SLOVENSKI STANDARD
SIST EN 17840:2023

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Ocena učinkovitosti in uspešnosti ter stanja stavb in nizkih gradenj - Okvir za ocenjevanje pri obvladovanju fizičnega premoženja

Performance and condition assessment for buildings and civil engineering works - Framework for assessment within physical asset management

Leistungs- und Zustandsbewertung für Immobilien ¿ Bewertungsrahmen für Gebäude und Anlagentechnik

Évaluation de la performance et de l'état des bâtiments et des ouvrages de génie civil - Cadre de l'évaluation dans le cadre de la gestion d'actifs physiques

Ta slovenski standard je istoveten z: **EN 17840:2023**

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Performance and condition assessment for buildings and civil engineering works - Framework for assessment within physical asset management

Évaluation de la performance et de l'état des bâtiments et des ouvrages de génie civil - Cadre de l'évaluation dans le cadre de la gestion d'actifs physiques

Leistungs- und Zustandsbewertung für Immobilien - Bewertungsrahmen für das Anlagenmanagement

This European Standard was approved by CEN on 9 July 2023.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Page

European foreword

This document (EN 17840:2023) has been prepared by Technical Committee CEN/TC 319 “Maintenance”, the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by March 2024, and conflicting national standards shall be withdrawn at the latest by March 2024.

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Introduction

There are various standards available about monitoring, inspection and assessment of physical assets. All these standards have their own purpose and place in the field of assessment. This document for performance and condition assessment is an umbrella standard for physical assets and refers to other standards for detailed methods.

The scope of this document is buildings and civil engineering works. The intended audience for this document is asset owners (small and large, public and private), asset managers, facility managers, property managers, observers and consultants.

This document consists of two parts:

— the assessment process: The steps that are needed to perform an assessment;

— the observation process: The steps that are needed for acquiring and analysing the asset status data to give recommendations as part of the assessment process.

In both cases, the purpose is to enhance the quality of the assessment and to provide information for the asset owner/manager to support the decision making process.

The document assists asset and facility managers in selecting the appropriate technique and determining the quality of the work that has been done.

1 Scope

This document specifies and gives guidance on the performance and condition assessment process of existing physical assets in the utilization stage (from commissioning to the end of life).

This document relates to assessment of physical assets within the building and civil engineering sector; however, it can also be used in other sectors where applicable.

This document specifies a generic framework for assessment, specification of requirements, the observation process and gathering of the required information in order to sustain informed asset management decision making.

This document is an umbrella standard and refers to other standards for detailed methods. It does not replace any other standard, but is an addition to provide a system for the assessment work.

NOTE 1 The references to other standards only relate to building and civil engineering works. There are no references for production machinery and equipment, offshore, electrical and mechanical assets, mobile assets and non-tangible assets.

NOTE 2 In this document the physical assets will be referred to as assets, except in the Clause Terms and definitions.

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.

NOTE Several terms have multiple definitions in different standards, depending on the context. All definitions in this document are fitted for performance and condition assessment.

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

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

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

3.1 Asset management

3.1.1
aggregated assets
set of assets that interact or are interrelated

Note 1 to entry: A sewage system, tunnel, building, bridge, network of motorways are typical examples of aggregated assets.

Note 2 to entry: Aggregated assets can also be referred to as an asset system.

3.1.2
asset management
coordinated activity of an organization to realize value from assets

Note 1 to entry: Realization of value will normally involve a balancing of costs, risks, opportunities and performance benefits.

Note 2 to entry: Activity can also refer to the application of the elements of the asset management system.

Note 3 to entry: The term "activity" has a broad meaning and can include, for example, the approach, the planning, the plans and their implementation.

[SOURCE: ISO 55000:2014, 3.3.1]

3.1.3
asset portfolio
assets that are within the scope of the asset management system

Note 1 to entry: A portfolio is typically established and assigned for managerial control purposes. Portfolios for physical hardware might be defined by category (e.g. properties, civil infrastructure, road network, plant, equipment, tools, land). Software portfolios might be defined by software publisher, or by platform (e.g. PC, server, mainframe).

Note 2 to entry: An asset management system can encompass multiple asset portfolios. Where multiple asset portfolios and asset management systems are employed, asset management activities should be coordinated between the portfolios and systems.

[SOURCE: ISO 55000:2014, 3.2.4, modified – Note 1 to entry: examples of physical asset portfolios have been added]

3.1.4
asset
item, thing or entity that has potential or actual value to an organization

Note 1 to entry: Value can be tangible or intangible, financial or non-financial, and includes consideration of risks and liabilities. It can be positive or negative at different stages of the asset life.

Note 2 to entry: Physical assets usually refer to facilities, civil engineering works, street furniture, technical installations, equipment, inventory and properties owned by the organization. Physical assets are the opposite of intangible assets, which are non-physical assets such as leases, brands, digital assets, use rights, licences, intellectual property rights, reputation or agreements.

Note 3 to entry: A grouping of assets referred to as aggregated assets (3.1.1) could also be considered as an asset.

Note 4 to entry: In this document the term 'asset' means physical asset (3.1.7).

[SOURCE: ISO 55000:2014, 3.2.1, modified – Note 2 to entry: examples of physical assets have been added; Note 4 to entry has been added]

3.1.5
interoperability
ability of systems to provide services to and accept services from other systems and to use these services to enable them to operate effectively together

[SOURCE: ISO 37153:2017, 3.8, modified – Notes 1 and 2 to entry have been deleted]

3.1.6
item
part, component, device, subsystem, functional unit, equipment or system that can be individually described and considered

Note 1 to entry: A number of items e.g. a population of items, or a sample, may itself be considered as an item.

Note 2 to entry: An item may consist of hardware, software or both.

Note 3 to entry: Software consists of programs, procedures, rules, documentation and data of an information processing system.

[SOURCE: EN 13306:2017, 3.1]

3.1.7
physical asset
item that has potential or actual value to an organization

Note 1 to entry: Examples of physical assets are components, machines, plants, buildings, infrastructures etc.

[SOURCE: EN 13306:2017, 3.2]

3.1.8
physical asset management
coordinated activities of an organization to realize value from physical assets

Note 1 to entry: Realization of value will normally involve a balancing of costs, risks, opportunities and benefits.

Note 2 to entry: In the life cycle context, physical asset management is the optimal life cycle management of physical assets to sustainably achieve the stated business objectives.

[SOURCE: EN 16646:2014, 3.1.13]

3.2 Assessment

3.2.1
assessment
systematic process of collecting and analysing data to determine the current status of a product, a process, a system, a person or an organization

[SOURCE: ISO 10795:2019, 3.24]

3.2.2
assessment strategy
outline plan that includes a coordinated set of activities and the allocation of resources necessary to perform the assessment

3.2.3
condition
physical state of an asset or item at a particular time compared to state at the time of commissioning

Note 1 to entry: That assumes that the asset condition is sound at the commissioning.

[SOURCE: CEN/TS 17385:2019, 3.4, modified – Note 1 to entry has been added]

3.2.4
condition assessment
objective method for determining the physical condition of a constructed asset or a part of it

[SOURCE: CEN/TS 17385:2019, 3.5, modified – Note 1 to entry has been deleted]

3.2.5
function
intended effect of a system, subsystem, product or part

[SOURCE: ISO 21351:2005, 3.1.5, modified – Notes to entry have been deleted]

3.2.6
performance
ability to fulfil required functions under intended use conditions or behaviour when in use

Note 1 to entry: Derived from the definition of performance in ISO 6707-1.

Note 2 to entry: The required functions address both the functionality requirements as well as the design requirements.

EXAMPLES Flood protection, conservation of nature, to provide shelter, to provide security, to provide a healthy environment, group accommodation, to provide residence or work environment, lifting.

[SOURCE: ISO/TS 21929-2:2015, 3.28, modified – Examples have been added]

3.2.7
performance assessment
objective method for determining the performance of a constructed asset or a part of it

3.3 Maintenance

3.3.1
improvement
combination of all technical, administrative and managerial actions, intended to ameliorate the intrinsic reliability and/or the maintainability and/or the safety of an item, without changing the original function

Note 1 to entry: An improvement may also be introduced to prevent misuse in operation and to avoid failures.

Note 2 to entry: Improvement may also encompass aesthetics, comfort, health, environment, etc.

[SOURCE: EN 13306:2017, 7.6, modified – Note 2 to entry added]

3.3.2
modernization
modification or improvement of the item, taking into account technological advances, to meet new or changed requirements

[SOURCE: EN 13306:2017, 7.8]

3.3.3
modification
combination of all technical, administrative and managerial actions intended to change one or more functions of an item

Note 1 to entry: Modification is not a maintenance action, but has to do with changing the required function of an item to a new required function. The changes may have an influence on the dependability characteristics.

Note 2 to entry: Modification may involve the maintenance organization.

Note 3 to entry: The change of an item where a different version is replacing the original item without changing the function or ameliorating the dependability of the item is called a replacement and is not a modification.

[SOURCE: EN 13306:2017, 7.7]

3.3.4
operational mode
configuration in which an item is operated and utilized during a given period characterized by units of use (hours, loads, number of starts/stops, number of transients, etc.)

Note 1 to entry: Operational mode determines the frequency, load, continuity and performance rate of utilization.

Note 2 to entry: Operational mode may, or may not, comply with the inherent item specifications as defined.

[SOURCE: EN 13306:2017, 4.20]

3.3.5
operating constraints
characteristics of the item, which set limits for the use of the item and may determine requirements for maintenance activities

Note 1 to entry: These characteristics are the results of design and construction of the item.

[SOURCE: EN 13306:2017, 4.21]

3.3.6
operating conditions
physical loads and environmental conditions experienced by the item during a given period

Note 1 to entry: Operating conditions can vary during the item's life cycle.

[SOURCE: EN 13306:2017, 4.22]

3.3.7
predetermined maintenance
preventive maintenance carried out in accordance with established intervals of time or number of units of use but without previous condition investigation

Note 1 to entry: Intervals of times or number of unit of use may be established from knowledge of the failure mechanisms of the item.

[SOURCE: EN 13306:2017, 7.2]

3.3.8
preventive maintenance
maintenance carried out intended to assess and/or to mitigate degradation and reduce the probability of failure of an item

[SOURCE: EN 13306:2017, 7.1]

3.3.9
conventional service life
period, based on statistics of the profession, at the end of which the renewal of asset is deemed necessary

3.3.10
utilization stage
life cycle phase at which safe exploitation for the intended use (or uses) of a physical asset is possible, within specified as-built properties

Note 1 to entry: Derived from ISO 2394: revised.

Note 2 to entry: Stage may include: Operation, modernization, renovation, maintenance and other utilization support.

3.4 Objectives and requirements

3.4.1
condition requirements
specification of a required physical state of an asset or item

3.4.2
conformity
fulfilment of a requirement

[SOURCE: EN 13306:2017, 4.11]

3.4.3
compliance
meeting all the organization's compliance obligations

Note 1 to entry: Compliance is made sustained by embedding it in the culture of an organization and in the behaviour and attitude of people working for it.

[SOURCE: ISO 37301:2021, 3.26, modified – Note 1 to entry has been added]

3.4.4
compliance requirement
requirement that an organization has to comply with

3.4.5
legislation
directives, acts, ordinances, and regulations

[SOURCE: ISO 14385-1:2014, 3.10]

3.4.6
objective
result to be achieved

Note 1 to entry: An objective can be strategic, tactical or operational.

Note 2 to entry: Objectives can relate to different disciplines (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product and process).

Note 3 to entry: An objective can be expressed in other ways, e.g. as an intended outcome, a purpose, an operational criterion, a physical asset objective or by the use of other words with similar meaning (e.g. aim, goal, or target).

Note 4 to entry: In the context of asset management systems, asset management objectives are set by the organization, consistent with the organizational objectives and asset management policy, to achieve specific measurable results.

[SOURCE: ISO 55000:2014, 3.1.12]

3.4.7
performance requirements
performance demanded or expected to be fulfilled

[SOURCE: ISO 6707-1:2020, 3.7.1.12]

3.4.8
requirement
need or expectation that is stated, generally implied or obligatory

Note 1 to entry: "Generally implied" means that it is custom or common practice for the organization and stakeholders that the need or expectation under consideration is implied.

Note 2 to entry: A specified requirement is one that is stated, for example in documented information.

[SOURCE: ISO 55000:2014, 3.1.20]

3.4.9
validation
confirmation, through the provision of objective evidence, that the requirements or objectives for a specific intended use or application have been fulfilled

Note 1 to entry: The objective evidence needed for a validation is the result of a test or other form of determination such as performing alternative calculations or reviewing documents.

Note 2 to entry: The word "validated" is used to designate the corresponding status.

Note 3 to entry: The use conditions for validation can be real or simulated.

[SOURCE: ISO 9000:2015, 3.8.13, modified – "Objectives" has been added to the definition]