the sole means of conveying important information. This is particularly important where users are able to select different screen colours.

NOTE 3 When used, primary colours (red, green and blue) should be used on a base of white or black to improve clarity and avoid registration problems.

NOTE 4 Different highly saturated colours should not be used next to each other on a dark background, as this is likely to result in a distracting three-dimensional effect.

NOTE 5 Certain colours are associated with common meanings (e.g. red for 'stop' or 'danger', green for 'go' or 'safe') and can be chosen on that basis. This type of coding should be used with caution where users are able to select different screen colours.

NOTE 6 Colour in screen displays is a complex issue and is often subject to poor design. Documenters are advised to seek expert assistance in the selection and use of colours.

8.2.4.3.4 On-line documentation and help text layout

Text layout rules shall be specified.

8.2.4.3.5 Headings

Heading layout rules shall be specified.

8.2.4.3.6 Body text

The following elements shall be specified for body text:

a) Justification (where appropriate to the language).

b) Spacing.

NOTE In Roman languages, line lengths of greater than 65 or fewer than 30 characters should be avoided. A minimum of two pixels or stroke widths of 15 % of character height, whichever is the greater, should be used for spacing between text lines. This space should not be used for accent markers or for the descenders of lower-case characters.

c) Minimum character height.

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NOTE For Roman languages, the character height should be not less than 16 minutes of arc, and not greater than 45 minutes of arc. The preferred character height is 20 to 22 minutes of arc. Minutes of arc is used as a measure of character height for VDU characters; it is the angle subtended at the eye by the character. It depends not only on the actual height of the character on the screen, but also on the typical viewing distance. Table 1 shows the relationship between character height in minutes of arc and millimetres at a viewing distance of one metre. At shorter distances, for example, the height in millimetres will be proportionally smaller than that given in the table. Also shown in the table for purposes of comparison are equivalent print point sizes for Times Roman.

Table 1 — Subtended angle and point size

Subtended angle minutes of arc	**Height** mm	**Approximate point size** points
10	2,9	12
15	4,4	18
20	5,8	24
25	7,3	30
30	8,8	36
35	10,2	42
40	11,6	48
45	13,1	54
50	14,6	60

8.2.4.3.7 Navigation

Rules for navigation shall be specified.

NOTE 1 Layers of linked information should be controlled so that the user can easily return to a given point, or to the table of contents or index, without feeling lost within the document.

NOTE 2 Structural 'rules' for a document should be developed and applied consistently. For example, the number of links in each information chain should be limited to X, the value of X being such that users have frequent and regular opportunities to return to the table of contents and re-orient themselves within the document. Heading levels may also be assigned to levels of complexity (i.e. 'Level 1 headings give only overview information').

NOTE 3 Task-oriented and conceptual information should be separated into discrete sections with entry-point links between them. This will prevent users trying to learn a specific task from unwittingly straying into conceptual material that may confuse or distract them.

NOTE 4 Graphics should be considered. An overview diagram, showing the main sections of the document with hypertext links to each section, will give the user a clear visual impression of the structure of the document.

NOTE 5 A user guidance section should be provided early in the document giving basic information about using on-line documentation. This section should be used to explain the structure of the document, and any structural 'rules' applied to it.

8.2.4.3.8 Keyboard usage

Rules for the use of special keys for on-line documentation shall be specified.

NOTE 1 The user should be able to call up help by the use of the same key or key combination from any point in the program. The user should also be able to call up on-line documentation by the use of a single key or key combination.

NOTE 2 The documentation plan should define the naming conventions and functions of all special-function keys for use within the on-line documentation or help system.

NOTE 3 Special-function key usage should wherever possible be consistent with the usage of function keys in the software application itself.

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Annex A
(informative)

Cross-reference to ISO/IEC 12207

This International Standard fits into ISO/IEC 12207:1995, *Information technology — Software life cycle processes,* as an implementation of the user documentation part of *6.1: Documentation,* as shown in Table A.1.

Table A.1 — Cross-reference to ISO/IEC 12207

Clause/Subclause of ISO/IEC 12207	Clause/Subclause of this International Standard
6.1.1.1	8.1.3 Documentation plan
6.1.2.1	8.2 Content of a style specification
6.1.2.2	8.1.2 Provision of source material
6.1.2.3	8.1.4 Review
6.1.3.1	8.2 Content of a style specification and 8.1.3 Documentation plan
6.1.3.2	8.1.3.3 Control of documentation plan
6.1.4.1	8.1.7 Change control and document maintenance

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Annex B
(informative)

Calling the International Standard from a contract

B.1 General

There are parts of this International Standard which require clarification in relation to the contract or other (e.g. internal) document which specifies it.

In addition, the documentation plan is often called on for clarification.

The questions that should be answered by the contract are as follows:

a) Where is the audience research information to come from? (It is optional to specify this, but advisable.)

b) Are more than two draft copies and one proof copy required? (This is optional: this International Standard defaults to two drafts and one proof.)

c) Who will provide the source material? (Usually this is obvious, but in projects with complex interdependencies between parties, it is better to spell it out.)

d) What level of confidentiality or security needs to be applied to material provided by the acquirer to the documenter?

e) Is there an existing paper documentation layout standard that will be used? (Optional if not specified. The style specification defined in this International Standard may be used by default; the documentation plan can later specify the number of copies, and so on.)

B.2 Sample contract clause

A sample clause calling up the International Standard might appear as follows:

EXAMPLE

Clause 123 Documentation

All user documentation shall be in accordance with ISO/IEC 15910**.** Documentation shall not include on-line material or help text. All audience research material and other source material shall be provided by the acquirer.

One usability test shall be carried out, at the delivery of the first module, and shall consist of trials of the entire functionality of the module using five different typical users.

B.3 Tailoring the International Standard

It is in both the customer's and the documenter's interests to tailor the International Standard if required.

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Tailoring normally takes the form of deletion and insertion of clauses by means of a written agreement (usually a contract, but possibly also a documentation plan).

Tailoring of the International Standard should be done with care, and only with a thorough knowledge of the structure of the International Standard.

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Annex C
(informative)

Sample documentation plan: ABC tape management system user documentation

C.1 Introduction

This document describes the strategy for developing user documentation for the ABC Tape Management System, as proposed by XYZ Documentation (XYZ). It describes the scope of the project, the deliverables, and the resources required.

The strategy provides for hard copy documentation and on-line documentation in the form of help text.

In the event of major changes to the strategy proposed, a revised plan will be issued.

C.2 Scope and limitations

The documentation will not include instructions for using the operating system under which ABC runs. However, where appropriate, the reader will be referred to related manuals for further information.

ABC installation, implementation, and management documentation already exists, and is outside the scope of this project.

C.3 Layout and writing style

The default layout and writing styles specified in ISO/IEC 15910 will be used. A sample page is attached to this documentation plan.

The style guide for on-line documentation will be as shown in Table C.1.

Table C.1 — Style guide

Element	Value
Help text content	Context help only should be provided
On-line documentation content	None
Related material	Help text should be restricted to one screen per entry
Highlighting and use of colour	Colour and other highlighting should not be used in the help text
On-line documentation and help text layout	A single-column format should be used
On-line documentation and help text heading layout	Only one heading should be used—at the top of each page of help text. The heading should be in 14 pt Times Roman
Body text layout	The text should be flush left, ragged right. All text should be in the system font
Navigation rules	As per ABC help engine
Keyboard usage	As per ABC standards

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C.4 Audience

The audience will consist of computer operators, with a low level of technical knowledge. The minimum level of education of the audience is 12 school years.

None of the audience has significant reading disabilities, and all are assumed to have good reading skills.

The audience is likely to have one to two years exposure to computer centre operations, which involves following supplied operational procedures to start and stop, backup and restore systems, as well as loading and unloading tapes. Duties also include monitoring and actioning console messages relating to system operation.

The following assumptions are made about users' knowledge:

a) The user understands general tape handling procedures.

b) The user understands the related operating system commands.

c) The user does not understand tape handling procedures using ABC.

C.5 Draft table of contents

A draft table of contents is as follows:

a) Introduction: the concepts of ABC and its relationship to the system (5 pages).

b) Overview: an overview of the ABC tape management function (3 pages).

c) Adding a tape (5 pages).

d) Removing a tape (5 pages).

e) Problems: troubleshooting guide, including system messages (4 pages).

f) Glossary of terms and definitions (1 page).

g) Index (1 page).

Total: 24 pages.

C.6 Deliverables

The following items will be delivered at the end of the project:

a) 500 copies of the manual, collated into binders.

b) A diskette copy of all documentation, DEF 3.0 format (set up for GHI printer), 1,44 Mb, 3,5" diskettes.

c) A diskette copy of the help text.

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C.7 Copyright

Copyright of all material remains the property of XYZ.

C.8 Translation

No provision will be made for translation.

C.9 Development process and controls

The ABC user guides will be created using the development procedures and controls specified in the XYZ Quality Management Handbook.

C.10 Production

The DEF publishing system (version 3.0) will be used to produce the ABC user guides. Diagrams will be created using the JKL graphics package.

ABC screen displays will be electronically captured and incorporated into the final document.

The table of contents and index will be set up and generated using DEF.

Camera-ready master copy will be printed on a 300 dpi laser printer; however, a high-quality 1275 dpi master can be produced at additional cost.

Each manual will be A4, loose-leaf, printed double-sided, and collated into binders.

Binders will be A4, 3 D-ring, with a 25 mm spine. The covers will be screen-printed with the ABC corporate design.

Paper stock for the manuals is 103 gsm, MNO art, matt gloss.

Help text will be developed using the DEF Developers' Kit.

C.11 Project team

The project team and its responsibilities will be shown in Table C.2.

Table C.2 — Project team

Name	Role	Responsibility
P O'Brien	Writer	Research plan and write manuals
A Costa	Editor	Edit manuals
R Richards	Technical reviewer	Verify manual's technical content
E Johns	Technical advice	Provide technical advice and guidance
S Wong	Production	Create text and diagrams
A Kelly	Quality management	Quality management
M Downes	Usability testing	Test the completed manual under specified conditions and report on the results

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C.12 Resources

Information required to develop the manuals will be obtained from the ABC design documentation, interviews with software developers, and hands-on use of ABC.

The following resources are required by the documentation development team:

a) Copies of ABC functional design documentation.

b) Access to the ABC system.

c) Access to ABC software developers.

C.13 Usability test

A series of usability tests will be carried out on the ABC Users' Guide and help text after implementation of comments on the second draft.

The objective will be to assess the degree to which the language, content and layout of the ABC Users' Guide and help text enable users to access the facilities of the software.

Tests will take place in the computer room, and will use the beta test version of ABC; one representative of the software development team and one representative of the documentation development team will be present.

Four users typical of the readership set out in C.4 above will be selected at random from the operations night shift. Each will be given a copy of the corrected second draft of the ABC Users' Guide and help text and asked to perform a series of steps (listed elsewhere in a detailed test plan).

Both representatives will record the time taken for each step, the comments of the user, and the physical process that the user goes through in performing the steps.

Where the time taken for a step exceeds the limits set out in the detailed test plan for any one user, or where the step is not completed properly, the software development and documentation development representatives will each write his or her own assessment on the reason for the problem.

These notes will be tabled at a documentation review meeting, and the draft changed accordingly. The meeting will also determine the need for further testing.

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C.14 Schedule

The schedule will be as shown in Table C.3.

Table C.3 — Schedule

Milestone	Date	Dependencies
First draft delivery	1 Jan 99	Documentation plan approval by 15 Dec 1998
Second draft delivery	15 Feb 99	Three-week first draft review
Usability test	15 Mar 99	
Help text delivery	15 Apr 99	Usability test
Proof delivery	15 Apr 99	Usability test; two-week second draft review
Camera-ready artwork ready	30 Apr 99	Usability test
Printing and binding complete	15 May 99	Availability of binders

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Annex D
(informative)

Relationship between audiences, tasks, paper and on-line documentation

Design of documentation begins with an analysis of the users of the system being documented. There are often a number of types of users, who are grouped into *audiences* according to their needs.

Sometimes hierarchies of audiences are the best way to represent the various groups, as shown in Figure D.1.

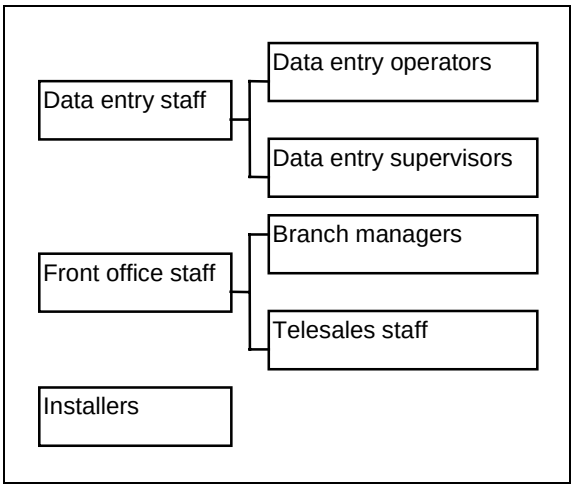

Figure D.1 — Audience hierarchy

Often it is necessary to refine the definition of an audience according to how much experience the users in that audience have in using the system. For example, audiences may be defined as “New user” or “Experienced user”.

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Having listed the audiences for a particular system, the next step is to determine the *tasks* that each audience will want to perform. Again, this is often shown as a hierarchy as in Figure D.2.

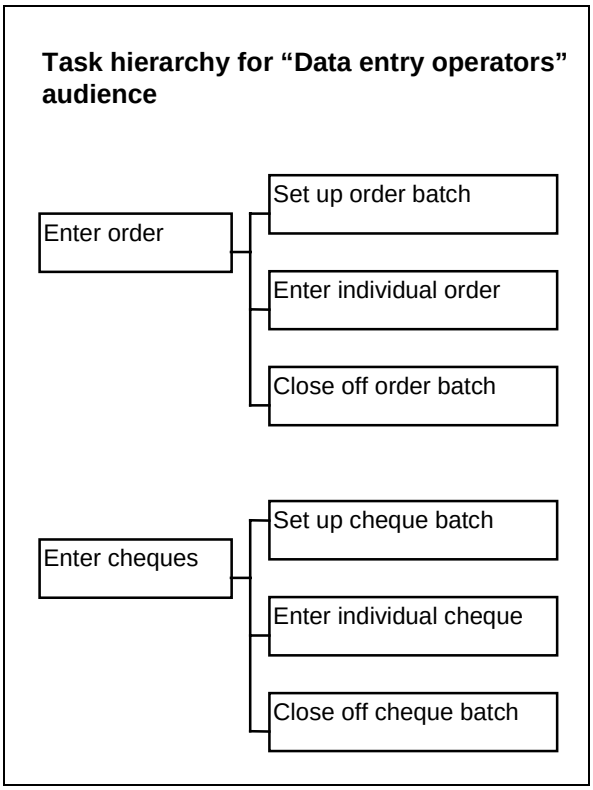

Figure D.2 — Task hierarchy

The next stage is to determine, for each given audience and task, what the *information needs* are. This list of information needs forms the basis for the document content, as shown in Figure D.3.

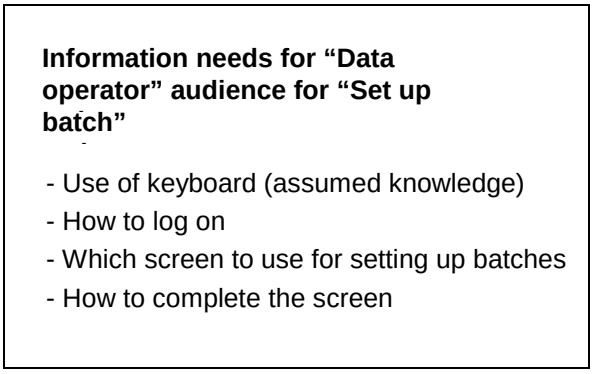

Figure D.3 — Information needs

At this stage (but generally not before), the delivery medium and document type can be determined.

For example, for a particular information need for a given audience and task, the most appropriate document format may be a printed manual, or an on-line manual, or a context-sensitive help screen, or a wallchart, or even a video or a quick-reference guide.

Naturally, it makes good economic sense to limit the number of different documents that have to be developed. Often it is necessary to make one document serve more than one purpose.

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Figure D.4 shows how the process works from end to end. One important point is that the knowledge that the user needs is partitioned into a variety of media; there is no predefined role for on-line or paper documentation - the role of any medium is to carry whatever of the user's knowledge needs is appropriate to that medium, depending on the particular audience, product and set of tasks involved. Documentation planning (as covered by this International Standard) deals mainly with determining the knowledge required, and only at the end of the process does the question of media come into it. So paper and on-line documentation should be planned together, because the same user may need them both to convey different parts of their knowledge needs.

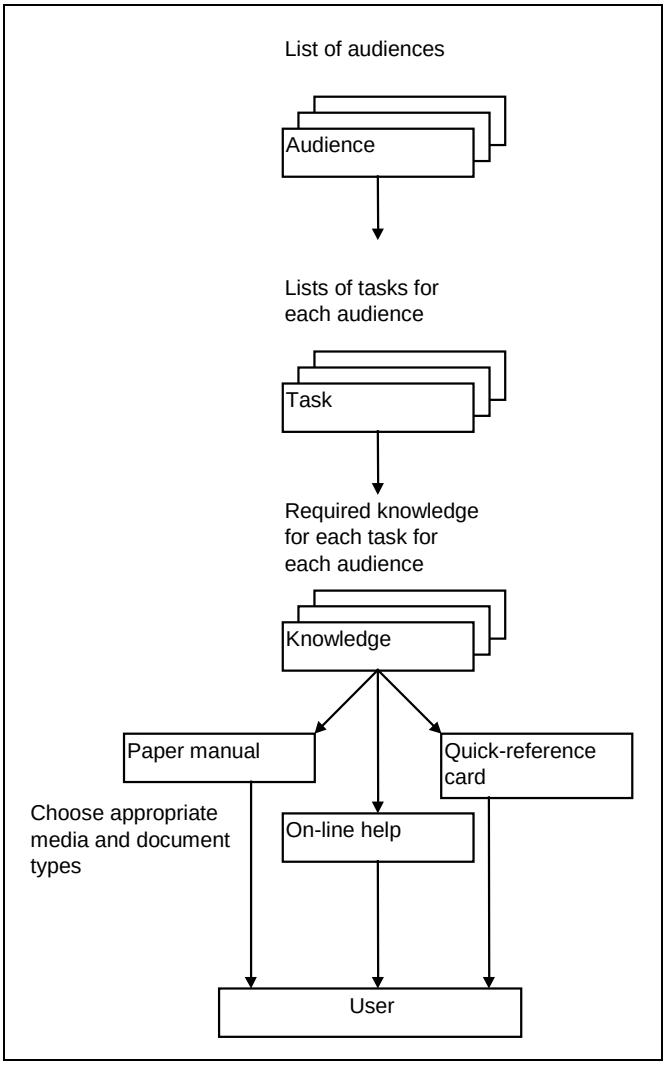

Figure D.4 — Summary of the process

A description of this process is given in detail in British Standard BS 7649:1993, *Guide to the design and preparation of documentation for users of application software*.

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Annex E
(informative)

Writing in English for translation

E.1 General

The guidelines in this annex should be followed when writing material in English that is likely to be translated. Most points refer to both paper and on-line documentation.

E.2 Terminology

Terminology should be as follows:

a) General or non-technical terms as defined in general dictionaries should be used.

b) Glossaries should be created that include:

   1) definitions of all product-specific and unfamiliar terms;

   2) expanded forms and definitions of all acronyms and abbreviations;

   3) explanations of unusual word usage, such as nouns used as adverbs;

   4) a bibliography of specialized dictionaries and international standards.

c) Special terminology should be based on national or international terminology standards, recognized dictionaries or approved glossaries.

d) Each acronym should be defined on the first occasion it is used in the body of the text.

e) Each term should be used consistently throughout the document, the on-line information and the system library.

f) Compound phrases such as ‘card input’ should have only one meaning, which should be used consistently.

g) Compound phrases should be limited to three words.

h) The same word should not be used for different parts of speech.

i) All product-specific and specialized terms should be introduced within an explanatory or self-sufficient context.

j) Terms introduced without sufficient context, such as key-top names and commands, should be defined in the glossary.

k) The term ‘billion’ should be avoided.

NOTE The US billion (= 1 000 000 000) is not the same as the old UK billion (=1 000 000 000 000).

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l) The use of the term ‘translation’ to refer, for example, to file format translation should be avoided; for a meaning other than translation from one language to another, ‘conversion’ should be used instead.

E.3 Style for translation

E.3.1 Abbreviations

Only widely-recognized abbreviations should be used and they should be explained in an abbreviation list. The following should be avoided:

a) The US symbol for pound (#).

b) The raised period for multiplication.

E.3.2 Confusing words

Writers should beware of the following confusing words:

a) who, that, which.

b) only, merely, just, mainly, simply.

c) while.

d) so.

e) as.

f) can, may.

g) since.

h) when, if.

i) alternate, alternative.

E.3.3 Syntax

Note should be taken of the following matters of syntax:

a) Sentences should not be too long.

b) Construction of sentences that embody a series of concepts separated by commas should be avoided.

c) Restrictive and non-restrictive clauses should be carefully distinguished.

E.3.4 Punctuation

A dash should not be used where a bracket or a semi-colon can be used.

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E.4 Physical factors

Note should be taken of the following physical factors:

a) Abbreviations should not be used to save space.

b) Sufficient space should be left, for example for monetary values.

c) A standard graphics tool should be used and pasted-up art should be avoided.

d) Integration of text into illustrations should be avoided.

e) Graphics symbols that are universally recognized should be used.

f) Graphics should be used to replace words wherever possible.

E.5 On-line information

The following points relative to on-line information should be noted:

a) If control over the software development is available, on-line information (text and messages) should be isolated from program logic.

b) Each text block or message should have a unique identification code with a naming convention that groups related text and messages.

c) The software should not rely on the length, format or position of input and output fields.

d) A separate message should be used for each idea. Messages should not be constructed.

e) Message variables should contain only untranslatable information such as keywords and return codes.

f) Prepositions should not be omitted from sentences in an attempt to save space.

E.6 Cultural factors

The following points relative to cultural factors should be noted:

a) Artwork (such as faces, animals and phones) should be culturally neutral.

b) Examples that are specific to local culture or local way of doing business (holidays, banking, payroll, sports, etc.) should be avoided.

c) Idiomatic expressions specific to the documenter's national language should be avoided in the text and artwork.

d) Humour, especially puns and plays on words, should be avoided.

e) Irony should be used only with caution.

f) Slang, jargon and colloquialisms, should be avoided.

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g) The first person should not be used.

h) Dates should not be expressed in all-numeric form. The month should always be spelled out (e.g. 26 July 1991).

i) Dual-dimensioning should be used except where international convention dictates otherwise — for example, tyre sizes, water pipes, nails and film.

j) When metric measurements occur with other measurements, the context should make the meaning clear.

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Annex F
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Estimating

F.1 General

This annex contains a number of estimating methods, all of which are provided as guidance. In some cases they are contradictory; estimating documentation is not an exact science. In particular, estimates can be overrun if the software changes during documentation development.

These methods may provide a useful framework, but actual times in accordance with the estimator's experience may be substituted.

F.2 'Minutes and hours' method

It takes approximately three hours per page to write text to publication standard. The time taken to design graphics is determined by their complexity and the number of redrafts needed to ensure their technical accuracy.

As a general guide, it will take three to five hours to design and amend a graphic (not a screen dump) of the kind typically found in software documentation.

It is difficult to know at the start of a project how many pages the documentation will contain. If the project will take more than two months to complete, the page count should be revised after the first month.

For very large projects, the deliverables should be split into manageable parts. The estimated time to complete the entire project might then be given only in whole months, with only the first part worked out in detail. In this way, both the documenter and the acquirer can refine their estimate of the delivery date.

Table F.1 shows times are for a 'typical' project, and assume that the writer types material directly into a PC and that desktop publishing is used.

Table F.1 — Estimated times

Stage	Time
Determine deliverables	16 hours per project
Research content	24 hours per project
Write documentation plan	48 hours per project
Design document structure/page layout	8 hours per volume
Write first draft	1 hour per page
Develop graphics	5 hours per graphic
Compile text and graphics	30 minutes per page
Review first draft for technical accuracy (acquirer)	30 minutes per page
Amend draft and graphics	30 minutes per page
Incorporate user comments	30 minutes per page
Edit grammar	15 minutes per page
Prepare second draft	15 minutes per page

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Stage	Time
Review second draft (acquirer)	15 minutes per page
Make final corrections	10 minutes per page
Test documentation	15 minutes per page
Arrange camera-ready art	3 days elapsed time
Print binders/tabs	5 days elapsed time
Print and collate copies (black print only)	10 days elapsed time
Distribute	1 day elapsed time

F.3 Top-down approach

F.3.1 General

This method is based on the premise that the number of pages for a publication or publications can be readily estimated, and it uses the following assumptions:

a) A writer can produce 22 pages of new text per month.

b) A writer can produce 44 pages of changed text per month.

For example, a publication may be estimated at 150 pages. Since it is a new publication, it will take 150/22 = 7 person/months to complete. This 7 months includes the planning of the publication, writing, editing and reviewing two drafts, and preparing camera-ready copy.

F.3.2 Proportions

The 7-person/month effort is broken down proportionally, as follows:

a) 15 % for planning (4 weeks in this example).

b) 50 % for first draft (14 weeks).

c) 25 % for second draft (7 weeks).

d) 10 % for camera-ready copy (3 weeks).

F.3.3 Planning

The planning period includes:

a) Researching and writing the plan.

b) Inspecting and reviewing the plan.

c) Updating the plan as a result of the review.

F.3.4 First draft

The first draft includes:

a) Preparing a table of contents.

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b) Inspecting and reviewing the table of contents.

c) Writing a test piece for the editor.

d) Editing the test piece and rewriting it according to the edit.

e) Writing a complete draft.

f) Editing the complete draft.

g) Reworking the edited draft.

h) Inspecting and reviewing the reworked draft.

Artwork is prepared concurrently with the text.

F.3.5 Second draft

The second draft consists of:

a) Incorporating all comments from the first draft review.

b) Copy editing the complete draft.

c) Reworking the edited draft.

d) Inspecting and reviewing the reworked draft.

F.3.6 Approval draft

The camera-ready draft is the approval draft, and involves:

a) Incorporating all comments from the second draft review.

b) Verifying that all changes have been made.

c) Removing all draft markup, such as revision bars and security classifications.

d) Preparing camera-ready originals.

e) Dispatching originals to the printers.

Typically, reviewers require one to two weeks to inspect a draft and prepare their comments, while the review itself requires one or more days.

The top-down approach can also be used for existing publications. For example, a book of 100 pages may be revised such that half of it changes, and 10 % of new material is added. It will take 50/44 = 1,13 person/months to change the existing material, plus 10/22 = 0,45 person/months to add the new material.

Where the elapsed time exceeds the allowable time, more than one writer will be used to complete the task. This is also usually the case where several publications have to be prepared for the same software.

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Annex G
(informative)

Assessing a documentation plan

The use of this International Standard can generate good documentation because the documentation plan has to be agreed between the acquirer and documenter. This use has two major effects: it ensures that the documenter at least considers all aspects of the documentation called for in the plan, and it ensures that the acquirer and documenter agree on the approach to the documentation set out in the plan, ideally before work begins.

The elements that an acquirer should look for in a documentation plan are as follows:

a) All audiences should be defined properly. A statement like: 'The audience for this manual will consist of users of the software' is not good enough. See annex D. *All* of the people who might use the software (including those that might only see reports from it) should be included in the audience definition.

b) A detailed table of contents should be included, giving estimated page counts.

c) The number of printed copies and the printing and binding method should be specified.

d) The owner of copyright of the material should be clearly identified.

e) The production methods should be specified. Most technical documenters now write using a computer.

f) The documenter should give the acquirer sufficient time to review the drafts — any delay in returning drafts to the documenter will probably result in delivery delays.

g) The acquirer's organization may be required to provide resources (access to staff, equipment, etc.), and failure to do so may result in delays.

In general, the documentation plan should take into account all of the specific circumstances surrounding the acquirer's company and users. It is very unlikely that a documentation plan produced for one project can be used effectively for another.

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Annex H
(informative)

Sample style specification

H.1 General

This sample style specification complies with the requirements of section 8.2 of this International Standard, and can be used as a default in a documentation plan.

NOTE It is useful to produce a model document from the style specification before finalizing it.

H.2 Style elements

Style elements and suggested default values are given in Table H.1.

Table H.1 — Style elements and values

Element	Value
Language	English
Spelling dictionary and exceptions	*Macquarie Dictionary*, no exceptions
Grammar and usage style manual	Australian Government Publishing Service *Style Manual for Authors, Editors and Publishers*
Paper size	A4
Orientation	Portrait (i.e. upright)
Double-sided or single-sided printing	Double-sided
Resolution of typesetting or laser printing	300 dpi minimum
Inside margin width	10 mm/2,4 picas
Outside margin width	10 mm/2,4 picas
Ink colour(s)	Black
Paper colour, weight and quality	80 gsm white bond
Dividers	None
Binding	Plastic comb, with clear acetate front cover and back cover of board between 200 and 260 gsm
Reproduction method and quality	All material to be photocopied, and to be free from marks and fading
Page numbering scheme	Pages to be numbered 1, 2, 3 and so on, starting from the first page after the cover
Illustration and table numbering	Illustrations to be numbered ‘Figure 1’, ‘Figure 2’, etc. in the order in which they appear. Tables to be numbered ‘Table 1’, ‘Table 2’, etc. in the order in which they appear
Number of columns	One
Use of footnotes or endnotes	Footnotes and endnotes not to be used

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Element	Value
Pagination rules	Headings not to fall at the foot of a page. Tables not to be split across a page unless they are more than a page long. Each level 1 heading to fall at the top of a right-hand page
Gravity rules	Related material to be kept on the same page, or on a facing page. The use of underlining, large areas of bold, and all capitals to be avoided where possible. Between 40% and 60% active white space to be used
Front and back matter: title page	The title page to show the product name, product version, date of document issue and volume title
Front and back matter: warranty, copyright and trademark information	None
Front and back matter: table of contents	The table of contents to show all Part, Chapter and Section headings, with page numbers
Front and back matter: list of illustrations and tables	None
Front and back matter: appendices	None
Front and back matter: glossaries	Any term used in the volume which is not familiar to the intended audience to be defined in a glossary in terms which are familiar to the target audience
Front and back matter: list of abbreviations and acronyms	A list of abbreviations to show each abbreviation used, along with the text that gave rise to that abbreviation. Where the text is not self-explanatory to the intended audience, an explanation is to be added
Front and back matter: index	An index to be included, with content as per H.3.
Front and back matter: order	The front and back matter to be inserted in the order of appearance in this Table, with the body of the document between the table of contents and the glossary
Body text typeface and size	12 pt Times Roman
Body text horizontal and vertical spacing	Body text to have 2 pt leading, and to have a left indent of 30 mm/7 picas. There is to be a single line space between each paragraph of body text
Body text justification	Body text to be flush left, ragged right
Number and names of heading levels	Four—Part heading, Chapter heading, Section heading and Sub-section heading
Text style of headings	All headings to be in sentence style with one initial capital at the start of each heading and no punctuation at the end of the heading
Typeface, size and spacing of each heading level	All headings to be in Times Roman bold, sizes as follows: Part heading—36 pt, Chapter heading—24 pt, Section heading—18 pt, Subsection heading—14 pt. Headings to be set full left. Above each heading there is to be a blank space twice the point size of the heading, except where the heading falls at the top of a page. Below each heading there is to be a blank space the same point size as the heading
Graphic elements used in headings	None
Header content	Headers to show the Chapter and Section headings, with the Chapter heading being on the side nearer the binding
Footer content	Footers to show the page number on the side further from the binding, with the version number, version date and document title on the other side
Header typeface, size and position	Times Roman 12 pt, at the top of every page except the title page
Footer typeface, size and position	Times Roman 12 pt, with the page number in Times Roman 12 pt bold, positioned

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Element	Value
	at the foot of every page except the title page
Graphic elements for header	A 1 pt line to be placed 1 pt under each header
Graphic elements for footer	A 1 pt line to be placed 1 pt over each footer
Caption content	Each caption to start with the figure number followed by a colon, followed by the caption text, e.g. 'Figure 1: ...'
Caption typeface, size and position	Captions to be positioned under the figure. Captions to be in 10 pt Times Roman italics
Table layout rules	Tables to be the same width as the body text area, and to use only 1 pt rules
Table typeface and minimum size	Times Roman with a minimum point size of 8 pt
Report content	Reports to contain realistic (but not real) data
Report typeface and minimum size	Reports to be in 8 pt Courier, monospaced
Reports: use of landscape, foldouts	Reports to be presented in landscape; no foldouts to be used
Screen dump content	Screen dumps to show realistic (but not real) data in each field
Screen dump layout	Screen dumps not to be distorted horizontally or vertically. They are to be the same width as the print area
Screen dump layout for partial screen dumps	Partial screen dumps (i.e. showing part of the screen) to be to the same scale as the full screen dumps
Illustration minimum line width, typeface and type size	Minimum line width: 0,5 pt. Typeface: Times Roman. Type size: minimum 8 pt
Illustration orientation	Orientation of illustrations, and the text within them, to conform to the orientation of the text in the normal body of the document
Warnings and cautions text style	Sentence style, beginning with the word 'Warning:' or 'Caution:'
Warnings and cautions typeface, size and spacing	24 pt Times Roman bold, centred, with a two-line blank space above and below
Help text content	Context help, extended help, keys help, help for help, message help and reference phrase help all to be provided
On-line documentation content	On-line documentation to include a user guide, command reference, message reference and administrator information
Related material	Information about a topic to be contained within one screen where possible
Highlighting and use of colour	Colour not to be used in the on-line documentation and help text. Highlighting (i.e. high intensity) to be used only for headings
On-line documentation and help text layout	A blank line to be provided between the top of the text display (i.e. title bar or top of screen) and the first line of text. A single-column format to be used
On-line documentation and help text heading layout	Headings to be highlighted by using high intensity. Only two levels of headings to be used. Headings to be in sentence style (see 8.2.3.7.2 Text style of headings). Each heading to be preceded and followed by a blank line
Body text layout	Text to be flush left, ragged right. There is to be a 20-character blank space at the left of each line of text
Navigation rules	Layers of lined information to be controlled so that users can easily return to a given point, or to the table of contents or index, without feeling that they are getting lost within the document
Keyboard usage	The following keys to be used: F1 to enter the help system; Alt-F4 or Esc to exit from the help system. It will not be possible for a user to lose any data that has already been entered when returning to a data entry screen after using help

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H.3 Index specification

H.3.1 General

Each document containing the equivalent of 32 pages or more of text shall have an index.

NOTE All parts of the document should be indexed, including introductory material, addenda, illustrations and appendices.

H.3.2 Quality

Sufficient detail should be provided in an index to meet the audience's expected needs.

NOTE An index should range from 5 % of the total length of the document (for a training manual) to 10 % (for a reference manual). The use of a professional indexer should be considered.

H.3.3 Content and organization

The documentation should have a single index, unless otherwise specified by the documentation plan.

NOTE 1 Headings (that is, words or phrases that represent in the index terms or concepts in the document) should preferably be chosen from terminology in the document (e.g. 'computer software').

NOTE 2 One term should be used consistently to represent the same concept.

NOTE 3 Subheadings representing some aspect of a main heading may often be significant enough to warrant being used as headings in their own right.

NOTE 4 Main headings should represent concepts found in the document. Nouns should be preferred, modified if required by adjectives or other nouns or verbs. When computer commands are used in the documentation, it may be appropriate to use the imperative form of a verb as a main heading.

NOTE 5 Terms consisting of more than one word should be used as headings without inverting or breaking into subheadings.

NOTE 6 Prepositions should be avoided unless their absence might cause ambiguity.

NOTE 7 Concepts that are different aspects of the same subject should be listed as subheadings of the main heading for the subject.

NOTE 8 Acronyms, contractions and abbreviations should be arranged alphabetically as written (e.g. file 'BASIC' — which stands for 'Beginner's All-purpose Symbolic Instruction Code' — between 'Base' and 'Battery').

NOTE 9 Entries should be arranged word-by-word; that is, a space should be treated as a symbol before other characters (e.g. file 'Alt key' before 'Alternative').

H.3.4 Location references

Location references should be provided for each entry that is not a cross-reference.

Location references should be made either for page numbers (e.g. '1, 2') or for paragraph or section numbers (e.g. '2.22, 3.34'). When illustrations are indexed, location references may be made for illustration numbers.

NOTE 1 It is generally more convenient for the user to be referred to page numbers rather than section numbers.

NOTE 2 Entries should not be followed by long strings of location references. A workable maximum is five (e.g. 1, 33, 43, 99, 102). To avoid long strings of undifferentiated location references, subheadings should be used.

NOTE 3 Location references to the principal discussion on a subject may be set in bold type.

NOTE 4 If a list of subheadings spans more than one column, the heading should be repeated at the top of each additional column, followed by the word 'continued'.

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NOTE 5 Where there are several sequences of page numbering, the sequences should be differentiated in an index. For example, if the numbering begins afresh with each chapter, the chapter number should be included in the location reference, e.g. '2-22, 3-34'.

NOTE 6 If the document treats a subject continuously over a part of a consecutively numbered sequence, only the first and last numbered elements should be referred to; the elements should be separated with a dash (conventionally an en dash) (e.g. 'pages 3–11'). Where dashes are used in page numbering, the usual dash to separate page numbers should not be used, but instead the word 'to' should be used (e.g. 3–6 to 3–8).

H.3.5 Cross-references

'See' cross-references (e.g. design — *see* layout) should be made from acronyms, synonyms and alternative forms used in the document to forms chosen for the index headings.

NOTE In addition, 'see' cross-references should be made from other forms that a user might reasonably search for. A 'see' cross-reference should never be followed by a location reference.

'See also' cross-references should be made from more comprehensive terms to less comprehensive terms, unless this results in the user being directed to identical location references.

NOTE 'See also' cross-references should be made to link terms having other relationships where this may aid the index user. 'See also' cross-references under a heading should be gathered together, normally following the location references relating to the heading or subheading to which they refer. For example:

illustrations 4

see also graphics; screen dumps

indexing, 12

list, 15

numbering, 2

writing for translation, 3, 15

The terms 'see' and 'see also' should normally be in italics.

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The following publications have been selected because they are readily available from most public libraries, and because they contain detailed information about certain topics relating to this International Standard. None of these publications were used as the basis for writing this International Standard. Although some chapters within these publications conflict with this International Standard, they are a useful source of information.

Related National and International Standards

[1] ISO 6592, *Information technology - Guidelines for the documentation of computer-based application systems.*

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