

Contents

Page

European foreword.....	3
Introduction	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	5
4 Software validation procedure	6
4.1 General outline.....	6
4.2 Coverage of the validation	6
4.3 Requirements for the calculation tool.....	7
4.4 Step 1: validation using the reference values of Table A.1.....	7
4.4.1 Reference data.....	7
4.4.2 Comparison procedure	7
4.4.3 Validation criteria.....	8
4.5 Step 2: validation using values of random glass configurations.....	9
4.5.1 Reference data.....	9
4.5.2 Validation criteria.....	9
4.6 Step 3: validation of the limits of the calculation tool declared by applicant	9
4.6.1 General.....	9
4.6.2 Validation of the calculation tool outside of the ranges.....	10
4.6.3 Validation criteria.....	10
5 Revalidation	10
6 Validation report content	10
Annex A (normative) Reference data to be used for the validation process	12
A.1 Reference glazing units.....	12
A.1.1 General.....	12
A.1.2 Sound transmission loss for glazing references	12
Annex B (informative) Example of calculation results report.....	15
Annex C (informative) Example of validation in Step 1	16

European foreword

This document (EN 17839:2023) has been prepared by Technical Committee CEN/TC 129 “Glass in building”, the secretariat of which is held by NBN.

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of an identical text or by endorsement, at the latest by May 2024, and conflicting national standards shall be withdrawn at the latest by May 2024.

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.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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

Introduction

The standards EN ISO 10140-1 and EN ISO 10140-2 specify test requirements for building elements and products, including glazing units. EN 12758:2019 outlines a test procedure for the measurement in laboratory of sound insulation for a range of glass configurations.

Considering the number of possible glazing configurations, it is impractical to measure the acoustic characteristics for all of them.

The last few years have seen the development of acoustic calculation tools based on simulation and/or interpolation. The aim of this document is to provide a methodology and reference values for the assessment of such calculation tools.

As there is neither a reference calculation tool nor a standardized calculation method, the goal of this document is to compare calculated results (irrespective of the method) with measured results, to ensure that they do not exceed measured results.

NOTE Calculated results lower than measurement results do not lead to failure of the validation

The validation is undertaken first by a comparison with reference values selected from EN 12758:2019. These values have been calculated on the basis of data collected from several European laboratories. The assessment is completed by a comparison of the calculated values for other glass compositions with measurements already performed by the validator according to EN ISO 10140-1 or another possible validator.

1 Scope

This document specifies a procedure to validate a calculation tool based on simulation, analytical calculation and/or interpolation of airborne sound insulation characteristics of glass products.

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 12758:2019, *Glass in building — Glazing and airborne sound insulation — Product descriptions, determination of properties and extension rules*

EN ISO 717-1, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation (ISO 717-1)*

EN ISO 10140-1, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 1: Application rules for specific products (ISO 10140-1)*

EN ISO 10140-2:2021, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 2: Measurement of airborne sound insulation (ISO 10140-2:2021)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12758 and the following apply.

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

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

3.1

calculation tool

software that provides Sound Reduction Index (SRI) of glazing configurations, aiming at giving results as close as possible to those that would have been obtained by measurement according to EN ISO 10140-1 and EN ISO 10140-2

3.2

applicant

party that provides the calculation tool for validation, owns the rights of the calculation tool, and was involved in its development process

3.3

validator

party that validates the calculation tool in accordance with this document

Note 1 to entry: Within the framework of the EU Regulation 305/2011, the validator is a notified body.

3.4

user

person who uses the calculation tool