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Environmental management systems — Guidelines for incorporating ecodesign

Systèmes de management environnemental — Lignes directrices pour intégrer l'éco-conception

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 207, *Environmental management*, Subcommittee SC 1, *Environmental management systems*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/SS S26, *Environmental management*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 14006:2011), which has been technically revised. The main changes compared with the previous edition are as follows:

— Clause 6, which covered ecodesign at an operational level, has been deleted due to the development of IEC 62430:2019 (however, the basic information has been retained in a new Annex C);

— the structure has been adapted to ISO 14001:2015;

— the boxes related to ISO 14001 and ISO 9001 have been removed;

— text has been added to address management issues related to the outsourcing of ecodesign;

— a new Clause 11 covering management issues associated with setting ecodesign has been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

0.1 Audience

This document is primarily aimed at organizations that have an environmental management system (EMS), such as that described in ISO 14001, whether or not combined with a quality management system (QMS). This document can also be useful for organizations that only have a QM, as well as for organizations without a formalized EMS or QMS, but that are interested in reducing adverse product-related environmental impacts.

NOTE In this document, the term "product" is understood to cover both goods and services (see 3.2.3).

0.2 Concepts and definitions

Organizations are recognizing both the need to reduce adverse impacts on the environment from their product(s) and the need to include environmental considerations in design and development, applying life cycle thinking. This process is generally called "ecodesign". Other terms that are used include "design for environment (DfE)", "environmentally conscious design (ECD)", "environmentally sustainable design" and "green design". The term "ecodesign" is used throughout this document.

NOTE In this document, design and development is regarded as a process, and is referred to as simply "design and development".

Ecodesign is defined in this document as a systematic approach, which considers environmental aspects in design and development with the aim to reduce adverse environmental impacts throughout the life cycle of a product. In this document it is understood that the EMS should take account of design and development, and, within that, ecodesign, with a view to enhancing product-related environmental performance.

Ecodesign should be applied to new and existing products, including the modification of processes as needed in delivering products.

0.3 Life cycle thinking and trade-offs

0.3.1 Life cycle thinking

Life cycle thinking is essential for ecodesign.

Life cycle thinking means the consideration of environmental aspects relevant to a product during its entire life cycle. This implies considering consecutive and interlinked stages, such as:

— material acquisition;

— design and development;

— manufacturing;

— delivery and installation;

— use (including reuse, maintenance, repair, remanufacturing, refurbishing and upgrading);

— end-of-life treatment;

— disposal.

NOTE In this document, the use of the term "life cycle" is different from other terms used in relation to products, e.g. the term "product life cycle (PLC)" describes the market stages of a product: introduction, growth, maturity and decline, and the term "product life cycle management (PLM)" describes a system used to manage the data and design process associated with the life of a product, from its design and development through to its manufacture and finally to its disposal.

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0.3.2 Trade-offs

Inherent in ecodesign are trade-offs, which, in this document, implies balancing pros and cons between various product-related environmental requirements and alternative product solutions in order to make an informed decision on the basis of the net benefit to interested parties.

0.4 Why implement ecodesign?

Legislation, codes of conduct and customer demands associated with product-related environmental impacts are being implemented at an increasing rate worldwide. This is leading many organizations to focus on improving the environmental performance of their products across different life cycle stages. Such organizations need guidance on how to develop and implement systematic approaches to ecodesign, in order to achieve the organization's environmental objectives and to enable a continual improvement in the environmental performance of products. This will have an impact on design and development and will need to be managed within the EMS.

An organization and its product(s) have environmental impacts (e.g. climate change) that are derived from its environmental aspects. It can influence its product-related environmental aspects, e.g. energy consumption through decisions in design and development.

In order to be of benefit to the organization and to ensure that it achieves its environmental objectives, it is intended that ecodesign be carried out as an integral part of the business operations of the organization, particularly in design and development.

The reasons why an organization should integrate ecodesign into design and development include:

a) increasing concern over damage to the environment, e.g. climate change, depletion of resources, loss of biodiversity, pollution;

b) recognition of business opportunities related to resource efficiency and the circular economy (e.g. strategies to enable lower carbon and water use, as well as product-life-extension strategies including product reuse, repair, refurbishment and remanufacturing);

c) life cycle thinking facilitates:

   1) the identification of product-related environmental requirements expressed by customers, and other external and internal interested parties:

   2) the avoidance of unintentionally shifting environmental impacts within the life cycle.

0.5 Why ecodesign in an EMS?

As stated in ISO 14001, an organization is expected to consider life cycle thinking when determining the environmental aspects of its activities, products and services that it determines it can either control or influence. A benefit of linking an EMS to design and development, therefore, is that it requires the identification of product-related environmental aspects and their associated environmental impacts at each life cycle stage.

0.6 What are the needs and considerations when integrating ecodesign in EMS?

The integration of ecodesign into design and development needs the support of top management (see 5.1).

When ecodesign is implemented within an EMS, the person(s) responsible for the EMS should have an understanding of design and development (see Clause 11), product-related environmental issues and the requirements of interested parties. In this way, the integrity of the EMS is not jeopardized and the product-related environmental objectives can be achieved.

If ecodesign is not implemented within an EMS, the organization should provide product-related environmental training and guidance to those involved in design and development in order to ensure the integration of ecodesign into the process.

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Implementing ecodesign requires a multidisciplinary approach with buy-in from all relevant business functions (e.g. marketing, sales, logistics, manufacturing) and external partners (e.g. recyclers, suppliers, consultants).

To incorporate ecodesign in the context of an EMS, aligned with the organization's business objectives, competence needs should be considered. This includes:

a) understanding how products are being designed and developed;

b) determining and evaluating the importance of the environmental aspects and the associated impacts of a product on the environment throughout its life cycle;

c) determining the environmental significance in terms that designers can understand and apply;

d) identifying appropriate measures to reduce the adverse effects of environmental impacts;

e) understanding how ecodesign and its management fit within an EMS or are supported by an EMS.

0.7 Relationships with other documents

This document addresses three interrelated areas required for ecodesign within an EMS: environment, design and development, and management systems.

Figure 1 illustrates the relationship between the three related International Standards, their scope of knowledge and their relationship with this document, which links all three areas and related documents. See also Annex B.

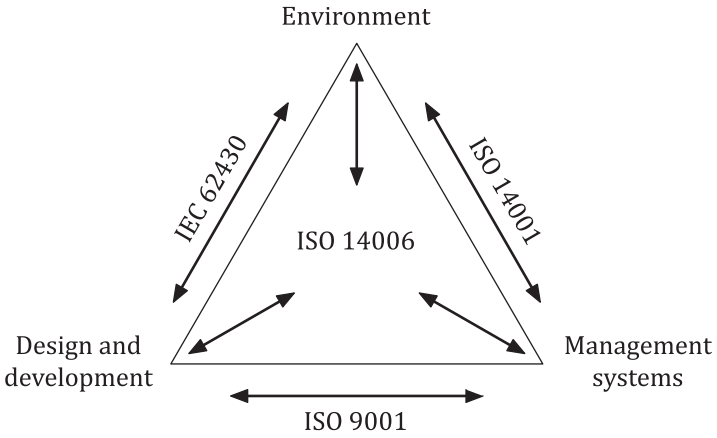


Figure 1 — Relationship between ISO 14001, ISO 9001, IEC 62430, this document and the organization's business functions

ISO 14001 links the management of an organization's processes with environmental aspects and associated environmental impacts. It includes design management in ISO 14001:2015, 8.1 a).

ISO 9001:2015, 8.3, covers the design management process, but does not explicitly cover environmental impacts.

IEC 62430:2019 assists in the incorporation of an evaluation of environmental aspects and associated impacts into design and development, but, as such, it does not fully explain the activities involved within an environmental and business management framework, such as those described in ISO 14001.

This document provides guidelines to assist organizations in establishing a systematic and structured approach to the incorporation and implementation of ecodesign 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.

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This document refers to 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 an EMS. By using this document, 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 document, 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 document in a flexible and practical manner.

0.8 Overview, structure and guidance for reading

Clauses 4 to 10 show how ecodesign can be incorporated into and managed under an EMS. They provide guidelines for addressing ecodesign as part of an EMS in line with the structure of ISO 14001.

— Clause 4 discusses the strategic issues, such as the context of the organization and the needs and expectations of interested parties of relevance to the business, management of the organization and EMS.

— Clause 5 addresses the role of top management. It explains the potential benefits of ecodesign and discusses the strategic issues of relevance to business and management.

— The design and development activities of an organization are the focus of Clauses 6 and 8. Although there are different ways of carrying out design and development, this document follows the method described in ISO 9001:2015, 8.3, supplemented by specific guidance related to ecodesign (see 8.1.1).

— Clause 7 addresses resources, competence, awareness, communication and documentation.

— Clause 9 addresses internal audits.

— Clause 10 addresses continual improvement.

— Clause 11 gives guidance on how to get started with ecodesign.

Annex A supplements Clauses 4 to 5 and 9 to 11 by providing more detailed information on the strategic issues and the role of top management in ecodesign.

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

Annex C describes the basics of operational ecodesign activities in design and development.

Annex D clarifies the use of some concepts not defined in Clause 3.

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Environmental management systems — Guidelines for incorporating ecodesign

1 Scope

This document gives guidelines for assisting organizations in establishing, documenting, implementing, maintaining and continually improving their management of ecodesign as part of an environmental management system (EMS).

This document is intended to be used by organizations that have implemented an EMS in accordance with ISO 14001, but it can also help in integrating ecodesign using other management systems. The guidelines are applicable to any organization regardless of its type, size or product(s) provided.

This document is applicable to product-related environmental aspects and activities that an organization can control and those it can influence.

This document does not establish specific environmental performance criteria.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1 Terms related to organization and leadership

3.1.1
management system
set of interrelated or interacting elements of an *organization* (3.1.5) to establish policies and *objectives* (3.2.9) and *processes* (3.3.4) to achieve those objectives

Note 1 to entry: A management system can address a single discipline or several disciplines (e.g. quality, *environment* (3.1.3), occupational health and safety, energy, financial management).

Note 2 to entry: The system elements include the organization's structure, roles and responsibilities, planning and operation, *performance* (3.4.9) evaluation and improvement.

Note 3 to entry: The scope of a management system can include the whole of the organization, specific and identified functions of the organization, specific and identified sections of the organization, or one or more functions across a group of organizations.

[SOURCE: ISO 14001:2015, 3.1.1]

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