

INTERNATIONAL STANDARD

ISO 46001

First edition
2019-07

Water efficiency management systems — Requirements with guidance for use

*Systèmes de management de l'utilisation efficace de l'eau —
Exigences et recommandations d'utilisation*



Reference number
ISO 46001:2019(E)

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Published in Switzerland

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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 224, *Service activities relating to drinking water supply, wastewater and stormwater systems*.

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

Water is essential to life and forms part of the environment. Global concern for the state of the environment has identified that water resources are subject to significant pressures from water demand and from the impacts of climate change. The pressures on organizations to implement water efficiency programmes can arise from limited water resources and exist particularly in resource exploitation activities such as mining, forestry, oil and gas extraction, and in agriculture. They might also arise from commercial, institutional and industrial activities whether water is supplied by water utilities or comes directly from the environment.

As pressure grows to improve the quality of the environment and increase sustainability, organizations of all types and sizes are increasingly turning their attention to the environmental impacts of their activities, products and services. This might include measuring the water footprint of an activity or striving towards a more efficient use of water within an organization. Achieving sound water efficiency performance requires organizational commitment to a systematic approach and to the achievement of continual improvement in water use through a water efficiency management system.

Water efficiency management, like quality management, environmental management and energy management could be a matter of vital interest in promoting sustainable economic activities, industries and ultimately a sustainable environment. The introduction of water efficiency programs is often, but not always, triggered by a shortage in water supply.

The purpose of this document is to enable organizations to assess and account for their water use, and to identify, plan and implement measures to achieve water savings through the systematic management of water. Successful implementation depends on commitment from all levels and functions within the organization, especially commitment by top management.

This document specifies water efficiency management system requirements and contains guidance for its use. Using this document, an organization can develop and implement a water efficiency policy through the establishment of objectives, targets, action plans, monitoring, benchmarking, and review programs. These should take into account any requirements related to significant water use. A water efficiency management system enables an organization to achieve its relevant policy commitments and take action as needed to improve its water management according to the requirements of this document. This document can apply to some or all of the activities under the control of the organization. Application of this document may be tailored to fit the specific requirements of the organization, including the complexity of its system, the degree of documentation and available resources.

In any organization, water might be used for a variety of purposes, including the following:

- a) cleaning;
- b) transportation;
- c) heating and cooling;
- d) manufacturing a product and as part of a product;
- e) drinking;
- f) sanitation;
- g) irrigation;
- h) fire suppression;
- i) recreational, water sport and aesthetic purposes.

The adoption and proper implementation of a water efficiency management system is intended to result in improved water efficiency and can help to achieve the following outcomes:

- 1) identifying water as a resource that can be considered as part of organizational and budgetary planning;
- 2) assisting an organization to better manage water use and optimize water demand;
- 3) recognizing the impact on others that can occur with changing water use;
- 4) ensuring a greater level of accountability in water use;
- 5) providing a process for regular review for possible improvement and adoption of opportunities arising in water efficiency.

Water efficiency management systems — Requirements with guidance for use

1 Scope

This document specifies requirements and contains guidance for its use in establishing, implementing and maintaining a water efficiency management system. It is applicable to organizations of all types and sizes that use water. It is focused on end-use consumers.

This document is applicable to any organization that wishes to:

- a) achieve the efficient use of water through the ‘reduce, replace or reuse’ approach;
- b) establish, implement and maintain water efficiency;
- c) continually improve water efficiency.

This document specifies requirements and contains guidance for its use regarding organizational water use. It includes monitoring, measurement, documentation, reporting, design and procurement practices for equipment, systems, processes and personnel training that contribute to water efficiency management.

NOTE 1 ‘Reduce’ includes the use of water-efficient fittings and equipment and, for example, putting in place a proper monitoring system for usage and leak detection.

NOTE 2 ‘Replace’ includes substitution of drinking water with reclaimed water, sea water and rainwater wherever feasible.

NOTE 3 ‘Reuse’ includes recycling of, for example, process water or grey water. For utilizing water reuse systems, ISO/TC 282 documents can be referred to as guidelines.

NOTE 4 Guidance in the annexes provides additional practical information to support implementation. [Annex A](#) provides guidance on the use of this document and [Annex B](#) gives examples of scenarios in water efficiency.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 24513, *Service activities relating to drinking water supply, wastewater and stormwater systems — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 24513 and the following 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/>

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3.1 audit

systematic, independent and documented *process* (3.24) for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled

Note 1 to entry: An audit can be an internal audit (first party) or an external audit (second party or third party), and it can be a combined audit (combining two or more disciplines).

Note 2 to entry: An internal audit is conducted by the organization itself, or by an external party on its behalf.

Note 3 to entry: “Audit evidence” and “audit criteria” are defined in ISO 19011.

[SOURCE: ISO/IEC Directives Part 1, 2019, Annex L, Appendix 2, 3.17]

3.2 baseline water efficiency indicator

reference level of water used per *business activity indicator* (3.4)

Note 1 to entry: “Used” in the context of this indicator means the net amount of water used (including any water consumed) in the course of the *business activity* (3.3), discounting the amount of water applied that is reclaimed or recycled for further use.

Note 2 to entry: The indicator can be established in the initial *water use review* (3.40) considering a data period suitable to the *organization’s* (3.20) *water use* (3.39) (including any water consumed).

3.3 business activity

umbrella term covering all the functions, *processes* (3.24), activities and transactions of an *organization* (3.20) and its employees

Note 1 to entry: Includes public administration as well as commercial business.

[SOURCE: ISO 16175-2:2011, 3.4, modified — “an” deleted; 2nd sentence becomes Note 1 to entry.]

3.4 business activity indicator

measure of *business activity* (3.3) that takes into account core business operations specific to the application site

Note 1 to entry: Depending on the business activity indicator, *water use* (3.39) (including any water consumed) will vary. For example, m³ of water/kg of product; l/person supplied; m³ of water/guestroom.

EXAMPLE Quantity of products produced, number of staff and visitors, number of guestrooms.

3.5 competence

ability to apply knowledge and skills to achieve intended results

[SOURCE: ISO/IEC Directives Part 1, 2019, Annex L, Appendix 2, 3.10]

3.6 conformity

fulfilment of a *requirement* (3.26)

Note 1 to entry: In English the word “conformance” is synonymous but deprecated. In French the word “compliance” is synonymous but deprecated.

[SOURCE: ISO/IEC Directives Part 1, 2019, Annex L, Appendix 2, 3.18, modified — Note 1 to entry added.]

3.7 continual improvement

recurring activity to enhance *performance* (3.22)

Note 1 to entry: The process of establishing *objectives* (3.19) and finding opportunities for improvement is a continual process through the use of audit findings and audit conclusions, analysis of data, management reviews or other means, and generally leads to *corrective action* (3.8) or preventive action.

Note 2 to entry: In the case of this document the recurring process is one of enhancing the *water efficiency management system* (3.36) in order to achieve improvements in overall *water efficiency performance* (3.37) consistent with the *organization's* (3.20) *water efficiency policy* (3.35).

[SOURCE: ISO/IEC Directives Part 1, 2019, Annex L, Appendix 2, 3.21, modified — Notes 1 and 2 to entry added.]

3.8 corrective action

action to eliminate the cause of a *nonconformity* (3.18) and to prevent recurrence

Note 1 to entry: There can be more than one cause for a nonconformity.

[SOURCE: ISO/IEC Directives Part 1, 2019, Annex L, Appendix 2, 3.20, modified — Note 1 to entry added.]

3.9 documented information

information required to be controlled and maintained by an *organization* (3.20) and the medium on which it is contained

Note 1 to entry: Documented information can be in any format and media, and from any source.

Note 2 to entry: Documented information can refer to:

- the *management system* (3.15), including related *processes* (3.24);
- information created in order for the organization to operate (documentation);
- evidence of results achieved (records).

[SOURCE: ISO/IEC Directives Part 1, 2019, Annex L, Appendix 2, 3.11]

3.10 effectiveness

extent to which planned activities are realized and planned results achieved

[SOURCE: ISO/IEC Directives Part 1, 2019, Annex L, Appendix 2, 3.6]

3.11 full-time equivalent

ratio of the total number of occupant hours spent in the facility divided by the standard working hours per day

Note 1 to entry: The ratio provides an estimation of actual facility occupancy in terms of hours occupied per day and is used to determine the number of occupants for the facility.

[SOURCE: ISO 24513:2019, 3.1.15]

3.12 grey water

greywater
graywater

wastewater from bathtubs and showers, hand basins, kitchen sinks, clothes washing and laundry tubs but excluding excreta and *trade effluent* (3.30)

Note 1 to entry: It excludes used water from urinals or toilet bowls.