



**SLOVENSKI STANDARD**  
**oSIST prEN 16883:2015**  
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**Ohranjanje kulturne dediščine - Smernice za izboljšanje energetske učinkovitosti zgodovinskih stavb**

Conservation of cultural heritage - Guidelines for improving the energy performance of historic buildings

Erhaltung des kulturellen Erbes - Leitlinien für die Verbesserung der energiebezogenen Leistung von historisch, architektonisch oder kulturell wertvollen Gebäuden

Conservation du patrimoine culturel - Principes directeurs pour l'amélioration de la performance énergétique des bâtiments d'intérêt patrimonial

**Ta slovenski standard je istoveten z: prEN 16883**

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**ICS:**

91.120.10	Toplotna izolacija stavb	Thermal insulation
97.195	Umetniški in obrtniški izdelki	Items of art and handicrafts

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ICS 91.120.10; 97.195

English Version

## Conservation of cultural heritage - Guidelines for improving the energy performance of historic buildings

Conservation du patrimoine culturel - Principes directeurs pour l'amélioration de la performance énergétique des bâtiments d'intérêt patrimonial

Erhaltung des kulturellen Erbes - Leitlinien für die Verbesserung der energiebezogenen Leistung von historisch, architektonisch oder kulturell wertvollen Gebäuden

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## Contents

	Page
Foreword.....	4
Introduction .....	5
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	6
4 General considerations .....	15
4.1 Introduction .....	15
4.2 Qualification requirements .....	15
4.3 Principles of building conservation .....	16
4.4 Sustainable building management .....	17
4.5 Existing building envelope and technical systems .....	17
5 Overview of the procedure .....	17
6 Initiating the energy refurbishment process .....	18
7 Building survey and assessment .....	19
7.1 Introduction .....	19
7.2 Building information .....	19
7.3 Describing heritage significance and conservation restrictions .....	19
7.4 Assessment of the use of the building .....	19
7.5 Documenting the building's construction, technical building systems, and environmental influences .....	20
7.6 Energy performance assessment .....	20
7.7 Indoor environmental assessment .....	21
8 Identifying the objectives for the refurbishment .....	21
9 Deciding if an energy refurbishment is needed .....	22
10 Assessment and selection of measures for energy refurbishment .....	22
10.1 Introduction .....	22
10.2 Assessment criteria and scale .....	22
10.3 Exclude inappropriate measures .....	24
10.4 Assessment of remaining measures .....	24
10.5 Selection of packages of measures .....	24
10.6 Assessment in relation to targets .....	24
11 Implementation, documentation and post-occupancy evaluation .....	25
11.1 Introduction .....	25
11.2 Implementation .....	25
11.3 Documentation .....	25
11.4 Post-occupancy evaluation .....	25
Annex A (informative) Example of template for building information .....	27
A.1 Building information .....	27
A.2 Legal information .....	27
A.3 Building description .....	27
A.4 Defining heritage significance and conservation obligations .....	28
A.5 Assessment of past and present use and intended future use .....	28

<b>A.6</b>	<b>Mapping building's technical structure, condition and environmental influences .....</b>	<b>28</b>
<b>A.7</b>	<b>Energy performance assessment.....</b>	<b>28</b>
<b>A.8</b>	<b>Indoor environmental assessment .....</b>	<b>28</b>
<b>A.9</b>	<b>Sources and management information.....</b>	<b>29</b>
<b>Annex B (informative)</b>	<b>Example of assessment table.....</b>	<b>30</b>
<b>Bibliography.....</b>		<b>32</b>

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prEN 16883:2015 (E)

## Foreword

This document (prEN 16883:2015) has been prepared by Technical Committee CEN/TC 346 "Conservation of cultural heritage", the secretariat of which is held by UNI.

This document is currently submitted to the CEN Enquiry.

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## Introduction

The European building stock represents an important cultural and material resource. Some buildings are of heritage significance due to their historical, architectural or cultural values; this standard refers to them as historic buildings. Due to climate change and associated political goals, the need to reduce greenhouse gas emissions (mainly CO<sub>2</sub>) associated with energy use in buildings is growing. A challenge for the future is to reduce energy demand and greenhouse gas emissions without unacceptable effects on the heritage significance of the existing built environment. This aspect distinguishes working with such buildings from working with the building stock in general. Appropriate procedures are needed to improve energy performance in historic buildings. This European Standard provides guidelines for such a procedure.

Historic buildings are the material manifestations of immovable tangible cultural heritage. They are of heritage significance to present and future generations. Heritage significance is a combination of all heritage values assigned to a building. Heritage values can be of an aesthetic, historic, scientific, cultural, social or spiritual nature, which can include architectural, artistic, economic, social, symbolic and technological aspects. Historic buildings in the sense of this standard do not necessarily have to be statutorily designated as cultural heritage.

This European Standard is designed to be used by building owners, authorities and professionals involved in the conservation and refurbishment of historic buildings aiming at facilitating the sustainable management of these buildings by integrating measures for energy improvements and reduction of greenhouse gas emissions with the adequate conservation of the buildings. Generally the guidelines will be applicable to a wide range of buildings where special considerations are needed in order to find a sustainable balance between the use of the building, its energy performance and its conservation.

This European Standard presents a systematic approach, or procedure, to facilitate the best decisions in each individual case. It does not presuppose a need for energy improvements in all historic buildings.

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## 1 Scope

This European Standard provides guidelines for improving the energy performance of historic buildings, i.e. historically, architecturally or culturally valuable buildings, and reducing associated greenhouse gas emissions while respecting their heritage significance. The use of this standard is not limited to buildings with statutory heritage protection, but applies to historic buildings of all types and ages.

This European Standard presents a normative working procedure for selecting measures to improve energy performance, based on an investigation, analysis and documentation of the building and its heritage significance. The procedure assesses the impact of those measures in relation to preserving the character-defining elements of the building.

## 2 Normative references

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

EN 15603, *Energy performance of buildings - Overall energy use and definition of energy ratings*

EN 16096, *Conservation of cultural property - Condition survey and report of built cultural heritage*

EN 16247-2:2014, *Energy audits - Part 2: Buildings*

EN ISO 13790, *Energy performance of buildings - Calculation of energy use for space heating and cooling (ISO 13790)*

## 3 Terms and definitions

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

### 3.1 alteration

change in condition, beneficial or not, intentional or not

[SOURCE: EN 15898:2011, 3.2.4]

### 3.2 authenticity

extent to which the identity of a building matches the one ascribed to it

Note 1 to entry: The concept of authenticity is not to be confused with the concept of originality.

[SOURCE: EN 15898:2011, 3.1.7, modified by replacing 'an object' with 'a building']

### 3.3 building

construction as a whole, including its envelope and all technical building systems, for which energy is used to condition the indoor climate, to provide domestic hot water and illumination and other services related to the use of the building

Note 1 to entry: The term can refer to the building as a whole or to parts thereof that have been designed or altered to be used separately.

[SOURCE: CEN/TR 15615:2008]



### 3.4

#### **building element**

major functional part of a *building*

EXAMPLE Foundation, floor, roof, services.

[SOURCE: ISO 6707-1:2014, 5.5.4]

### 3.5

#### **building envelope**

boundary or barrier separating the internal volume subject to the test from the outside *environment* or another part of the *building*

[SOURCE: EN 13829:2000, 3.3]

### 3.6

#### **building fabric**

*construction products* that are fixed to the *building* in a permanent manner, so that the dismantling of the product changes the performance of the building and the dismantling or replacement of the product constitute construction operations

[SOURCE: EN 15643-1:2010]

### 3.7

#### **character-defining elements**

materials, forms, location, spatial configurations, uses and cultural associations or meanings that contribute to the *heritage significance* of an *historic building*, which must be retained in order to retain its *heritage significance*

### 3.8

#### **client**

person or organization that requires a *building* to be provided, altered or extended and is responsible for initiating and approving the brief

[SOURCE: ISO 6707-1:2014, 8.3]

### 3.9

#### **compatibility**

extent to which one material can be used with another material without putting heritage significance or stability at risk

[SOURCE: EN 15898:2011, 3.3.3]

### 3.10

#### **condition**

physical state of a building at a particular time

Note 1 to entry: Assessment of the state of a building depends on the context and thus on the reason why the assessment is being made.

[SOURCE: EN 15898:2011, 3.2.1]

### 3.11

#### **condition report**

record of *condition* for a specific purpose, dated and authored

Note 1 to entry: A condition report normally results from a condition survey. In French, the term "constat d'état" is used for moveable heritage, while "rapport dévaluation de l'état" is used for immovable heritage.

[SOURCE: EN 15898:2011, 3.6.5]

**prEN 16883:2015 (E)****3.12****condition survey**

inspection to assess *condition*

[SOURCE: EN 15898:2011, 3.6.4]

**3.13****conservation, conservation-restoration**

measures and actions aimed at safeguarding *cultural heritage* while respecting its *heritage significance*, including its accessibility to present and future generations

Note 1 to entry: Conservation includes preventive conservation, remedial conservation and restoration (see [27]).

Note 2 to entry: The term "conservation-restoration" is mainly used in the field of movable cultural heritage.

Note 3 to entry: The term "preservation" is also used, e.g. in libraries and archives.

Note 4 to entry: All conservation actions are based on documentary and/or material evidence (see [16]).

[SOURCE: EN 15898:2011, 3.3.1, modified by replacing 'significance' with 'heritage significance']

**3.14****conservation planning**

management tool for the development and coordination of *conservation* measures and actions

Note 1 to entry: An outcome can be a 'Conservation Plan'.

[SOURCE: EN 15898:2011, 3.6.2]

**3.15****conservation proposal**

recommendations resulting from *diagnosis*, for the purpose of *conservation planning*

Note 1 to entry: Conservation proposals can make use of or include statements of heritage significance and conservation plans.

[SOURCE: EN 15898:2011, 3.6.7,]

**3.16****construction works**

everything that is constructed or results from construction operations

[SOURCE: ISO 6707-1:2014, 3.1.1]

**3.17****consultant**

person or organization providing specific advice or services on certain aspects of a project

[SOURCE: ISO 6707-1:2014, 8.8]

**3.18****context**

past, present and future circumstances affecting *heritage significance*

Note 1 to entry: Context refers to the circumstances, tangible and intangible, in which a building is created, built, used, worshipped, found, excavated, kept, presented, etc.

[SOURCE: EN 15898:2011, 3.1.8]

**3.19****contractor**

person or organization that undertakes *construction works* in accordance with a contract

[SOURCE: ISO 6707-1:2014, 8.4]

**3.20****cultural heritage**

tangible and intangible entities of *heritage significance* to present and future generations

[SOURCE: EN 15898:2011, 3.1.1]

**3.21****damage**

*alteration* that reduced *heritage significance* or stability

Note 1 to entry: Stability can be physical, chemical, biological, etc.

Note 2 to entry: Although damage has negative connotations, it can sometimes be viewed as broadening heritage significance.

[SOURCE: EN 15898:2011, 3.2.7]

**3.22****diagnosis**

process of identifying the present *condition* of a *building* and determining the nature and causes of any change, as well as the conclusions drawn

Note 1 to entry: Diagnosis is based on observation, investigation, historical analysis, etc.

[SOURCE: EN 15898:2011, 3.6.6]

**3.23****designer**

person or organization who designs buildings and structures and parts thereof

[SOURCE: ISO 6707-1:2014, 8.9]

**3.24****deterioration**

gradual change in *condition* that reduces *heritage significance* or stability

Note 1 to entry: This term can also refer to the process itself.

Note 2 to entry: The term "decay" is sometimes used as a synonym.

Note 3 to entry: For movable heritage, the French term "détérioration" is also used to describe a complete and sudden worsening of condition.

[SOURCE: EN 15898:2011, 3.2.8]

**3.25****documentation**

recorded information created, collected, held and maintained for the purpose of present and future *conservation* and for reference

EXAMPLES X-radiographs, drawings, photographs, written reports, computer files, photogrammetry, laser-scanning, etc.

**prEN 16883:2015 (E)**

Note 1 to entry: This term also refers to the process itself.

[SOURCE: EN 15898:2011, 3.6.7]

**3.26****durability**

ability to resist the effects of wear and tear in performance situations

Note 1 to entry: Durability is not to be confused with "permanence" for which see EN ISO 9706.

[SOURCE: EN 15898:2011, 3.1.1]

**3.27****energy**

capacity of a system to produce activity

Note 1 to entry: Generally, the term energy is used for electricity, fuel, steam, heat, compressed air and other similar sources.

[SOURCE: ISO/IEC 13273-1, 3.1.1]

**3.28****energy carrier**

substance or phenomenon that can be used to produce mechanical work or heat or to operate chemical or physical processes [ISO 13600:1997]

Note 1 to entry: The energy content of fuels is given by their gross calorific value.

[SOURCE: CEN/TR 15615:2008, 3.17]

**3.29****energy consumption**

quantity of energy applied

[SOURCE: ISO/IEC 13273-1, 3.1.15]

**3.30****energy demand**

necessary supply capacity for the projected level of *energy use*

Note 1 to entry: When considering future trends, energy demand is often used in the sense of potential energy consumption.

Note 2 to entry: Energy demand is often used in the context of supply-demand interaction where demand is not given but dependent on external factors such as energy prices.

[SOURCE: CEN/CLC/TR 16103:2010, 4.2.3]

**3.31****energy efficiency**

$E_f$   
ratio or other quantitative relationship between an output of performance, service, goods or *energy*, and an input of energy

EXAMPLE Efficiency conversion energy; energy required/energy used; output/input; theoretical energy used to operate/energy used to operate.

Note 1 to entry: Both input and output need to be clearly specified in quantity and quality, and be measurable.