BS EN ISO 14006:2011

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Environmental management systems — Guidelines for incorporating ecodesign (ISO 14006:2011)

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National foreword

This British Standard is the UK implementation of EN ISO 14006:2011.

The UK participation in its preparation was entrusted to Technical Committee SES/1/1, Environmental management systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Systèmes de management environnemental - Lignes directrices pour intégrer l'éco-conception (ISO 14006:2011)

Umweltmanagementsysteme - Leitlinien zur Berücksichtigung umweltverträglicher Produktgestaltung (ISO 14006:2011)

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Foreword

This document (EN ISO 14006:2011) has been prepared by Technical Committee ISO/TC 207 "Environmental management".

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2012, and conflicting national standards shall be withdrawn at the latest by January 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 14006:2011 has been approved by CEN as a EN ISO 14006:2011 without any modification.

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Foreword

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

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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

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ISO 14006 was prepared by Technical Committee ISO/TC 207, *Environmental management*, Subcommittee SC 1, *Environmental management systems*.

Introduction

International concern over damage to the environment (e.g. in the form of climate change, depletion of resources, and air, water and soil environmental pollution) is encouraging organizations to pay more attention to managing the environmental impacts of their activities and products and to focus on continuously improving their environmental performance. In order to reduce detrimental effects on the environment, more and more organizations are recognizing the need to include environmental performance in the design of their products.

NOTE In this International Standard, the term “product” is understood to cover both goods and services.

The fact that legislation relating to the environmental impact of products is being implemented at an ever increasing rate worldwide is also encouraging many organizations to improve the environmental performance of their products. Such organizations need guidance on how to apply their efforts in a systematic manner, in order to achieve environmental objectives and to maintain continual improvement in the environmental performance of their products as well as their processes.

Ecodesign can be understood as a process integrated within the design and development that aims to reduce environmental impacts and continually to improve the environmental performance of the products, throughout their life cycle from raw material extraction to end of life. In order to be of benefit to the organization and to ensure that the organization achieves its environmental objectives, it is intended that ecodesign be carried out as an integral part of the business operations of the organization. Ecodesign might have implications for all functions of an organization.

In order to carry out ecodesign in a systematic and manageable way, it is intended that organizations implement an appropriate process and then have, or have access to, the necessary competence to carry out and manage this process. This needs the support of top management (see 4.2).

An ecodesign process takes place within an organization's design and development area, and it is here that the knowledge required in carrying out and managing ecodesign is to be found. However, when it is intended that ecodesign be carried out under the umbrella of an environmental management system (EMS), then the person responsible for the EMS needs to have an understanding of what this process is and how it is going to be managed and controlled. In this way, the integrity of the EMS is not jeopardized and the environmental objectives for the products can be achieved.

The general areas of knowledge required to incorporate ecodesign within an EMS are the following:

a) assessment of the impact of the products on the environment;

b) identification of appropriate ecodesign measures to reduce the adverse effects of environmental impacts;

c) the design and development process and an understanding of how an ecodesign process and its management fit within an EMS.

The first two of these areas are likely to be situated within the design and development area, but the third is clearly of major significance to the person responsible for the EMS. This International Standard primarily provides guidance on this third area.

This International Standard is the first to cover and interrelate all three knowledge areas required for ecodesign within an EMS.

ISO 14001 links management of an organization's processes with environmental impacts, but does not include design management processes. ISO 9001 covers the design management process, but does not explicitly cover environmental impacts. ISO/TR 14062 and IEC 62430 assist incorporation of the evaluation of environmental aspects and impacts into the design and development process, but as such, they do not fully

explain the activities involved within an environmental and business management framework, such as those described in ISO 14001.

Figure 1 illustrates the relationship between the aforementioned International Standards, their scope of knowledge and their relationship with this International Standard, which links all three areas and related documents.

This International Standard incorporates the necessary information from the other International Standards, such that the appropriate processes and procedures can be put into place to implement structured and managed ecodesign under the umbrella of an EMS. By using this International Standard, organizations can build on their existing management processes and competencies without necessarily having to implement or use all of the related International Standards.

When applying this International Standard, it is intended that an organization always uses its existing processes and procedures as a starting point, and that it uses the guidelines in this International Standard in a flexible and practical manner.

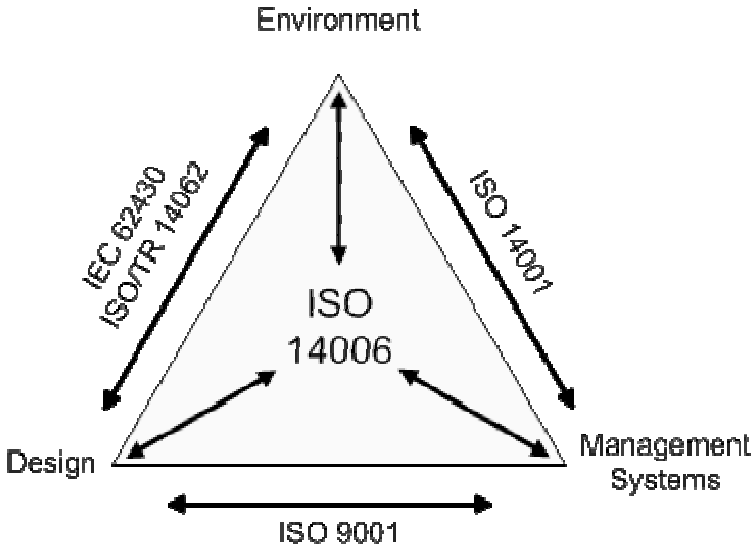

Figure 1 — Relationship between ISO 14001, ISO 9001, ISO/TR 14062, IEC 62430 and ISO 14006 and the functional areas of knowledge

This International Standard provides guidelines to assist organizations in establishing a systematic and structured approach to the incorporation and implementation of an ecodesign process within an EMS such as that described in ISO 14001. The guidelines are intended to be applicable to all organizations, regardless of type, size and product provided.

This International Standard contains three principal clauses that provide guidance to the person responsible for the EMS.

— Clause 4 addresses the role of top managers. It explains the potential benefits of ecodesign and discusses the strategic issues of relevance to business and management.

— Clause 5 shows how an ecodesign process can be incorporated into and managed under an EMS. It provides guidelines for addressing ecodesign as part of an EMS in line with the structure of ISO 14001. The requirements of ISO 14001:2004 are given in boxes and for each subclause, specific guidance is given on how the subclause relates to an ecodesign process. The product design and development activities of an organization are the focus of 5.4.6, which incorporates the method described in ISO 9001:2008, 7.3 (the requirements of which are given in boxes), supplemented by specific guidance related to ecodesign.

— The product design and development activities of an organization are the focus of 5.4.6. Although there are different ways of carrying out a design and development process, this International Standard follows the method described in ISO 9001:2008, 7.3.

— Clause 6 explains how ecodesign is addressed in the design and development process.

Annex A supplements Clause 4 by providing more detailed information on the strategic issues and the role of top management in ecodesign.

Annex B shows how this International Standard relates to existing International Standards.

Although aimed primarily at organizations that have an EMS such as that described in ISO 14001, whether or not combined with a quality management system (QMS), this International Standard is also of value for organizations that only have a QMS. It can also be useful for other organizations without a formalized EMS or QMS but which are interested in reducing the adverse environmental impacts of their products.

INTERNATIONAL STANDARD **ISO 14006:2011(E)**

Environmental management systems — Guidelines for incorporating ecodesign

1 Scope

This International Standard provides guidelines to assist organizations in establishing, documenting, implementing, maintaining and continually improving their management of ecodesign as part of an environmental management system (EMS).

This International Standard is intended to be used by those organizations that have implemented an EMS in accordance with ISO 14001, but can help in integrating ecodesign in other management systems. The guidelines are applicable to any organization regardless of its size or activity.

This International Standard applies to those product-related environmental aspects that the organization can control and those it can influence.

This International Standard does not establish by itself specific environmental performance criteria, and is not intended for certification purposes.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14050, *Environmental management — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14050 and the following apply.

3.1
design and development
set of processes that transforms requirements into specified characteristics or into the specification of a product, process or system

NOTE 1 The terms “design” and “development” are sometimes used synonymously and sometimes used to define different stages of the overall process of turning an idea into a product.

NOTE 2 Product development is the process of taking a product idea from planning to market launch and review of the product, in which business strategies, marketing considerations, research methods and design aspects are used to take a product to a point of practical use. It includes improvements or modifications to existing products or processes.

NOTE 3 Adapted from ISO 14050:2009, definition 6.3.

3.2
ecodesign
integration of environmental aspects into product design and development, with the aim of reducing adverse environmental impacts throughout a product's life cycle

NOTE Other terminology used worldwide includes Environmentally Conscious Design (ECD), Design For Environment (DFE), green design and environmentally sustainable design.

3.3
product
any goods or service

NOTE 1 The product can be categorized as follows:

— services (e.g. transport);

— software (e.g. computer program, dictionary);

— hardware (e.g. engine mechanical part);

— processed materials (e.g. lubricant).

NOTE 2 Services have tangible and intangible elements. Provision of a service can involve, for example, the following:

— an activity performed on a customer-supplied tangible product (e.g. automobile to be repaired);

— an activity performed on a customer-supplied intangible product (e.g. the income statement needed to prepare a tax return);

— the delivery of an intangible product (e.g. the delivery of information in the context of knowledge transmission);

— the creation of ambience for the customer (e.g. in hotels and restaurants).

Software consists of information, is generally intangible, and can be in the form of approaches, transactions or procedures.

Hardware is generally tangible and its amount is a countable characteristic. Processed materials are generally tangible and their amount is a continuous characteristic.

[ISO 14050:2009, definition 6.2]

4 Role of top management in ecodesign

4.1 Benefits of conducting ecodesign

The goal of ecodesign is to integrate environmental aspects into product design and development so as to reduce the adverse environmental impacts of products throughout their life cycles. In striving for this goal, multiple benefits can be achieved for the organization, its customers and other interested parties. Potential benefits may include:

a) economic benefits, e.g. through increased competitiveness, cost reduction and attraction of financing and investments;

b) promotion of innovation and creativity, and identification of new business models;

c) reduction in liability through reduced environmental impacts and improved product knowledge;

d) improved public image (both for the organization image and/or brand);

e) enhancement of employee motivation.

Organizations can obtain these kinds of benefits from ecodesign, irrespective of their size, their geographical location, their culture and the complexity of their management systems. Due to this diversity, their style of operation may vary substantially, but will not affect the benefits that can potentially be obtained. Not all these

benefits will necessarily be realized simultaneously or in a short time scale, due to, for example, financial and technological limitations.

4.2 Tasks for ecodesign

This subclause explains the tasks for top management in setting the strategic direction of the organization in relation to ecodesign, as well as in managing ecodesign implementation. Both the strategy and management activities are considered here on a general organization level. In Clause 5, strategy and management are considered from a specific EMS perspective, whereas in Clause 6 these are seen from a specific product design perspective.

Top management has two types of tasks to ensure that ecodesign is properly embedded in an organization.

a) The first task concerns the strategic aspects of ecodesign, in particular with reference to:

   1) strategic product planning and integration of ecodesign into all operations of the organization,

   2) allocating resources (human, technical and financial) for the planning, implementation and improvement of ecodesign,

   3) changes in external market conditions and opportunities arising from technological developments, improvements in the product system and supply chain management,

   4) setting objectives for environmental performance,

   5) promoting innovation and development of new business models, and

   6) contributing to value creation.

   Previous management reviews can contribute substantially towards this task.

b) The second task is management of the internal processes once the ecodesign strategy and the ecodesign focus has been set. This includes

   1) integration and implementation of the chosen ecodesign strategy in all relevant procedures, programmes and roadmaps,

   2) ensuring a cross-functional approach,

   3) involving the total value chain in the chosen design strategy, both upstream (suppliers) and downstream (after sales, service providers, recyclers), and

   4) fostering two-way communication, both in the internal and external value chain.

   In order to make sure that these processes develop in an optimum way, the setting up of a process performance measurement system can be of great help.

For further information about the role of top management in ecodesign, see Annex A.

5 Guidelines for incorporating ecodesign into an EMS

5.1 General guidelines

This clause provides guidelines for addressing ecodesign as part of an EMS such as that described in ISO 14001. In 5.2 to 5.6, the requirements of ISO 14001:2004 are reproduced in boxes, and for each subclause, specific guidance is given on issues to consider when addressing environmental aspects of a product throughout its life cycle.

The process of product design and development is the focus of 5.4.6. Although there are different ways of carrying out a design and development process, this International Standard follows the method described in ISO 9001:2008, 7.3, the requirements of which are reproduced in boxes, supplemented by specific guidance related to ecodesign.

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.1 General requirements

The organization shall establish, document, implement, maintain and continually improve an environmental management system in accordance with the requirements of this International Standard and determine how it will fulfil these requirements.

The organization shall define and document the scope of its environmental management system.

When establishing the scope of the EMS, an organization should pay specific attention to its design and development processes and the environmental aspects of its products. It is essential to include the design and development of a product within the scope of the EMS, since it has major influence on the environmental impacts of products.

5.2 Environmental policy

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.2 Environmental policy

Top management shall define the organization's environmental policy and ensure that, within the defined scope of its environmental management system, it

a) is appropriate to the nature, scale and environmental impacts of its activities, products and services,

b) includes a commitment to continual improvement and prevention of pollution,

c) includes a commitment to comply with applicable legal requirements and with other requirements to which the organization subscribes which relate to its environmental aspects,

d) provides the framework for setting and reviewing environmental objectives and targets,

e) is documented, implemented and maintained,

f) is communicated to all persons working for or on behalf of the organization, and

g) is available to the public.

To enable top management to make a commitment to and establish a framework for ecodesign, it is important that the policy

a) is in alignment with the nature, scale and significant environmental impacts of the products throughout the life cycle, and

b) includes a commitment to

— comply with applicable legal requirements and with other requirements to which the organization subscribes relating to the environmental aspects of its products,

— continual improvement of the ecodesign process, and

— continual improvement of the environmental performance of the organization's products throughout their life cycle, not shifting adverse environmental impacts from one life cycle stage to another or from one category to another, unless it results in a net reduction of negative environmental impacts throughout the product's life cycle,

c) provides the framework for setting and reviewing product-related environmental objectives and targets.

5.3 Planning

5.3.1 Environmental aspects

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.3.1 Environmental aspects

The organization shall establish, implement and maintain a procedure(s)

a) to identify the environmental aspects of its activities, products and services within the defined scope of the environmental management system that it can control and those that it can influence taking into account planned or new developments, or new or modified activities, products and services, and

b) to determine those aspects that have or can have significant impact(s) on the environment (i.e. significant environmental aspects).

The organization shall document this information and keep it up to date.

The organization shall ensure that the significant environmental aspects are taken into account in establishing, implementing and maintaining its environmental management system.

The process of identifying and evaluating environmental aspects should explicitly include the life cycle of the organization's products to be designed, or those to be redesigned. The purpose is to determine which aspects have or could have significant impact on the environment. This generally follows the stages defined below.

a) Identification of the environmental aspects related to the life cycle of the products that can be controlled or influenced by the organization.

For each life cycle stage, the organization should identify environmental aspects, both inputs (consumption of materials, energy, water and other resources used), and outputs (waste, emissions and others) that result in environmental impacts (e.g. pollution of air, water and soil, climate change).

b) Evaluation of environmental aspects to determine their significance.

In order to determine what aspects are significant, the organization should establish a method, based mainly on environmental criteria, which should take into account as many types of environmental impacts as possible. The result of the evaluation should be reproducible and consistent.

When designing or redesigning a product the evaluation of the significance of its environmental aspects may be done on the basis of previous model of the product, a similar product on the market, or a hypothetical reference.

During the design process, the organization should take into account all relevant environmental aspects, ensuring that significant ones are considered in setting its environmental objectives.

5.3.2 Legal and other requirements

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.3.2 Legal and other requirements

The organization shall establish, implement and maintain a procedure(s)

a) to identify and have access to the applicable legal requirements and other requirements to which the organization subscribes related to its environmental aspects, and

b) to determine how these requirements apply to its environmental aspects.

The organization shall ensure that these applicable legal requirements and other requirements to which the organization subscribes are taken into account in establishing, implementing and maintaining its environmental management system.

When identifying applicable legal and other requirements, the organization should pay special attention to requirements related to the environmental aspects of its products throughout its life cycle. These requirements should be taken into account in the product design and development process (see 5.4.6.3).

Some examples are given below:

— requirements from the interested parties related to the organization and its products (e.g. those derived from environmental product legislation, information provided by societal and investors' expectations, suppliers, non-governmental organizations, financing entities, insurance companies, and customers' needs, trends and expectations);

— future policy developments (e.g. new legislation concerning product specifications, product information to customer, packaging and labels for application in the near future, and restrictions and obligations resulting from national and international regulations);

— environmental standards related to products (e.g. national or international standards on environmental labelling and voluntary agreements);

— product requirements established by the business organizations to which the organization belongs, or originating from opportunities identified through the organization's environmental product strategy considerations.

This activity can be done after or in parallel with identification of environmental aspects.

5.3.3 Objectives, targets and programme(s)

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.3.3 Objectives, targets and programme(s)

The organization shall establish, implement and maintain documented environmental objectives and targets, at relevant functions and levels within the organization.

The objectives and targets shall be measurable, where practicable, and consistent with the environmental policy, including the commitments to prevention of pollution, to compliance with applicable legal requirements and with other requirements to which the organization subscribes, and to continual improvement.

When establishing and reviewing its objectives and targets, an organization shall take into account the legal requirements and other requirements to which the organization subscribes, and its significant environmental aspects. It shall also consider its technological options, its financial, operational and business requirements, and the views of interested parties.

The organization shall establish, implement and maintain a programme(s) for achieving its objectives and targets. Programme(s) shall include

a) designation of responsibility for achieving objectives and targets at relevant functions and levels of the organization, and

b) the means and time-frame by which they are to be achieved.

The setting of relevant objectives is a key factor for the success of an ecodesign process.

The organization's objectives should be focused on the improvement of the environmental impact of its products throughout their life cycle, as well as on the ecodesign process.

Objectives related to the environmental aspects of products can be

— horizontal (applicable to all types of products of an organization),

— product-specific (see 5.4.6.3), or

— related to the ecodesign process (see 6.3).

When establishing ecodesign objectives, due consideration needs to be given to other product related design objectives (e.g. relating to function, accessibility and maintenance), in order to ensure that regulatory requirements are not compromised and any design conflicts with these other objectives are resolved.

5.4 Implementation and operation

5.4.1 Resources, roles, responsibility and authority

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.4.1 Resources, roles, responsibility and authority

Management shall ensure the availability of resources essential to establish, implement, maintain and improve the environmental management system. Resources include human resources and specialized skills, organizational infrastructure, technology and financial resources.

Roles, responsibilities and authorities shall be defined, documented and communicated in order to facilitate effective environmental management.

The organization's top management shall appoint a specific management representative(s) who, irrespective of other responsibilities, shall have defined roles, responsibilities and authority for

a) ensuring that an environmental management system is established, implemented and maintained in accordance with the requirements of this International Standard,

b) reporting to top management on the performance of the environmental management system for review, including recommendations for improvement.

When defining roles and responsibilities, special attention should be paid to those involved in a product design and development process, including also other functions of the organization that could collaborate in the improvement of the environmental performance of the product (e.g. marketing, sales, production, product management, customer support).

5.4.2 Competence, training and awareness

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.4.2 Competence, training and awareness

The organization shall ensure that any person(s) performing tasks for it or on its behalf that have the potential to cause a significant environmental impact(s) identified by the organization is (are) competent on the basis of appropriate education, training or experience, and shall retain associated records.

The organization shall identify training needs associated with its environmental aspects and its environmental management system. It shall provide training or take other action to meet these needs, and shall retain associated records.

The organization shall establish, implement and maintain a procedure(s) to make persons working for it or on its behalf aware of

a) the importance of conformity with the environmental policy and procedures and with the requirements of the environmental management system,

b) the significant environmental aspects and related actual or potential impacts associated with their work, and the environmental benefits of improved personal performance,

c) their roles and responsibilities in achieving conformity with the requirements of the environmental management system, and

d) the potential consequences of departure from specified procedures.

When identifying competence needs, the organization should take into account any person(s) (from the organization or working on its behalf) who are responsible for product design and development. The organization should ensure that these people are aware of, and have knowledge of, environmental aspects and impacts related to products throughout their life cycle. Alongside other areas, people should have, or should have access to, competence in applying methodologies and tools for the identification and evaluation of environmental aspects of products and for the identification of environmental improvement strategies.

5.4.3 Communication

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.4.3 Communication

With regard to its environmental aspects and environmental management system, the organization shall establish, implement and maintain a procedure(s) for

a) internal communication among the various levels and functions of the organization,

b) receiving, documenting and responding to relevant communication from external interested parties.

The organization shall decide whether to communicate externally about its significant environmental aspects, and shall document its decision. If the decision is to communicate, the organization shall establish and implement a method(s) for this external communication.

An effective strategy covers both external and internal communication. The organization should pay attention to and should address the following aspects of communication, taking action when significant:

a) internal communication on the products' environmental performance among the various levels and functions of the organization, bottom-up, top-down and horizontal, including those directly and indirectly responsible for product design and development;

b) relevant communication from and to external interested parties (e.g. non-governmental organizations, organizations in the value chain, government): this communication supports collaboration among various interested parties in relation to the analysis of relevant environmental aspects covering the life cycle and, in addition, sharing this information facilitates the development of solutions that only become evident when different organizations come together with the purpose of minimizing the overall environmental impacts (especially when production is not the life cycle stage with the highest environmental impact);

c) informing the different parties involved in the product life cycle (e.g. users, distributors, recyclers) of the necessary actions to improve environmental performance beyond the production stage: this information can include guidance about the proper use, maintenance and end-of-life of the product, and can be given in user manuals (paper, digital format, etc.), disassembly instructions or other support documents.

This communication can include information related to:

— relevant inputs (consumption of materials, energy, water and other resources) and outputs (waste, emissions and others) throughout the life cycle (raw material acquisition, manufacturing, trade and delivery, use/maintenance, end-of-life);

— conformance with legal and regulatory requirements (e.g. energy efficiency label);

— environmental labels and declarations.

There are several International Standards that can support organizations to address and shape external communications, e.g. ISO 14020, ISO 14021, ISO 14024 and ISO 14025, which include the principles, examples and requirements for environmental labels and declarations, or ISO 14063, which provides general information about environmental communication.

NOTE The method(s) for external communication can include specific types of agreements, e.g. nondisclosure agreement.

5.4.4 Documentation

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.4.4 Documentation

The environmental management system documentation shall include

a) the environmental policy, objectives and targets,

b) description of the scope of the environmental management system,

c) description of the main elements of the environmental management system and their interaction, and reference to related documents,

d) documents, including records, required by this International Standard, and

e) documents, including records, determined by the organization to be necessary to ensure the effective planning, operation and control of processes that relate to its significant environmental aspects.

There is no additional guidance on this subclause. The requirements in ISO 14001:2004, 4.4.4, fully cover the needs for an ecodesign process.

5.4.5 Control of documents

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.4.5 Control of documents

Documents required by the environmental management system and by this International Standard shall be controlled. Records are a special type of document and shall be controlled in accordance with the requirements given in 4.5.4.

The organization shall establish, implement and maintain a procedure(s) to

a) approve documents for adequacy prior to issue,

b) review and update as necessary and re-approve documents,

c) ensure that changes and the current revision status of documents are identified,

d) ensure that relevant versions of applicable documents are available at points of use,

e) ensure that documents remain legible and readily identifiable,

f) ensure that documents of external origin determined by the organization to be necessary for the planning and operation of the environmental management system are identified and their distribution controlled, and

g) prevent the unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.

There is no additional guidance on this subclause. The requirements in ISO 14001:2004, 4.4.5, fully cover the needs for an ecodesign process.

5.4.6 Operational control

5.4.6.1 General

There are different ways of setting up a product design and development process. This International Standard follows the method described in ISO 9001:2008, 7.3. Its requirements are given in boxes and, in addition, specific guidance related to ecodesign is provided.

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.4.6 Operational control

The organization shall identify and plan those operations that are associated with the identified significant environmental aspects consistent with its environmental policy, objectives and targets, in order to ensure that they are carried out under specified conditions, by

a) establishing, implementing and maintaining a documented procedure(s) to control situations where their absence could lead to deviation from the environmental policy, objectives and targets, and

b) stipulating the operating criteria in the procedure(s), and

c) establishing, implementing and maintaining procedures related to the identified significant environmental aspects of goods and services used by the organization and communicating applicable procedures and requirements to suppliers, including contractors.

In order to ensure that an ecodesign process is carried out under specified conditions, the organization should:

— establish, implement and maintain (a) documented procedure(s) to incorporate ecodesign into the existing design and development process (see Clause 6), and

— communicate applicable procedures and requirements to suppliers, including contractors, e.g. when an external agency is employed to perform design, the agency should be informed about ecodesign approaches to ensure consistency with internal procedures.

5.4.6.2 Design and development planning

ISO 9001:2008, Quality management systems — Requirements

7.3.1 Design and development planning

The organization shall plan and control the design and development of product.

During the design and development planning, the organization shall determine

a) the design and development stages,

b) the review, verification and validation that are appropriate to each design and development stage, and

c) the responsibilities and authorities for design and development.

The organization shall manage the interfaces between different groups involved in design and development to ensure effective communication and clear assignment of responsibility.

Planning output shall be updated, as appropriate, as the design and development progresses.

NOTE Design and development review, verification and validation have distinct purposes. They can be conducted and recorded separately or in any combination, as suitable for the product and the organization.

Ecodesign should be an integral part of design and development planning. Specifically, the organization should determine how environmental considerations are integrated in the design and development stages, which environmental criteria will be used in the review, verification and validation stages, and environmentally related responsibilities and authorities for design and development.

5.4.6.3 Design and development inputs

ISO 9001:2008, Quality management systems — Requirements

7.3.2 Design and development inputs

Inputs relating to product requirements shall be determined and records maintained [...]. These inputs shall include

a) functional and performance requirements,

b) applicable statutory and regulatory requirements,

c) where applicable, information derived from previous similar designs, and

d) other requirements essential for design and development.

The inputs shall be reviewed for adequacy. Requirements shall be complete, unambiguous and not in conflict with each other.

The inputs related to ecodesign include:

— environmental requirements that respond to the horizontal objectives and targets (see 5.3.3), and

— other design requirements that respond to the legal and other requirements for the product to be designed or redesigned (see 5.3.2).

5.4.6.4 Design and development outputs

ISO 9001:2008, Quality management systems — Requirements

7.3.3 Design and development outputs

The outputs of design and development shall be in a form suitable for verification against the design and development input and shall be approved prior to release.

Design and development outputs shall

a) meet the input requirements for design and development,

b) provide appropriate information for purchasing, production and service provision,

c) contain or reference product acceptance criteria, and

d) specify the characteristics of the product that are essential for its safe and proper use.

NOTE Information for production and service provision can include details for the preservation of product.

The outputs from the product design and development process should be provided in a form suitable for verification against the design and development inputs, such as the environmental product specification. This specification should address the environmental objectives and targets for the product and the key information for improving environmental performance of the product throughout its life cycle.

This output information can be included in the documents intended for the parties involved in the product's life cycle (see 5.4.3).

NOTE Information for improving environmental performance can include instructions for recyclers, users, maintenance people, etc.

5.4.6.5 Design and development review

ISO 9001:2008, Quality management systems — Requirements

7.3.4 Design and development review

At suitable stages, systematic reviews of design and development shall be performed in accordance with planned arrangements [...]

a) to evaluate the ability of the results of design and development to meet requirements, and

b) to identify any problems and propose necessary actions.

Participants in such reviews shall include representatives of functions concerned with the design and development stage(s) being reviewed. Records of the results of the reviews and any necessary actions shall be maintained [...].

At suitable stages, systematic reviews of design and development should be performed in accordance with planned arrangements.

The review should verify that there is no shift of adverse environmental impact from one stage of the life cycle to another, or from one type to another, and that the product design and development process has not generated new significant environmental aspects in comparison to the initial environmental aspects, unless it results in a net reduction of negative environmental impacts throughout the life cycle.

To assess the improvements, the methods, assumptions and criteria used for initial identification and evaluation of the environmental aspects of the product (see 5.3.1) should be consistent with the ones used during the design and development review. Whenever it is necessary, the identification and evaluation of the product's environmental aspects should be updated.

5.4.6.6 Design and development verification

ISO 9001:2008, Quality management systems — Requirements

7.3.5 Design and development verification

Verification shall be performed in accordance with planned arrangements [...] to ensure that the design and development outputs have met the design and development input requirements. Records of the results of the verification and any necessary actions shall be maintained [...].

Verification should be done by checking the detailed design, sometimes a prototype, against the environmental objectives/targets that are set by the design specification and the environmental product performance data.

5.4.6.7 Design and development validation

ISO 9001:2008, Quality management systems — Requirements

7.3.6 Design and development validation

Design and development validation shall be performed in accordance with planned arrangements to ensure that the resulting product is capable of meeting the requirements for the specified application or intended use, where known. Wherever practicable, validation shall be completed prior to the delivery or implementation of the product. Records of the results of validation and any necessary actions shall be maintained [...].

Validation should be done through evaluating the behaviour of the final product against the environmental product specification in normal use conditions.

5.4.6.8 Control of design and development changes

ISO 9001:2008, Quality management systems — Requirements

7.3.7 Control of design and development changes

Design and development changes shall be identified and records maintained. The changes shall be reviewed, verified and validated, as appropriate, and approved before implementation. The review of design and development changes shall include evaluation of the effect of the changes on constituent parts and product already delivered. Records of the results of the review of changes and any necessary actions shall be maintained [...].

Apart from the requirements cited from ISO 9001:2008, 7.3.7, no further guidance is given for control of design and development changes.

5.4.7 Emergency preparedness and response

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.4.7 Emergency preparedness and response

The organization shall establish, implement and maintain a procedure(s) to identify potential emergency situations and potential accidents that can have an impact(s) on the environment and how it will respond to them.

The organization shall respond to actual emergency situations and accidents and prevent or mitigate associated adverse environmental impacts.

The organization shall periodically review and, where necessary, revise its emergency preparedness and response procedures, in particular, after the occurrence of accidents or emergency situations.

The organization shall also periodically test such procedures where practicable.

There is no additional guidance on this subclause. The requirements in ISO 14001:2004, 4.4.7, fully cover the needs for an ecodesign process.

5.5 Checking

5.5.1 Monitoring and measurement

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.5.1 Monitoring and measurement

The organization shall establish, implement and maintain a procedure(s) to monitor and measure, on a regular basis, the key characteristics of its operations that can have a significant environmental impact. The procedure(s) shall include the documenting of information to monitor performance, applicable operational controls and conformity with the organization's environmental objectives and targets.

The organization shall ensure that calibrated or verified monitoring and measurement equipment is used and maintained and shall retain associated records.

Monitoring and measurement should include information needed to assess conformity with the organization's objectives and targets related to the ecodesign process and with the environmental impact of its products throughout their life cycle.

In order to monitor and measure the progress of the environmental performance of the organization, in accordance with ISO 14031, two categories of indicators can be used:

— management performance indicators, which show progress regarding the management of ecodesign or the uptake of ecodesign in the organization;

— operational performance indicators, which show progress in the environmental performance of the products.

5.5.2 Evaluation of compliance

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.5.2 Evaluation of compliance

4.5.2.1 Consistent with its commitment to compliance, the organization shall establish, implement and maintain a procedure(s) for periodically evaluating compliance with applicable legal requirements.

The organization shall keep records of the results of the periodic evaluations.

4.5.2.2 The organization shall evaluate compliance with other requirements to which it subscribes. The organization may wish to combine this evaluation with the evaluation of legal compliance referred to in 4.5.2.1 or to establish a separate procedure(s).

The organization shall keep records of the results of the periodic evaluations.

Evaluation of compliance should cover legal and other requirements related to the environmental aspects of the products, including those related to life cycle stages other than production (see 5.3.2).

5.5.3 Nonconformity, corrective action and preventive action

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.5.3 Nonconformity, corrective action and preventive action

The organization shall establish, implement and maintain a procedure(s) for dealing with actual and potential nonconformity(ies) and for taking corrective action and preventive action. The procedure(s) shall define requirements for

a) identifying and correcting nonconformity(ies) and taking action(s) to mitigate their environmental impacts,

b) investigating nonconformity(ies), determining their cause(s) and taking actions in order to avoid their recurrence,

c) evaluating the need for action(s) to prevent nonconformity(ies) and implementing appropriate actions designed to avoid their occurrence,

d) recording the results of corrective action(s) and preventive action(s) taken, and

e) reviewing the effectiveness of corrective action(s) and preventive action(s) taken.

Actions taken shall be appropriate to the magnitude of the problems and the environmental impacts encountered.

The organization shall ensure that any necessary changes are made to environmental management system documentation.

There is no additional guidance on this subclause. The requirements in ISO 14001:2004, 4.5.3, fully cover the needs for an ecodesign process.

5.5.4 Control of records

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.5.4 Control of records

The organization shall establish and maintain records as necessary to demonstrate conformity to the requirements of its environmental management system and of this International Standard, and the results achieved.

The organization shall establish, implement and maintain a procedure(s) for the identification, storage, protection, retrieval, retention and disposal of records.

Records shall be and remain legible, identifiable and traceable.

There is no additional guidance on this subclause. The requirements in ISO 14001:2004, 4.5.4, fully cover the needs for an ecodesign process.

5.5.5 Internal audit

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.5.5 Internal audit

The organization shall ensure that internal audits of the environmental management system are conducted at planned intervals to

a) determine whether the environmental management system

   1) conforms to planned arrangements for environmental management including the requirements of this International Standard, and

   2) has been properly implemented and is maintained, and

b) provide information on the results of audits to management.

Audit programme(s) shall be planned, established, implemented and maintained by the organization, taking into consideration the environmental importance of the operation(s) concerned and the results of previous audits.

Audit procedure(s) shall be established, implemented and maintained that address

— the responsibilities and requirements for planning and conducting audits, reporting results and retaining associated records,

— the determination of audit criteria, scope, frequency and methods.

Selection of auditors and conduct of audits shall ensure objectivity and the impartiality of the audit process.

There is no additional guidance on this clause. The requirements in ISO 14001:2004, 4.5.5, fully cover the needs for an ecodesign process.

5.6 Management review

ISO 14001:2004, Environmental management systems — Requirements with guidance for use

4.6 Management review

Top management shall review the organization's environmental management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. Reviews shall include assessing opportunities for improvement and the need for changes to the environmental management system, including the environmental policy and environmental objectives and targets. Records of the management reviews shall be retained.

Input to management reviews shall include

a) results of internal audits and evaluations of compliance with legal requirements and with other requirements to which the organization subscribes,

b) communication(s) from external interested parties, including complaints,

c) the environmental performance of the organization,

d) the extent to which objectives and targets have been met,

e) status of corrective and preventive actions,

f) follow-up actions from previous management reviews,

g) changing circumstances, including developments in legal and other requirements related to its environmental aspects, and

h) recommendations for improvement.

The outputs from management reviews shall include any decisions and actions related to possible changes to environmental policy, objectives, targets and other elements of the environmental management system, consistent with the commitment to continual improvement.

The management review should assess opportunities to improve the environmental performance of the organization's products and its ecodesign process, and provide a framework for decision-making and actions to be taken.

6 Ecodesign activities in product design and development

6.1 General

This clause addresses a generic description of ecodesign in which life cycle thinking is the most basic principle (see 6.2). Organizations performing ecodesign should establish, document, implement and maintain an ecodesign process as an integral part of the design and development. While following these activities, the organization should document the relevant results and the subsequent conclusions and responsibilities assigned (see 5.4.6.2).

6.2 Life cycle thinking

An ecodesign process should be based on the concept of life cycle thinking, which requires consideration during the design and development process of the significant environmental aspects throughout their life cycle stages.

Key elements of life cycle thinking are:

a) having an objective to minimize the overall adverse environmental impact of the product,

b) identifying, qualifying and, where feasible, quantifying the significant environmental aspects of the product, and

c) considering the trade-offs between environmental aspects and between different life cycle stages.

These elements should be initiated as early as possible in the product design and development process, when most opportunities exist to make changes and improvements to the product's overall environmental performance throughout its life cycle. Examples of product life cycle stages influenced by ecodesign are raw material acquisition, production, sales, distribution, transport, use, service provision, maintenance and end-of-life.

Products have environmental impacts at all of these life cycle stages and these impacts can be influenced through design and development. Design decisions improving a specific life cycle stage can adversely affect environmental impacts at other stages of the product life cycle. Organizations should ensure that considerations for the environmental impact of a single stage do not adversely alter or influence the overall environmental impacts related to a product.

6.3 Ecodesign process

The choice of a design solution should achieve a balance between the various environmental aspects and other relevant considerations, such as function, technical requirements, quality, performance, business risks and economic aspects.

Where certain attributes are required for compliance with regulations (e.g. health and safety, electromagnetic compatibility), these should be met while taking into account the environmental targets. These considerations also apply to research and development of new technologies.

The following steps should be carried out during design and development (see 5.4.6):

a) specify the functions of the product;

b) define significant environmental parameters from the analysis of interested parties' environmental requirements (see 6.5) and inputs (see 5.4.6.3) and the evaluation of the environmental aspects (see 6.4 and 5.3.1);

c) identify relevant environmental improvement strategies for the product, in accordance with the environmental aspects and parameters identified in the previous steps;

d) develop environmental objectives/targets based on the improvement strategies;

e) establish a product specification addressing the environmental objectives/targets (environmental product specification);

f) develop technical solutions to meet the environmental objectives/targets, while taking into account other design considerations.

Design and development vary depending on products and organizations. There are various approaches to incorporating environmental aspects into product design and development processes.

6.4 Environmental assessment of products

When determining significant environmental aspects of the product, environmental assessment is carried out in accordance with an established procedure (see 5.3.1). There are various analysis methods and tools available, ranging in complexity from the very simple to the very advanced. The choice of method or tool depends, for example, on the organization's strategy, type of product, expertise, time and budget.

6.5 Analysis of interested parties' environmental requirements

As an initial step in ecodesign, the organization should understand the relevant legal and other interested parties' requirements, and this can be carried out in conjunction with the identification of environmental aspects. These requirements help set the basic framework within which a product is developed (see 5.3.2).

6.6 Ecodesign review

Environmental considerations should be integrated into the design review. The organization should conduct the review to evaluate whether the product has met the targets defined in the environmental product specification whenever significant environmental aspects are affected or a major design phase is completed. When the product's environmental targets are not met, improvement actions should be assigned and implemented for the current or future design (see 5.4.6.5).

Records of the design reviews, including the assigned actions arising from the review, should be maintained and serve as a support for future design and development and continual improvement.

The organization may conduct further product reviews after market launch to consider feedback from users and other interested parties, as well as additional environment-related knowledge. The results will then be incorporated into ecodesign supporting continual product improvement, into the revision of the organization's policies and procedures, setting the basis for future product realization.

6.7 Value chain involvement

As part of an ecodesign process, organizations in the value chain should cooperate and communicate information between them on their product or product category to achieve ecodesign objectives (see 5.4.3).

Examples of information to be exchanged include the following:

a) relevant energy and resources used in the product realization, transportation or during the use of the product;

b) relevant emissions generated by the product;

c) environmental data and earlier analyses/assessments of components, materials and/or sub-assemblies to be contained in the product;

d) possible design improvements, derived from each individual interested party's viewpoint, based upon their experiences with the product.

Further guidance on how to give information to interested parties on ecodesign is provided in ISO 14063.

NOTE 1 The value chain is not necessarily external to the organization. Organizational functions such as marketing, planning, design, purchasing, manufacturing and testing all form part of the internal value chain.

NOTE 2 Supply chain is a part of the value chain. The value chain includes use and end-of-life stages of the product.

Annex A
(informative)

Top management and strategic issues on ecodesign

A.1 General

For many organizations, ecodesign has become important because of its potential to reduce costs (e.g. by reduced energy and material use), to meet legal obligations and to reduce the organization's and its products' environmental impact. Simultaneously, expectation is growing amongst customers for the environmental impacts of products to be reduced in line with the concerns over global warming, resource depletion and pollution.

An ecodesign approach can contribute to gain competitive advantage, essential for the long-term success of the organization. Therefore, ecodesign should be a part of the product design and development process and should be integrated into the environmental management system (EMS). This annex provides supplementary information to that provided in Clause 4 on the role of top management when incorporating ecodesign within an EMS, such as that described in ISO 14001.

A.2 Factors that influence ecodesign

When establishing ecodesign strategies, it is important to consider the following external factors:

a) those that encourage organizations to improve the environmental performance of their products, e.g.

   — environmental legislation;

   — environmental opinions and perception of customers and other interested parties;

   — activities of the competition;

   — environmental requirements as expressed by non-governmental organizations;

b) those that provide the necessary financial, technological or resource support for the improvement of the environmental performance of their products, e.g.

   — increased interest of the financial world in environmental matters, particularly in regard to investment opportunities;

   — contributions from parts of the value chain (suppliers, recyclers);

   — environmental knowledge of research institutions, universities and trade associations;

   — developments in technology.

Interested parties may have an important role in cooperating with the organization in formulating its strategy and the way it could offer new products that fulfil societal needs. Interested parties are also important to the subsequent implementation of such strategic objectives; often this requires the establishment of new partnerships or alliances.

A.3 Strategic aspects of ecodesign

A.3.1 Strategic product planning

Exploration of the factors influencing and supporting ecodesign and the relationship with interested parties as mentioned in Clause A.2 provide input into strategic product planning. This input should be balanced against technical, economic and societal aspects. Once this has been considered, the priorities for ecodesign can be set. These priorities may include the following:

a) environmental focus, e.g. on emissions, resources or toxicity issues;

b) organizational focus, e.g. on legal compliance, cost reduction, or increasing market share (or mixes of these),

c) customer focus, which can vary greatly from primary interest in price to primary interest in product features or in aesthetic design.

The ecodesign priorities can be further specified so that they properly reflect the intentions of the organization. This can be of help to structure further incorporation of ecodesign into product design and development (see Clause 6).

A.3.2 Setting objectives for environmental performance

The setting of objectives for environmental performance depends primarily on the policy and strategy of the organization with regard to ecodesign (see Clause A.2). It can take a defensive attitude or a proactive one. It can put emphasis on ecodesign which correlate with cost reduction or focus on selling more through bringing environmentally conscious products to the market. Irrespective of the strategy chosen, environmental objectives should be measurable, have a timeline and indicate who is responsible for their achievement. Tangible forms for improvement/reduction can include amounts or percentages of emissions or relevant physical parameters.

A.3.3 Promoting innovation and new business development

Innovation is a way for an organization to improve its competitiveness; experience with proactive organizations of all sizes has shown that an ecodesign strategy can offer a stimulus for innovation. The strategic environmental choices made by the organization, the monitoring of core activities of competitors in the field and the dialogue with its interested parties provide the foundation for enhancing innovation. The principles of ecodesign, such as functionality and life cycle thinking, pollution prevention, doing more with less and change of the traditional mindset, can also provide the inspiration for developing new types of doing business.

A.3.4 Contributing to value creation

The value of products is determined through their functionality, which can be physical, economic, intangible and emotional. Ecodesign can have a positive impact on functionality, as follows:

a) energy consumption and material use are linked to physical functionality, e.g. smaller, lighter products;

b) material and energy reduction, less packaging and transport and products designed for easier disassembly are related to economic functionality, e.g. lower transport cost, lower energy cost to user;

c) material aesthetics and durability can be elements of emotional functionality.

Ecodesign can contribute substantially to value creation in parallel to its primary purpose of lowering the environmental impact of products. Societal developments, perceptions of interested parties and, in particular, of customers determine to a large extent the potential value creation of ecodesign. Analysis of such issues will show what dimensions of ecodesign are to be addressed in a comprehensive ecodesign strategy.

A.3.5 Review of ecodesign objectives

Top management should regularly review whether the ecodesign objectives, as highlighted in A.3.2, are achieved in relation to the products launched in the market and whether they remain appropriate. A detailed set of issues which can be addressed is given in 5.6. A review can be used at the beginning of the implementation of ecodesign. Review of external developments can assist in reformulating ecodesign strategies already in place. Such developments can include the following:

a) new environmental policy or legislation;

b) changing customers' attitudes or demands;

c) new issues raised by interested parties;

d) ecodesign activities by competitors.

A.4 Management of the internal processes of ecodesign

A.4.1 Implementation of the chosen ecodesign strategy

Implementing the ecodesign strategy means that management need to address ecodesign issues in operational planning and control. To be effective, it is essential that environmental aspects are integrated into product design and development both at a management and design level (see Clauses 5 and 6). This means that ecodesign issues need to be built into management thinking, reporting and practice.

Once the strategic direction and the objectives for ecodesign of products have been set, top management should support the implementation and maintenance of the activities required to achieve the environmental objectives.

Top management actions should enable effective implementation of procedures, programmes, roadmaps and targets, including the allocation of sufficient financial and human resources (see also 5.4.1). An effective integration programme engages functions in the complete internal value chain, in particular those involved in the product design and development process, but also marketing, sales, production, environment, procurement and service functions.

A.4.2 Cross functional approach

A.4.2.1 The success of integrating environmental aspects into product design and development in an organization is enhanced by involvement of relevant disciplines and organizational functions such as design, production, engineering, marketing, environment, quality, purchasing, service delivery, etc. These functions often involve a varying number of people, depending on the size of the organization.

The aim of a cross functional approach is to ensure that all relevant organizational functions contribute and commit to environmental improvement in the earliest stages of the design and development process and stay involved throughout the process, up to and including market launch and product review. The key tasks and participants (in brackets) of the organizational functions involved in implementing ecodesign are indicated in A.4.2.2 and A.4.2.3.

A.4.2.2 For the short term:

a) researching and implementing creative solutions in product design and development (product planners, developers and designers);

b) investigating and providing information on the technical feasibility of alternative designs, manufacturing, materials or processes (developers, designers);

c) investigating and documenting environmental aspects and environmental validation of proposed solutions/improvement (environmental specialists);

d) communications and commitment from the internal value chain (purchasing, marketing and sales, environmental specialists);

e) communications and commitment from the external value chain (suppliers, retailers, customers, recyclers and disposers);

f) collecting and documenting data on materials and components/sub-assemblies and informing suppliers about the organization's environmental requirements (purchasing managers);

g) checking technical performance of supplier's production or the end-of-life processes (purchasing, engineers).

A.4.2.3 For the long term:

a) establishing baseline environmental measurement systems based on previous product generations, competitors' products, etc. (management);

b) considering and tracking new developments in legislation, environmental regulations, competitors' (environmental specialists);

c) increasing environmental awareness through training and education (environmental specialists, trainers);

d) assessing future activities and customers' needs, and providing strategic information on the direction of product development and pricing of the end product (product managers, marketing and sales managers).

A.4.3 Involving the value chain

Value chain management deals with interactions with suppliers, sub-contractors**,** transportation companies, trade and retailers, customers, recyclers, waste managers and other “end of life” actors. These interactions can have a different character, depending on the influence the organization can have on the value chain. Tasks that may be considered with value chain management are the following:

a) increasing the amount and quality of environmental information and awareness among suppliers and customers;

b) benchmarking of environmental performance of actors in the value chain;

c) specifying and discussing environmental requirements for organizations within the value chain (e.g. the use of supplier standards or environmental measurement systems);

d) involving suppliers and recyclers in redesign of products;

e) establishing programmes in relation to reuse and recycling of packaging, materials, components/sub-assemblies or the whole product.

A.4.4 Internal and external communication

A communication strategy is an integral part of the process of both internal and external value chain management.

Internal communication could involve providing information to employees on the following:

a) the organization's policy and programmes;

b) successful environmental projects or products;

c) opportunities to personally contribute;

d) training courses on environmental issues, programmes and tools;

e) how performance in the sustainability field will be considered in the regular appraisals.

Such communication can also involve mechanisms that obtain feedback from employees on product design and development issues.

External communication can be an opportunity for enhancing the value and benefits of integrating environmental aspects of the organization's operations. This communication can be to interested parties, such as customers and suppliers, and can include information on the following:

— benefits for customers, suppliers and society;

— product properties (performance, environmental aspects, etc.);

— proper use, transport, maintenance and end-of-life management.

NOTE For further information on environmental communication, see ISO 14063.

A.4.5 Reviewing ecodesign activities at an organizational level

In order to make a chosen ecodesign strategy, operational responsibilities, a timeline and deliverables are needed. Once these elements are in place, this will allow measurement of how ecodesign has evolved in the organization. There are many forms of such measurement, from very simple to very sophisticated ones. Whatever form is chosen, performance measurement will allow for a variety of issues to be addressed, such as corrective actions and appraisals or incentives for the people responsible.

Annex B
(informative)

Correlation of ISO 14006:2011 with other International Standards on ecodesign

B.1 Correlation of ISO 14006:2011 with other International Standards on ecodesign

As illustrated in Figure B.1, Clause 5 of this International Standard links all the elements of the different International Standards that are necessary to carry out ecodesign.

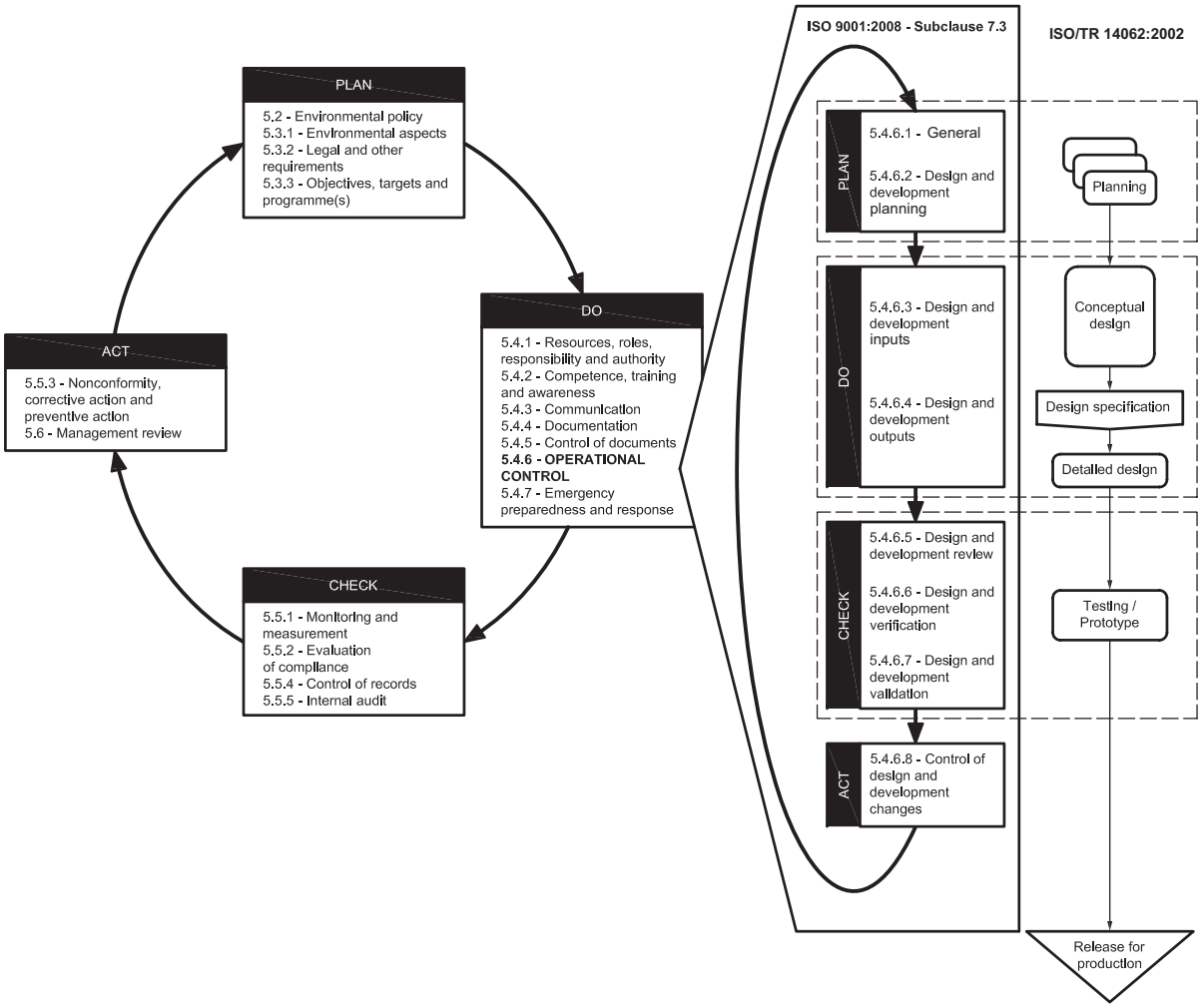

Figure B.1 — Interrelationship between ISO 14006:2011, Clause 5 and other International Standards on ecodesign

B.2 Correspondence between ISO 14006:2011, ISO 14001:2004 and ISO 9001:2008

Table B.1 shows the correspondence between ISO 14006:2011, ISO 14001:2004 and ISO 9001:2008.

Table B.1 — Correspondence between ISO 14006:2011, ISO 14001:2004 and ISO 9001:2008

ISO 14001:2004, clause/subclause		ISO 14006:2011, clause/subclause	ISO 9001:2008, clause/subclause	
Environmental management system requirements (title only)	4	**5**	4	Quality management system (title only)
General requirements	4.1	**5.1**	4.1	General requirements
Environmental policy	4.2	**5.2**	5.1	Management commitment
			5.3	Quality policy
			8.5.1	Continual improvement
Planning (title only)	4.3	**5.3**	5.4	Planning (title only)
Environmental aspects	4.3.1	**5.3.1**	5.2	Customer focus
			7.2.1	Determination of requirements related to the product
			7.2.2	Review of requirements related to the product
Legal and other requirements	4.3.2	**5.3.2**	5.2	Customer focus
			7.2.1	Determination of requirements related to the product
Objectives, targets and programme(s)	4.3.3	**5.3.3**	5.4.1	Quality objectives
			5.4.2	Quality management system planning
			8.5.1	Continual improvement
Implementation and operation (title only)	4.4	**5.4**	7	Product realization (title only)
Resources, roles, responsibility and authority	4.4.1	**5.4.1**	5.1	Management commitment
			5.5.1	Responsibility and authority
			5.5.2	Management representative
			6.1	Provision of resources
			6.3	Infrastructure
Competence, training and awareness	4.4.2	**5.4.2**	6.2.1	(Human resources) General
			6.2.2	Competence, training and awareness
Communication	4.4.3	**5.4.3**	5.5.3	Internal communication
			7.2.3	Customer communication
Documentation	4.4.4	**5.4.4**	4.2.1	(Documentation requirements) General
Control of documents	4.4.5	**5.4.5**	4.2.3	Control of documents

Table B.1 (*continued*)

ISO 14001:2004, clause/subclause		ISO 14006:2011, clause/subclause	ISO 9001:2008, clause/subclause	
Operational control	4.4.6	**5.4.6**	7.1	Planning of product realization
		5.4.6.1	7.2.1	Determination of requirements related to the product
			7.2.2	Review of requirements related to the product
		5.4.6.2	7.3.1	Design and development planning
		5.4.6.3	7.3.2	Design and development inputs
		5.4.6.4	7.3.3	Design and development outputs
		5.4.6.5	7.3.4	Design and development review
		5.4.6.6	7.3.5	Design and development verification
		5.4.6.7	7.3.6	Design and development validation
		5.4.6.8	7.3.7	Control of design and development changes
			7.4.1	Purchasing process
			7.4.2	Purchasing information
			7.4.3	Verification of purchased product
			7.5.1	Control of production and service provision
			7.5.2	Validation of processes for production and service provision
			7.5.5	Preservation of product
Emergency preparedness and response	4.4.7	**5.4.7**	8.3	Control of nonconforming product
Checking (title only)	4.5	**5.5**	8	Measurement, analysis and improvement (title only)
Monitoring and measurement	4.5.1	**5.5.1**	7.6	Control of monitoring and measuring equipment
			8.1	(Measurement, analysis and improvement) General
			8.2.3	Monitoring and measurement of processes
			8.2.4	Monitoring and measurement of product
			8.4	Analysis of data
Evaluation of compliance	4.5.2	**5.5.2**	8.2.3	Monitoring and measurement of processes
			8.2.4	Monitoring and measurement of product
Nonconformity, corrective action and preventive action	4.5.3	**5.5.3**	8.3	Control of nonconforming product
			8.4	Analysis of data
			8.5.2	Corrective action
			8.5.3	Preventive action
Control of records	4.5.4	**5.5.4**	4.2.4	Control of records
Internal audit	4.5.5	**5.5.5**	8.2.2	Internal audit
Management review	4.6	**5.6**	5.1	Management commitment
			5.6	Management review (title only)
			5.6.1	General
			5.6.2	Review input
			5.6.3	Review output
			8.5.1	Continual improvement

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