

### SLOVENSKI STANDARD SIST EN 17840:2023

01-november-2023

## 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 SIST EN 17840:2023

ICS: 91.010.99 Drugi vidiki

Other aspects

SIST EN 17840:2023

en,fr,de

SIST EN 17840:2023

## iTeh Standards (https://standards.iteh.ai) Document Preview

<u>SIST EN 17840:2023</u> https://standards.iteh.ai/catalog/standards/sist/d763fd9e-541b-4e07-9260-7ed93a6f08b9/sist-en-17840-2023

## EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

### EN 17840

September 2023

ICS 91.010.99

**English Version** 

### 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.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

#### <u>SIST EN 17840:2023</u>

https://standards.iteh.ai/catalog/standards/sist/d763fd9e-541b-4e07-9260-7ed93a6f08b9/sist-en-17840-2023



EUROPEAN COMMITTEE FOR STANDARDIZATION COMITÉ EUROPÉEN DE NORMALISATION EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

© 2023 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN 17840:2023 E

### Contents

#### Page

| Introduction       5         1       Scope       6         2       Normative references       6         3.1       Asset management       6         3.2       Assessment       8         3.3       Maintenance       9         3.4       Objectives and requirements       11         3.5       Observation       13         4       Essential elements of assessment       14         4.1       Introduction to assessment       14         4.2       Asset portfolio decisions       15         4.3       Validating the set requirements and objectives       16         4.4.1       Short-term measures: Performance and condition       16         4.4.2       Short-term measures: Compliance       18         4.4.3       Long term asset planning       18         5       Assessment process       19         5.1       General       20         5.3.1       General       20         5.3.1       General       21         5.3.3       Strategic guidance       21         5.4.4       Specifying the assessment strategy       21         5.4.4       Aspurpose of the assessment strategy       21 <th>Europ</th> <th>ean foreword</th> <th> 4</th>   | Europ        | ean foreword                                   | 4  |
|---|--------------|--|----|
| 2       Normative references.       6         3       Terms and definitions.       6         3.1       Asset management.       8         3.2       Assessment.       8         3.3       Maintenance       9         3.4       Objectives and requirements.       11         3.5       Observation.       13         4       Essential elements of assessment.       14         4.1       Introduction to assessment.       14         4.1       Introduction to assessment.       14         4.1       Introduction to assessment.       14         4.2       Asset portfolio decisions.       15         4.3       Validating the set requirements and objectives.       16         4.4.1       Short-term measures: Performance and condition.       16         4.4.2       Short-term measures: Compliance.       18         4.4.3       Long term asset planning.       18         5.4       Assessment process steps.       19         5.3       General.       20         5.3.1       General.       20         5.3.2       Requirements for an asset portfolio       21         5.3.4       Requirements for assests and aggregated assets.       21<   | Introduction |  |    |
| 3       Terms and definitions       6         3.1       Asset management       6         3.2       Asintenance       9         3.4       Objectives and requirements       11         3.5       Observation       13         4       Essential elements of assessment       14         4.1       Introduction to assessment       14         4.2       Asset portfolio decisions       15         4.3       Validating the set requirements and objectives       16         4.4.1       Short-term measures: Performance and condition       16         4.4.2       Short-term measures: Compliance       18         4.4.3       Long term asset planning       18         5       Assessment process       19         5.1       General       20         5.3.1       General       20         5.3.2       Requirements for an asset portfolio       21         5.3.3       Strategic guidance       21         5.4.4       Purjose of the assessment       24         5.4.4       Maintenance approaches       24         5.4.4       Maintenance approaches       24         5.4.4       Observation category       26         5.   | 1            | Scope  | 6  |
| 3.1       Asset management       6         3.2       Asset management       8         3.3       Maintenance       9         3.4       Objectives and requirements       11         3.5       Observation       13         4       Essential elements of assessment       14         4.1       Introduction to assessment       14         4.2       Asset portfolio decisions       15         4.3       Validating the set requirements and objectives       16         4.4.1       Short-term measures: Performance and condition       16         4.4.2       Short-term measures: Compliance       18         4.4.3       Long term asset planning       18         5       Assessment process       19         5.1       General       20         5.3.1       General       20         5.3.2       Requirements for an asset portfolio       21         5.3.3       Strategic guidance       21         5.4.4       Purpose of the assessment       21         5.4.4       Purpose of the assessment       24         5.4.4       Observation ategory       25         5.4.4       Observation techniques       27         5.4   | 2            | Normative references                           | 6  |
| 3.2       Assessment       8         3.3       Maintenance       9         3.4       Objectives and requirements       11         3.5       Observation       13         4       Essential elements of assessment       14         4.1       Introduction to assessment       14         4.2       Asset portfolio decisions       15         4.3       Validating the set requirements and objectives       15         4.4       Yerifying the requirements       16         4.4.1       Short-term measures: Compliance and condition       16         4.4.2       Short-term measures: Compliance       18         4.4.3       Long term asset planning       18         5       Assessment process       19         5.1       General       20         5.2       Assessment process steps       19         5.3       Identifying the requirements       20         5.3.1       General       20         5.3.2       Requirements for an asset portfolio       21         5.3.3       Strategic guidance       21         5.4.4       Requirements for assets and aggregated assets       21         5.4.5       Level of assessment       24 <td></td> <td></td> <td></td>  |              |  |    |
| 3.3       Maintenance       9         3.4       Objectives and requirements       11         3.5       Observation       13         4       Essential elements of assessment       14         4.1       Introduction to assessment       14         4.1       Introduction to assessment       14         4.1       Introduction to assessment       14         4.2       Asset portfolio decisions       15         4.3       Validating the set requirements and objectives       15         4.4       Short-term measures: Performance and condition       16         4.4.1       Short-term measures: Compliance       18         4.4.2       Short-term measures: Compliance       19         5.1       General       19         5.1       General       19         5.1       General       20         5.3.1       General       20         5.3.2       Requirements for an asset portfolio       21         5.3.3       Strategic guidance       21         5.4       Specifying the assessment strategy       21         5.4.3       Purpose of the assessment       24         5.4.4       Maintenance approaches       24  |              | Asset management                               | 6  |
| 3.4Objectives and requirements113.5Observation134Essential elements of assessment144.1Introduction to assessment144.2Asset portfolio decisions154.3Validating the set requirements and objectives164.4Verifying the requirements164.4.1Short-term measures: Performance and condition164.4.2Short-term measures: Compliance185Assessment process195.1General195.2Assessment process steps195.3Identifying the requirements205.3.1General205.3.2Requirements for an asset portfolio215.3.3Strategic guidance215.3.4Requirements for assets and aggregated assets215.4.3Puriose of the assessment245.4.4Maintenance approaches245.4.5Results245.4.6Classification255.4.7Planning255.4.8Observation category265.4.9Observation category265.4.1Planning additional information285.5Gathering additional information285.6Asset systement295.6.1Aggregated assets assessment305.6.4Asset systement315.7Validation316The observation process32   | -            | Assessment                                     | 8  |
| 3.5Observation134Essential elements of assessment144.1Introduction to assessment144.2Asset portfolio decisions154.3Validating the set requirements and objectives154.4Verifying the requirements164.4.1Short-term measures: Performance and condition164.4.2Short-term measures: Compliance184.4.3Long term asset planning185Assessment process195.1General205.3.1General205.3.1General205.3.2Requirements for an asset portfolio215.3.3Strategic guidance215.3.4Requirements for assets and aggregated assets215.3.4Requirements for assets and aggregated assets215.4.4Maintenance approaches245.4.5Results245.4.6Classification255.4.7Planning255.4.8Observation category265.4.9Observation techniques275.6Gathering additional information285.6Asset assessment295.6.1General295.6.2Aggregated assets assessment305.7Validation316The observation process32   | 3.3          | Maintenance                                    | 9  |
| 4       Essential elements of assessment       14         4.1       Introduction to assessment       14         4.1       Introduction to assessment       15         4.3       Validating the set requirements and objectives       15         4.4       Verifying the requirements and condition       16         4.4.1       Short-term measures: Performance and condition       16         4.4.2       Short-term measures: Compliance       18         4.4.3       Long term asset planning       18         5       Assessment process       19         5.1       General       19         5.2       Assessment process steps       19         5.3       Identifying the requirements       20         5.3.1       General       20         5.3.2       Requirements for an asset portfolio       21         5.3.3       Strategic guidance       21         5.4.4       Specifying the assessment strategy       21         5.4.1       General       21         5.4.2       Level of assessment       24         5.4.3       Purpose of the assessment       24         5.4.4       Maintenance approaches       24         5.4.5       Results <t< td=""><td>3.4</td><td>Objectives and requirements</td><td>11</td></t<> | 3.4          | Objectives and requirements                    | 11 |
| 4.1       Introduction to assessment       14         4.2       Asset portfolio decisions       15         4.3       Validating the set requirements and objectives       15         4.4       Verifying the requirements.       16         4.4.1       Short-term measures: Performance and condition       16         4.4.2       Short-term measures: Compliance       18         4.4.3       Long term asset planning       18         5       Assessment process       19         5.1       General       19         5.2       Assessment process steps       19         5.3       Identifying the requirements       20         5.3.1       General       20         5.3.2       Requirements for an asset portfolio       21         5.3.3       Strategic guidance       21         5.4       Requirements for assets and aggregated assets       21         5.4.4       Maintenance approaches       24         5.4.5       Purpose of the assessment       24         5.4.7       Planning       25         5.4.7       Planning       25         5.4.7       Planning       25         5.4.7       Planning       25   | 3.5          | Observation                                    | 13 |
| 4.2       Asset portfolio decisions       15         4.3       Validating the set requirements and objectives       15         4.4       Verifying the requirements       16         4.4.1       Short-term measures: Performance and condition       16         4.4.2       Short-term measures: Compliance       18         4.4.3       Long term asset planning       18         5       Assessment process       19         5.1       General       19         5.2       Assessment process steps       19         5.3       Identifying the requirements       20         5.3.1       General       20         5.3.2       Requirements for an asset portfolio       21         5.3.3       Strategic guidance       21         5.4.4       Requirements for assets and aggregated assets       21         5.4.3       Specifying the assessment strategy       21         5.4.4       Maintenance approaches       24         5.4.5       Results       24         5.4.4       Maintenance approaches       24         5.4.5       Results       25         5.4.7       Planning       25         5.4.7       Planning       25   | -            |  |    |
| 4.3       Validating the set requirements and objectives       15         4.4       Verifying the requirements       16         4.4.1       Short-term measures: Compliance and condition       16         4.4.2       Short-term measures: Compliance       18         4.4.3       Long term asset planning       18         5       Assessment process       19         5.1       General       19         5.2       Assessment process steps       19         5.3       Identifying the requirements       20         5.3.1       General       20         5.3.2       Requirements for an asset portfolio       21         5.3.3       Strategic guidance       21         5.4       Specifying the assessment strategy       21         5.4.1       General       21         5.4.2       Level of assessment       24         5.4.3       Purpose of the assessment       24         5.4.4       Maintenance approaches       24   |              |  |    |
| 4.4Verifying the requirements   |              |  |    |
| 4.4.1Short-term measures: Performance and condition164.4.2Short-term measures: Compliance184.4.3Long term asset planning185Assessment process195.1General195.2Assessment process steps195.3Identifying the requirements205.3.1General205.3.2Requirements for an asset portfolio215.3.3Strategic guidance215.3.4Requirements for assets and aggregated assets215.4.1General215.4.2Level of assessment245.4.3Purpose of the assessment245.4.4Maintenance approaches245.4.5Results245.4.6Classification255.4.8Observation category265.4.9Observation category265.4.6General295.6.1General295.6.2Asset assessment295.6.3Aggregated assets assessment295.6.4Asset assessment315.7Validation316The observation process32  | -            |  |    |
| 4.4.2Short-term measures: Compliance184.4.3Long term asset planning185Assessment process195.1General195.2Assessment process steps195.3Identifying the requirements205.3.1General205.3.2Requirements for an asset portfolio215.3.3Strategic guidance215.3.4Requirements for assets and aggregated assets215.4.5Specifying the assessment strategy215.4.1General215.4.2Level of assessment245.4.3Purpose of the assessment245.4.4Maintenance approaches245.4.5Results245.4.6Classification255.4.7Planning255.4.8Observation category265.4.9Observation techniques275.6Asgregated assets assessment295.6.1General295.6.2Asset portfolio assessment295.6.3Aggregated assets assessment305.6.4Asset assessment315.7Validation316The observation process32  | 4.4          | Verifying the requirements                     | 16 |
| 4.4.3Long term asset planning.185Assessment process .195.1General.195.2Assessment process steps.195.3Identifying the requirements205.3.1General.205.3.2Requirements for an asset portfolio215.3.3Strategic guidance215.3.4Requirements for assets and aggregated assets215.3.4Requirements for assets and aggregated assets215.4.4Specifying the assessment strategy.215.4.5Results245.4.6Classification245.4.7Purpose of the assessment245.4.8Observation category.265.4.9Observation category.265.4.9Observation category.265.6.1General.295.6.2Asset assessment295.6.3Aggregated assets assessment305.6.4Asset assessment316The observation process32  | 4.4.1        | Short-term measures: Performance and condition | 16 |
| 5Assessment process195.1General.195.2Assessment process steps.195.3Identifying the requirements205.3.1General.205.3.2Requirements for an asset portfolio215.3.3Strategic guidance215.3.4Requirements for assets and aggregated assets215.4.4Specifying the assessment strategy215.4.1General.215.4.2Level of assessment.245.4.3Purpose of the assessment.245.4.4Maintenance approaches245.4.5Results.245.4.6Classification255.4.7Planning255.4.8Observation category265.4.9Observation techniques.275.5Gathering additional information285.6Asset portfolio assessment295.6.1General.295.6.3Aggregated assets assessment305.6.4Asset assessment315.7Validation316The observation process32  | 4.4.2        | Short-term measures: Compliance                | 18 |
| 5.1General.195.2Assessment process steps.195.3Identifying the requirements205.3.1General.205.3.2Requirements for an asset portfolio215.3.3Strategic guidance215.3.4Requirements for assets and aggregated assets.215.4.7Specifying the assessment strategy.215.4.8General.215.4.1General.215.4.2Level of assessment.245.4.3Purpose of the assessment.245.4.4Maintenance approaches245.4.5Results.245.4.6Classification.255.4.7Planning255.4.8Observation category265.4.9Observation techniques.275.5Gathering additional information.285.6Asset assessment.295.6.1General.295.6.2Asset assessment.305.6.4Asset assessment.316The observation process32  | 4.4.3        |  |    |
| 5.1General.195.2Assessment process steps.195.3Identifying the requirements205.3.1General.205.3.2Requirements for an asset portfolio215.3.3Strategic guidance215.3.4Requirements for assets and aggregated assets.215.4.7Specifying the assessment strategy.215.4.8General.215.4.1General.215.4.2Level of assessment.245.4.3Purpose of the assessment.245.4.4Maintenance approaches245.4.5Results.245.4.6Classification.255.4.7Planning255.4.8Observation category265.4.9Observation techniques.275.5Gathering additional information.285.6Asset assessment.295.6.1General.295.6.2Asset assessment.305.6.4Asset assessment.316The observation process32  | 5            | Assessment process iTab Standards              | 19 |
| 5.2Assessment process steps   | -            | General  |    |
| 5.3Identifying the requirements205.3.1General   |              |  |    |
| 5.3.1General.205.3.2Requirements for an asset portfolio215.3.3Strategic guidance215.3.4Requirements for assets and aggregated assets.215.3.4Specifying the assessment strategy215.4General.215.4.1General.215.4.2Level of assessment.245.4.3Purpose of the assessment.245.4.4Maintenance approaches245.4.5Results.245.4.6Classification.255.4.7Planning255.4.8Observation category265.4.9Observation techniques.275.5Gathering additional information.285.6Assessment.295.6.1General.295.6.3Aggregated assets assessment.305.6.4Asset assessment.315.7Validation.316The observation process32   |              | Identifying the requirements                   | 20 |
| 5.3.2Requirements for an asset portfolio215.3.3Strategic guidance215.3.4Requirements for assets and aggregated assets215.4Specifying the assessment strategy215.4.1General215.4.2Level of assessment245.4.3Purpose of the assessment245.4.4Maintenance approaches245.4.5Results245.4.6Classification255.4.7Planning255.4.8Observation category265.4.9Observation techniques275.5Gathering additional information285.6Assessment295.6.1General295.6.2Asset portfolio assessment305.6.4Asset assessment316The observation process32   |              |  |    |
| 5.3.3Strategic guidance215.3.4Requirements for assets and aggregated assets215.4Specifying the assessment strategy215.4.1General215.4.2Level of assessment245.4.3Purpose of the assessment245.4.4Maintenance approaches245.4.5Results245.4.6Classification255.4.7Planning255.4.8Observation category265.4.9Observation techniques275.5Gathering additional information285.6Assessment295.6.1General295.6.2Asset portfolio assessment305.6.4Asset assessment315.7Validation316The observation process32  |              |  |    |
| 5.3.4Requirements for assets and aggregated assets.215.4Specifying the assessment strategy.215.4.1General.215.4.2Level of assessment.245.4.3Purpose of the assessment245.4.4Maintenance approaches245.4.5Results.245.4.6Classification.255.4.7Planning255.4.8Observation category.265.4.9Observation techniques.275.5Gathering additional information.285.6Assessment.295.6.1General.295.6.2Asset portfolio assessment.295.6.3Aggregated assets assessment.315.7Validation316The observation process32  |              | • •  |    |
| 5.4Specifying the assessment strategy215.4.1General215.4.2Level of assessment245.4.3Purpose of the assessment245.4.4Maintenance approaches245.4.5Results245.4.6Classification255.4.7Planning255.4.8Observation category265.4.9Observation techniques275.5Gathering additional information285.6Assessment295.6.1General295.6.2Asset portfolio assessment305.6.4Asset assessment315.7Validation316The observation process32   |              | 0 0  |    |
| 5.4.1General  |              |  |    |
| 5.4.2Level of assessment.245.4.3Purpose of the assessment245.4.4Maintenance approaches245.4.5Results.245.4.6Classification255.4.7Planning255.4.8Observation category265.4.9Observation techniques275.5Gathering additional information285.6Assessment295.6.1General295.6.2Asset portfolio assessment295.6.3Aggregated assets assessment305.6Asset assessment316The observation process32  | - http:      |  |    |
| 5.4.3Purpose of the assessment245.4.4Maintenance approaches245.4.5Results245.4.6Classification255.4.7Planning255.4.8Observation category265.4.9Observation techniques275.5Gathering additional information285.6Assessment295.6.1General295.6.2Asset portfolio assessment295.6.3Aggregated assets assessment305.6Asset assessment316The observation process32  | 5.4.2        |  |    |
| 5.4.4Maintenance approaches245.4.5Results245.4.6Classification255.4.7Planning255.4.8Observation category265.4.9Observation techniques275.5Gathering additional information285.6Assessment295.6.1General295.6.2Asset portfolio assessment295.6.3Aggregated assets assessment305.6.4Asset assessment316The observation process32  | 5.4.3        |  |    |
| 5.4.5Results  | 5.4.4        | •  |    |
| 5.4.7Planning255.4.8Observation category265.4.9Observation techniques275.5Gathering additional information285.6Assessment295.6.1General295.6.2Asset portfolio assessment295.6.3Aggregated assets assessment305.6.4Asset assessment315.7Validation316The observation process32   | 5.4.5        | 11   |    |
| 5.4.7Planning255.4.8Observation category265.4.9Observation techniques275.5Gathering additional information285.6Assessment295.6.1General295.6.2Asset portfolio assessment295.6.3Aggregated assets assessment305.6.4Asset assessment315.7Validation316The observation process32   | 5.4.6        | Classification                                 | 25 |
| 5.4.8Observation category265.4.9Observation techniques275.5Gathering additional information285.6Assessment295.6.1General295.6.2Asset portfolio assessment295.6.3Aggregated assets assessment305.6.4Asset assessment315.7Validation316The observation process32  | 5.4.7        |  |    |
| 5.4.9Observation techniques   | 5.4.8        |  |    |
| 5.5Gathering additional information285.6Assessment295.6.1General295.6.2Asset portfolio assessment295.6.3Aggregated assets assessment305.6.4Asset assessment315.7Validation316The observation process32  |              |  |    |
| 5.6Assessment   |              |  |    |
| 5.6.1General  |              |  |    |
| 5.6.2Asset portfolio assessment   |              |  |    |
| 5.6.3 Aggregated assets assessment305.6.4 Asset assessment315.7 Validation316 The observation process32   |              |  |    |
| 5.6.4Asset assessment   |              | •  |    |
| <ul> <li>5.7 Validation</li></ul>   |              |  |    |
| -   |              |  |    |
| -   | 6            | The observation process                        | 32 |
|   | 6.1          | -  |    |
| 6.2 Planning  | 6.2          | Planning                                       | 33 |

| 6.2.1                            | Scope: Specifying the task                             | .33 |  |
|----------------------------------|--|-----|--|
| 6.2.2                            | Preparation: Determining operational conditions        | .34 |  |
| 6.3                              | Observation  |     |  |
| 6.3.1                            | Detection: Acquiring asset status data and reporting   | .35 |  |
| 6.3.2                            | Ranking: Analysing and valuing detection data          | .36 |  |
| 6.4                              | Quality control, evaluation and rectifications         | .38 |  |
| Annex A (informative) References |  | .39 |  |
| A.1                              | References for requirements                            | .39 |  |
| A.2                              | References for guidelines for assessment planning      | .41 |  |
| A.3                              | References for observation methods and techniques      | .41 |  |
| A.4                              | References for assessment method                       | 41  |  |
| Annex                            | Annex B (informative) Inventory list plans and reports |     |  |
| Bibliog                          | Bibliography   |     |  |

## iTeh Standards (https://standards.iteh.ai) Document Preview

<u>SIST EN 17840:2023</u> https://standards.iteh.ai/catalog/standards/sist/d763fd9e-541b-4e07-9260-7ed93a6f08b9/sist-en-17840-2023

#### **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.

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

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

## iTeh Standards (https://standards.iteh.ai) Document Preview

<u>SISTEN 17840:2023</u> https://standards.iteh.ai/catalog/standards/sist/d763fd9e-541b-4e07-9260-7ed93a6f08b9/sist-en-17840-2023

#### 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.

## iTeh Standards (https://standards.iteh.ai) Document Preview

<u>SIST EN 17840:2023</u> https://standards.iteh.ai/catalog/standards/sist/d763fd9e-541b-4e07-9260-7ed93a6f08b9/sist-en-17840-2023

#### 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 **iTeh** Stand

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 <u>https://www.electropedia.org/</u> 19200-7ed93a608b9/sist-en-17840-2023
- ISO Online browsing platform: available at <u>https://www.iso.org/obp</u>

#### **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]

#### IST EN 17840:2023

**3.2 Assessment**, iteh.ai/catalog/standards/sist/d763fd9e-541b-4e07-9260-7ed93a6f08b9/sist-en-17840-2023

#### 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 ttps://standards.iteh.ai)

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

#### 3.3 Maintenance

3.3.1

#### <u>SIST EN 17840:2023</u>

**improvement** h.al/catalog/standards/sist/d763/id9e-541b-4e07-9260-7ed93a6/08b9/sist-en-17840-2023 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 (https://standards.iteh.ai)

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.

SIST EN 17840:20

[SOURCE: EN 13306:2017, 4.21] standards/sist/d763fd9e-541b-4e07-9260-7ed93a6f08b9/sist-en-17840-2023

#### 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]

SIST EN 17840:2023

ntt<mark>r 3.4.3</mark> and ards.iteh.ai/catalog/standards/sist/d763fd9e-541b-4e07-9260-7ed93a6f08b9/sist-en-17840-2023

#### 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]

<u>SIST EN 17840:2023</u>

https://standards.iteh.ai/catalog/standards/sist/d763fd9e-541b-4e07-9260-7ed93a6f08b9/sist-en-17840-2023

#### 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]