Ehitusakustika. Hoonete akustilise toimivuse hindamine elementide akustilise toime põhjal. Osa 6: Heli neeldumine kinnises ruumis

Building Acoustics - Estimation of acoustic performance of buildings from the performance of elements - Part 6: Sound absorption in enclosed spaces

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 12354-6:2006 sisaldab Euroopa standardi EN 12354-6:2003 ingliskeelset teksti.	This Estonian standard EVS-EN 12354-6:2006 consists of the English text of the European standard EN 12354-6:2003.
Standard on kinnitatud Eesti Standardikeskuse 18.05.2004 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 18.05.2004 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 17.12.2003.	Date of Availability of the European standard text 17.12.2003.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 91.120.20

Võtmesõnad: akustiline toimivus, ehitamine, ehitusakustika, heli, heli absorbeerumine, hooned, ruumid

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12354-6

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English version

Building Acoustics - Estimation of acoustic performance of buildings from the performance of elements - Part 6: Sound absorption in enclosed spaces

Acoustique du bâtiment - Calcul de la performance acoustique des bâtiments à partir de la performance des éléments - Partie 6: Absorption acoustique des pièces et espaces fermés

Bauakustik - Berechnung der akustischen Eigenschaften von Gebäuden aus den Bauteileigenschaften - Teil 6: Schallabsorption in Räumen

This European Standard was approved by CEN on 13 November 2003.

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 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 Management Centre has the same status as the official versions.

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

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

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Foreword

This document (EN 12354-6:2003) has been prepared by Technical Committee CEN/TC 126 “Acoustic properties of building products and of buildings”, the secretariat of which is held by AFNOR.

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 June 2004, and conflicting national standards shall be withdrawn at the latest by June 2004.

This document is the first version of a standard which forms a part of a series of standards specifying calculation models in building acoustics:

— *Part 1: Airborne sound insulation between rooms*

— *Part 2: Impact sound insulation between rooms*

— *Part 3: Airborne sound insulation against outdoor sound*

— *Part 4: Transmission of indoor sound to the outside*

— *Part 5: Sound levels due to service equipment*

— *Part 6: Sound absorption in enclosed spaces*

Although this part covers the most common types of enclosed spaces in buildings it cannot yet cover all variations of such spaces. It sets out an approach for gaining experience for future improvements and developments of the standard.

The accuracy of this standard cannot be specified in detail until wide ranging comparisons with field data have been made, which can, in turn, only be gathered over a period of use of the prediction model. To help the user in the meantime, indications of the accuracy have been given, based on earlier comparable prediction models. It is the responsibility of the user (i.e. a person, an organisation, the authorities) to consider the consequences of the accuracy, inherent in all measurement and prediction methods, to specify requirements for input data and/or apply a safety margin to the results or to apply some other correction.

Annex A is normative, annexes B, C, D and E are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard describes a calculation model to estimate the total equivalent sound absorption area or reverberation time of enclosed spaces in buildings. The calculation is primarily based on measured data that characterise the sound absorption of materials and objects. Calculations can only be carried out for frequency bands.

This European Standard describes the principles of the calculation model, lists the relevant quantities and defines its applications and restrictions. It is intended for acoustical experts and provides the framework for the development of application documents and tools for other users in the field of building construction, taking into account local circumstances.

The model is based on experience with predictions for rooms, such as rooms in dwellings and offices, and common spaces in buildings, such as stairwells, corridors and rooms containing machinery and technical equipment. It is not intended to be used for very large or irregularly-shaped spaces, such as concert halls, theatres and factories.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN ISO 354, *Acoustics - Measurement of sound absorption in a reverberation room (ISO 354:2003).*

ISO 9613-1, *Acoustics - Attenuation of sound during propagation outdoors - Part 1: Calculation of the absorption of sound by the atmosphere.*

3 Relevant quantities

3.1 Building performance

3.1.1
quantities to express building performance
sound absorption in enclosed spaces can be expressed in terms of the equivalent absorption area or the reverberation time in accordance with prEN ISO 3382-2. These quantities are determined in frequency bands (one-third octave bands or octave bands)

3.1.2
equivalent sound absorption area of a room A
hypothetical area of a totally absorbing surface without diffraction effects which, if it were the only absorbing element in the room, would give the same reverberation time as the room under consideration

NOTE Equivalent sound absorption area of a room is expressed in m^2.

3.1.3
reverberation time T
time required for the sound pressure level to decrease by 60 dB after the sound source has stopped

NOTE 1 Reverberation time is expressed in s.

NOTE 2 The definition of T with a decrease by 60 dB of the sound pressure level may be fulfilled by linear extrapolation of a shorter evaluation range.