

**Akustika. Hoonete helineelurid.  
Helineeldumise hindamine**

Acoustics - Sound absorbers for use in buildings -  
Rating of sound absorption

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 11654:1999 sisaldab Euroopa standardi EN ISO 11654:1997 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 11654:1999 consists of the English text of the European standard EN ISO 11654:1997.</p> <p>This document is endorsed on 23.11.1999 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

<p><b>Käsitlusala:</b></p> <p>Standard määrab kindlaks meetodi, mille alusel helineeldeteguri sagedusest olenevad väärtused saab avaldada ühearvulise parameetrina.</p>	<p><b>Scope:</b></p>
---	----------------------

**ICS** 91.120.20

**Võtmesõnad:** akustika, akustiline neeldumine, akustilised mõõtmised, arvutusjuhised, helineeldetegur, helineelurid, hooned, katsed, määramine

ICS 91.120.20

Descriptors: Sound absorbers, rating.

**English version**

Acoustics

**Sound absorbers for use in buildings**

Rating of sound absorption  
(ISO 11654 : 1997)

Acoustique – Absorbants pour l'utili-  
sation dans les bâtiments – Evaluation  
de l'absorption acoustique  
(ISO 11654 : 1997)

Akustik – Schallabsorber für die Anwen-  
dung in Gebäuden – Bewertung der  
Schallabsorption  
(ISO 11654 : 1997)

This European Standard was approved by CEN on 1997-03-19.

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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

**Central Secretariat: rue de Stassart 36, B-1050 Brussels**

## Foreword

International Standard

ISO 11654 : 1997 Acoustics – Sound absorbers for use in buildings – Rating of sound absorption, which was prepared by ISO/TC 43 'Acoustics' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 126 'Acoustics', the Secretariat of which is held by AFNOR, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by October 1997 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

## Endorsement notice

The text of the International Standard ISO 11654 : 1997 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to international publications are listed in Annex ZA (normative).

## Contents

	Page
1 Scope .....	4
2 Normative references .....	4
3 Definitions .....	5
4 Calculation .....	5
5 Presentation of results .....	6
<b>Annexes</b>	
A Examples of calculations of $\alpha_w$ with and without a shape indicator .....	8
B Classification of sound absorbers .....	9
C Example of a standardized diagram for $\alpha_s$ values .....	10

## 1 Scope

**1.1** This International Standard specifies a method by which the frequency-dependent values of the sound absorption coefficient can be converted into a single number. Before this is done, the one-third-octave band values of the sound absorption coefficient measured in accordance with ISO 354 are converted into octave bands.

In annex B a classification method, based on these single numbers, is given for information.

**1.2** The single-number rating specified in this International Standard can be used to formulate requirements and to describe acoustical properties of sound-absorbing products to be used for routine applications in normal offices, corridors, class rooms, hospitals, etc. The rating is not appropriate when the products are to be used in qualified environments requiring careful acoustical design by expertise. In such cases, only complete sound absorption data as a function of frequency are satisfactory.

This International Standard is not applicable unless the applications cover the whole frequency range of the reference curve. If only a part of this range is of interest, it may be more appropriate to look for products with a good sound absorption within this range only. The shape indicators described in this International Standard give some guidance in identifying such products which may have a relatively low single number but a much higher potential if a more restricted frequency range is considered. Such products should be judged from the complete sound absorption curve.

As the rating curve in this International Standard has as a lower limit the 250 Hz octave band, the rating is not appropriate below this frequency. If such low frequencies are of interest, reference must be made to the complete sound absorption curve.

This International Standard is, in principle, applicable to all building products for which the sound absorption coefficient has been determined in accordance with ISO 354. It is, however, often not suitable for application to single items, such as chairs, baffles, etc., nor is it applicable to road barriers and road surfaces.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 354:1985, *Acoustics — Measurement of sound absorption in a reverberation room*.

ISO 354:1985/Amd. 1:—<sup>1)</sup>, *Annex D: Test specimen mountings for sound absorption tests*.

---

1) To be published.