

Conservation of cultural heritage - Historic timber structures - Guidelines for the on-site assessment of load-bearing timber structures

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 17121:2019 sisaldab Euroopa standardi EN 17121:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 17121:2019 consists of the English text of the European standard EN 17121:2019.
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English Version

Conservation of cultural heritage - Historic timber  
structures - Guidelines for the on-site assessment of load-  
bearing timber structures

Conservation du patrimoine culturel - Structures en  
bois du patrimoine - Lignes directrices relatives à  
l'évaluation sur site des structures porteuses en bois

Erhaltung des kulturellen Erbes - Historische  
Holzkonstruktionen - Leitlinien für die Bewertung vor  
Ort von tragenden Holzkonstruktionen

This European Standard was approved by CEN on 1 July 2019.

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## European foreword

This document (EN 17121:2019) 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of an identical text or by endorsement, at the latest by March 2020, and conflicting national standards shall be withdrawn at the latest by March 2020.

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.

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## Introduction

The purpose of the present document is to consider condition survey and diagnostic methods for assessing heritage load-bearing timber structures with a view to establishing safe working loads or determining the need for strengthening or repair in order to ensure their continuing use.

Heritage structures are important historic artefacts, which differ from other existing structures in that a greater value is placed on their fabric because of their historical significance. It is necessary to gather data in order to be able to assess the ability of such a structure to carry the required loads and continue to be in use both now and for the foreseeable future, and to identify those areas of the structure that require repair or strengthening. Both the conduct of the survey, assessment and any subsequent repair or strengthening that could be necessary should involve minimum intervention. This could justify greater expense both in the survey, diagnosis and assessment of the structure and in the consideration of the repair methods that might be employed. The assessment of their condition and of their existing structural characteristics is expected to be state of the art, which might require the use of more precise methods than those that are used for other existing structures, with a cost that could not otherwise be justified. Moreover intervention works (repair or strengthening) should only be carried out to a heritage structure as a last resort and should have minimal impact on the building fabric (the original materials, structural systems and techniques).

An important part of the work involves the documentation and understanding of the history of a structure: loads, construction technology, and the period's aesthetic details in order to be able to assess the historical significance of either the overall structure or of any of its components. Historical significance of a structure could relate to the history of the structure itself or that of the building of which it is a part. Such understanding requires an interdisciplinary approach with any other profession that can be helpful to the assessment procedure.

In some cases, where the problems are simple and obvious, the preliminary, visual survey might be all that is required but in general a more detailed survey will be needed <sup>1</sup>.

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<sup>1</sup> The survey of existing buildings to determine their suitability for continuing use or for a change of use has been considered by ISO 13822. Annex I of that standard considers heritage structures.

## 1 Scope

This document gives guidelines on the criteria to be used for the on-site assessment of load-bearing timber structures in heritage buildings. It is intended for all those concerned with the conservation of heritage buildings which contain wooden elements, from the building owners or authorities who are responsible for them to the professionals employed. It should also help decision-making regarding the need for immediate measures. Its aim is to guarantee that condition survey and assessment provide the necessary data for historical analysis, structural safety assessment and planning of intervention works.

This document is applicable to any kind of timber member and to any kind of historic timber structures. It is not applicable to timber members made of engineered wood based panels and glued laminated timber.

This document provides a comprehensive procedure for the on-site assessment. With a practical and technical evaluation of the damage found and based on the responsibility of the involved professionals, a sufficient assessment can also be made when not all the steps are followed.

In each different country, the document is expected to be applied in accordance with National legislation and regulations.

## 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.

EN 335, *Durability of wood and wood-based products — Use classes: definitions, application to solid wood and wood-based products*

EN 1912, *Structural Timber — Strength classes — Assignment of visual grades and species*

EN 1995-1-1, *Eurocode 5: Design of timber structures — Part 1-1: General — Common rules and rules for buildings*

EN 14081-1:2016, *Timber structures — Strength graded structural timber with rectangular cross section — Part 1: General requirements*

EN 16085, *Conservation of Cultural property — Methodology for sampling from materials of cultural property - General rules*

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

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14081-1, EN 1912 and the following apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>