Conservation of Cultural Heritage - Specifications for location, construction and modification of buildings or rooms intended for the storage or use of heritage collections



EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

		This Estonian standard EVS-EN 16893:2018 consists of the English text of the European standard EN 16893:2018.
Standard on jõustunud sellekohase avaldamisega EVS Teatajas	teate	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on Euroopa standardi rahvuslikele liiki kättesaadavaks 07.02.2018.		Date of Availability of the European standard is 07.02.2018.
Standard on kättesaadav Standardikeskusest.	Eesti	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile <u>standardiosakond@evs.ee</u>.

ICS 97.195

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16893

February 2018

ICS 97.195

English Version

Conservation of Cultural Heritage - Specifications for location, construction and modification of buildings or rooms intended for the storage or use of heritage collections

Conservation du patrimoine culturel - Spécifications pour l'emplacement, la construction et la modification des bâtiments et des salles destinés au stockage ou à l'utilisation de collections Erhaltung des kulturellen Erbes - Festlegungen für Standort, Errichtung und Änderung von Gebäuden oder Räumlichkeiten für die Lagerung oder Nutzung von Sammlungen des kulturellen Erbes

This European Standard was approved by CEN on 20 November 2017.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

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

Con	tents	Page
_		_
_	pean foreword	
Intro	duction	6
1	Scope	7
2	Normative references	7
3	Terms and definitions	7
4	Principles and strategies	
- 4.1	Sustainability	11
4.2	Risk management	
4.2.1	General	
4.2.2	Hazards to collections	
4.3	Environmental strategy	
4.3.1	General	
4.3.2	Collection information	
4.3.3	Specifications for environmental protection	
4.4	Environmental monitoring strategy	
4.4.1	General	
4.4.2	Methodology	
4.5	Facilities management strategy	
5	Building specifications	
5.1	Building location	
5.1.1	Hazards identification	
5.1.2	Natural hazards	
5.2	Site capacity	
5.2.1	General	
5.2.2	Self-containment	
5.3	Building structure and environmental protection	
5.3.1	General	
5.3.2	Construction materials	_
5.3.3	Building acclimatization	
5.3.4	Passive or low-energy environment structures	
5.4	Air quality	
5.4.1	General	
5.4.2	External pollutants	
5.4.3	Internal pollutants	
5.4.4	Ventilation	
5.5	Mechanical environmental control	
5.5.1	General	20
5.5.2	Air conditioning for storage repositories	
5.5. <u>2</u> 5.6	Prevention of infestation by pests and mould	
5.7	Protection against water	
5.7.1	Design and materials	
5.7.1 5.7.2	Rainwater discharge systems	
5.7.2 5.7.3	Drainage and piping work	
5.7.3 5.8	Windows and lighting	
5.8.1	General	
J.U.I	UC11C1	43

5.8.2	Glazing and light levels	
5.8.3	Artificial lighting	
5.8.4	Lamps	23
5.9	Emergency electrical supply	24
5.10	Ceilings	24
5.11	Floors and load distribution	24
5.11.1	General	24
5.11.2	Calculation of floor loads	24
5.12	Storage space arrangements	
6	Fire protection and prevention	25
6.1	General	25
6.2	Fire risk assessment	25
6.3	Structural fire protection	
6.3.1	General	
6.3.2	Structural fire resistance	
6.3.3	Lightning conduction	
6.3.4	Fire compartments	
6.3.5	Doors and other openings	
6.3.6	Vertical openings	
6.3.7	Minimizing fire hazard in an electrical system	
6.4	Minimizing fire hazards in ventilation plant and equipment	
6.4.1	Ductwork	
6.4.2	Dampers	
6.5	Fire detection and firefighting	
6.5.1	General	
6.5.2	Detection and alarm systems	
6.5.3	Monitoring	40
6.5.4	Automatic fire-fighting systems	
6.5. 4	Portable fire extinguishers	40
6.5.6	Protection of areas adjacent to collection spaces	
6.5.7	Smoke extraction	
6.5. <i>7</i>	Fire control and mobile shelves	
7	Security specifications	
7.1	General	29
7.2	Security risk assessment	
7.3	Site security	
7.4	Protection against intruders	
7.5	Entrances	
7.6	Services	
7.7	Windows	
7.8	External doors to the building	
Annex	A (informative) Automatic fire-fighting systems	
A.1	General	31
A.2	Combustible materials	31
A.3	Inert gas and chemical agent suppression systems	
A.4	Overpressure	
A.5	Reduced oxygen systems	
A.6	Water-mist systems	
A.U	water-mist systems	J Z

Annex B (informative)	Relative risk of damage and deterioration due to temperature	. 33
Annex C (informative)	Relative risk of damage and deterioration due to relative humidity	. 36
Annex D (informative)	Examples of internal pollutants and their sources	. 39
Annex E (informative)	Light Sensitivity - Sensitivity of coloured materials to light	. 40
Annex F (informative)	Recommended maximum loads	. 41
Bibliography		. 42
	Thronk is a protion of the party of the	

European foreword

This document (EN 16893:2018) has been prepared by Technical Committee CEN/TC 346 "Conservation of Cultural Heritage", 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 August 2018, and conflicting national standards shall be withdrawn at the latest by August 2018.

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

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

Introduction

Cultural heritage collections are intended to be kept for future as well as current generations. Their long-term conservation can only be achieved if the sites and buildings that house them support this goal and do not place them at risk. Building features that are intended to protect collections are primarily structural, involving resilience against external and internal hazards including fire, water, pests, criminal activity and environments that interact with heritage materials.

Environmental considerations for collections are influenced by the nature of their materials, their condition and the uses to which they are put. They are also influenced by policies relating to conservation objectives, such as longevity of collections, and by the nature and costs of energy required to achieve these objectives.

This standard assists custodians of cultural heritage collections by defining the criteria and information necessary to make policy relating to conservation that will in turn influence the outcome of building construction. It is also intended to help them define the specifications necessary for the construction or modification of buildings such that they can safely house collections.

These specifications should be used by architects, engineers and others responsible for the design and construction of new archives, libraries and museums, or modifying spaces within existing buildings for these purposes.

in his. These specifications might not be applicable in historic buildings which may also contain cultural heritage objects, e.g. churches.

1 Scope

This European Standard gives specifications and guidance for the location, construction and arrangement of building specifically intended for internal storage of all heritage collection types and formats.

This standard applies to buildings where collections are housed permanently and can be used as guidance for shorter-term display spaces where appropriate. Throughout the document, where specifications relate exclusively to storage spaces, these are defined as such. Where specifications can also be applied to areas such as display galleries or reading rooms, these applications are referred to explicitly.

Clauses relating to risks associated with security, environmental hazards, fire, water and pests apply to buildings as a whole and to any room in which collections may be held.

Some of the clauses in this standard may be applicable in protected historic buildings that contain collections. In these settings, the scope for any alterations or achievement of conditions suitable for collections may be limited by the historic character of the structure, especially where it is protected by heritage regulations.

NOTE This standard covers the structure of buildings containing heritage collections, whether for storage or use. For a description of technical processing spaces recommended in the design specifically of a storage building open to the public, attention is drawn to EN 16141.

This standard should be seen as complementary to national or local building regulations and specifications.

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 1627, Pedestrian doorsets, windows, curtain walling, grilles and shutters — Burglar resistance — Requirements and classification

EN 1838, Lighting applications — Emergency lighting

EN 12056-3, Gravity drainage systems inside buildings — Part 3: Roof drainage, layout and calculation

CEN/TS 16163, Conservation of Cultural Heritage — Guidelines and procedures for choosing appropriate lighting for indoor exhibitions

EN 62305-2, Protection against lightning — Part 2: Risk management (IEC 62305-2)

EN 60332-1-1, Tests on electric and optical fibre cables under fire conditions — Part 1-1: Test for vertical flame propagation for a single insulated wire or cable — Apparatus (IEC 60332-1-1)

EN 60529, Degrees of protection provided by enclosures (IP Code) (IEC 60529)

EN ISO 16890-1, Air filters for general ventilation — Part 1: Technical specifications, requirements and classification system based upon particulate matter efficiency (ePM) (ISO 16890-1)

3 Terms and definitions

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