



EUROPEAN ASSESSMENT DOCUMENT

EAD 190013-00-0502

May 2018

THERMAL AND SOUND INSULATING DRY SCREED SYSTEMS WITH PREFABRICATED FLOORING ELEMENTS

The reference title and language for this EAD is English. The applicable rules of copyright refer to the document elaborated in and published by EOTA.

This European Assessment Document (EAD) has been developed taking into account up-to-date technical and scientific knowledge at the time of issue and is published in accordance with the relevant provisions of Regulation No (EU) 305/2011 as a basis for the preparation and issuing of European Technical Assessments (ETA).

Contents

1	Scope of the EAD	4
1.1	Description of the construction product	4
1.2	Information on the intended use(s) of the construction product	5
1.2.1	Intended use(s).....	5
1.2.2	Working life/Durability	5
2	Essential characteristics and relevant assessment methods and criteria	6
2.1	Essential characteristics of the product	6
2.2	Methods and criteria for assessing the performance of the product in relation to essential characteristics of the product	6
2.2.1	Reaction to fire.....	7
2.2.2	Propensity to undergo continuous smouldering.....	7
2.2.3	Water vapour permeability – Water vapour transmission of the kit components.....	7
2.2.4	Water absorption of the gypsum fibre layer.....	8
2.2.5	Surface hardness of the gypsum fibre boards.....	8
2.2.6	Resistance to functional failure from concentrated load	8
2.2.7	Impact sound insulation of the kit.....	8
2.2.8	Airborne sound insulation of the floor in which the kit is used.....	8
2.2.9	Thermal resistance	9
3	Assessment and verification of constancy of performance	10
3.1	System(s) of assessment and verification of constancy of performance to be applied	10
3.2	Tasks of the manufacturer	10
3.3	Tasks of the notified body	11
4	Reference documents	13
Annex 1:	Resistance to functional failure from concentrated load	15
Annex 2:	Instructions for reaction to fire tests of kit components not covered by other harmonized specifications	17

1 SCOPE OF THE EAD

1.1 Description of the construction product

The thermal and sound insulating dry screed systems consist of (1) prefabricated flooring elements and (2) additional layers forming a kit. The prefabricated flooring elements consist of two homogeneous gypsum fibre boards and an optional insulation layer or an optional fibre fleece layer. Prefabricated flooring elements with an optional layer as a single construction product are also covered by this EAD.

(1) The prefabricated flooring elements are made of gypsum fibre boards according to EN 15283-2¹ glued together with an overlap. An insulation layer according to EN 13162, EN 13163 or EN 13171 can be glued under the gypsum fibre boards. Alternatively to the insulation layer, a fibre fleece layer can be glued under the gypsum fibre boards. The fibre fleece can be made of synthetic and / or natural fibres.

(2) The following additional layers are covered by this EAD:

- additional gypsum fibre boards acc. to EN 15283-2
- additional insulation layer according to EN 13162, EN 13163 or EN 13171
- additional fibre fleece layer
- loose dry levelling compound made of aerated concrete
- loose fill honeycomb infill made of limestone split filled in a honeycomb board
- bonded levelling compound made of expanded polystyrene (EPS) granules and cement-based binders acc. to European Assessment Document 040635-00-1201
- self-levelling compound (screed material and floor screeds with gypsum-based binders) acc. to EN 13813

The following auxiliary materials are used but not part of the kit:

- floor glue
- flooring screws
- joint filler
- edge insulation strips (perimeter strip)
- trickle protection sheet

The product (kit) is not covered by a harmonised European standard (hEN).

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

It is assumed that the product will be installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals.

Relevant manufacturer's stipulations having influence on the performance of the product covered by this European Assessment Document shall be considered for the determination of the performance and detailed in the ETA.

¹ All undated references to standards or to EADs in the text of this EAD are to be understood as references to the dated versions listed in clause 4

1.2 Information on the intended use(s) of the construction product

1.2.1 Intended use(s)

The thermal and sound insulating dry screed systems are intended to be used for thermal and / or sound insulation on floors inside buildings. The floor finishing systems can also be used for raising the height of floors or levelling out uneven floors. The floor finishing systems are only exposed to static loads.

The floor finishing systems are always used with a floor covering. In wet rooms the floor finishing systems are lined with a waterproof floor covering.

1.2.2 Working life/Durability

The assessment methods included or referred to in this EAD have been written based on the manufacturer's request to take into account a working life of the kit for the intended use of 25 years when installed in the works provided that the kit is subject to appropriate installation. These provisions are based upon the current state of the art and the available knowledge and experience.

When assessing the product, the intended use as foreseen by the manufacturer shall be taken into account. The real working life may be, in normal use conditions, considerably longer without major degradation affecting the basic requirements for works².

The indications given as to the working life of the construction product cannot be interpreted as a guarantee neither given by the product manufacturer or his representative nor by EOTA when drafting this EAD nor by the Technical Assessment Body issuing an ETA based on this EAD, but are regarded only as a means for expressing the expected economically reasonable working life of the product.

² The real working life of a product incorporated in a specific works depends on the environmental conditions to which that works is subject, as well as on the particular conditions of the design, execution, use and maintenance of that works. Therefore, it cannot be excluded that in certain cases the real working life of the product may also be shorter than referred to above.

2 ESSENTIAL CHARACTERISTICS AND RELEVANT ASSESSMENT METHODS AND CRITERIA

2.1 Essential characteristics of the product

Table 1 shows how the performance of the kit is assessed in relation to the essential characteristics.

Table 1 Essential characteristics of the product and methods and criteria for assessing the performance of the product in relation to those essential characteristics

No	Essential characteristic	Assessment method	Type of expression of product performance
Basic Works Requirement 2: Safety in case of fire			
1	Reaction to fire	2.2.1	Class
2	Propensity to undergo continuous smouldering	2.2.2	Description/Level
Basic Works Requirement 3: Hygiene, health and the environment			
3	Water vapour permeability – Water vapour transmission of the kit components	2.2.3	Level
4	Water absorption of the gypsum fibre layer	2.2.4	Level
Basic Works Requirement 4: Safety and accessibility in use			
5	Surface hardness of the gypsum fibre boards	2.2.5	Level
6	Resistance to functional failure from concentrated load	2.2.6	Level
Basic Works Requirement 5: Protection against noise			
7	Impact sound insulation	2.2.7	Level
8	Airborne sound insulation of the floor in which the kit is used	2.2.8	Level
Basic Works Requirement 6: Energy economy and heat retention			
9	Thermal resistance	2.2.9	Level

2.2 Methods and criteria for assessing the performance of the product in relation to essential characteristics of the product

This chapter is intended to provide instructions for TABs. Therefore, the use of wordings such as “shall be stated in the ETA” or “it has to be given in the ETA” shall be understood only as such instructions for TABs on how results of assessments shall be presented in the ETA. Such wordings do not impose any obligations for the manufacturer and the TAB shall not carry out the assessment of the performance in relation to a given essential characteristic when the manufacturer does not wish to declare this performance in the Declaration of Performance.

Testing will be limited only to the essential characteristics which the manufacturer intends to declare. If for any components covered by harmonised standards or European Technical Assessments the manufacturer of the component has included the performance regarding the relevant characteristic in the Declaration of Performance, retesting of that component for issuing the ETA under the current EAD is not required.

2.2.1 Reaction to fire

The reaction to fire behaviour of the components is decisive for the relevant performance of the kit.

The reaction to fire performance of the prefabricated flooring elements and of those kit components not covered by a harmonized standard or a European Technical Assessment is tested using the test method(s) relevant for the corresponding reaction to fire class according to EN 13501-1. The prefabricated flooring elements and the concerned kit components shall be classified according to Commission Delegated Regulation (EU) No 2016/364 in connection with EN 13501-1. Concerning mounting and fixing the provisions of ANNEX 2 have to be considered.

The reaction to fire performance of those kit components covered by a harmonized standard or a European Technical Assessment is to be taken from their relevant declaration of performance, if already declared.

Provided that the conditions set out in the Commission Decision 96/603/EC, as amended by Commission Decisions 2000/605/EC and 2003/424/EC, with regard to the organic content of the component is fulfilled, the loose dry levelling compound made of aerated concrete is classified as reaction to fire Class A1 without the need for testing on the basis of it fulfilling the conditions set out in that Decision and its intended use being covered by that Decision. As precondition the organic content of the component is determined by tests in accordance with EN 13820.

The reaction to fire classes of the prefabricated flooring elements and of the concerned kit components are given in the ETA.

2.2.2 Propensity to undergo continuous smouldering

The propensity to undergo continuous smouldering of the prefabricated flooring elements with optional insulation layers made of mineral wool or wood fibre is mainly influenced by the thermal insulation product used and therefore considered as the same.

Depending on the outcome of tests according to EN 16733 of the thermal insulation product, one of the following options shall be given in the ETA:

- a) If the insulation product doesn't show propensity to undergo continuous smouldering, give: "The flooring element does not show propensity for continuous smouldering combustion".
- b) If the insulation product shows propensity to undergo continuous smouldering, give: "The flooring element shows propensity for continuous smouldering combustion".
- c) If for the insulation product "assessment of the propensity for continuous smouldering combustion is not possible" is stated, give the same for the flooring element.

For flooring elements without an optional insulation layer or with an optional insulation layer made of EPS determination of the propensity to undergo continuous smouldering is not relevant.

2.2.3 Water vapour permeability – Water vapour transmission of the kit components

For an assessment of the hygrothermal performance (to avoid critical surface humidity and interstitial condensation) the information about the water vapour permeability of the kit components can be necessary.

The water vapour diffusion resistance factor μ for the gypsum fibre layer, the insulation layer, the bonded levelling compound and the self-levelling compound is stated on the basis of the relevant harmonized specification (EN 15283-2, EN 13162, EN 13163, EN 13171, EAD 040635-00-1201, EN 13813).

The water vapour permeability (water vapour diffusion resistance factor) of the other components is tested according to EN ISO 12572 or EN 12086, as appropriate, and given in the ETA as water vapour diffusion resistance factor μ .

2.2.4 Water absorption of the gypsum fibre layer

The water absorption of the gypsum fibre layer is a characteristic of the component but also a representative characteristic for the kit. The water absorption of the gypsum fibre layer is tested according to EN 15283-2 and stated in the ETA. Depending on the application the water absorption of the surface or the entire water absorption is determined.

2.2.5 Surface hardness of the gypsum fibre boards

The surface hardness of the gypsum fibre boards is a characteristic of the component but also a representative characteristic for the kit. The surface hardness of the gypsum fibre boards is determined according to EN 15283-2 and given in the ETA.

2.2.6 Resistance to functional failure from concentrated load

The resistance to functional failure from concentrated load is determined according to Annex 1. The test shall be performed with the worst floor build-up to be covered in the ETA (concerning bending strength of the gypsum fibre boards and – if relevant - compressive stress / strength and / or compressibility of the insulation layer or the additional components).

Different places of the floor area have to be tested.

The average deformation by a concentrated load and the minimum functional failure loads are stated in the ETA together with the bending strength of the gypsum fibre boards and – if relevant - the compressive stress / strength and / or compressibility of the insulation layer or the additional components.

2.2.7 Impact sound insulation of the kit

The impact sound insulation of the floor in which the kit is used and / or the impact sound reduction ΔL of the kit on a heavyweight standard floor is determined according to EN ISO 10140-1, EN ISO 10140-3, EN ISO 10140-4 and EN ISO 10140-5 as appropriate. Category II according to EN ISO 10140-1, Annex H shall be used. Using this data the weighted normalized impact sound pressure level $L_{n,w}$ and / or the weighted impact sound reduction ΔL_w is calculated according to EN ISO 717-2.

The test shall be performed with the floor build-up representing the worst case for impact sound insulation (e.g. minimum mass per unit area of the components and thinnest layer thickness covered by the ETA). If need be, the tests shall be carried out with several build-ups.

The weighted normalized impact sound pressure level $L_{n,w}$ and / or the weighted impact sound reduction ΔL_w is given in the ETA together with a description of the assessed floor build-up to which the given impact sound pressure level / impact sound reduction applies (mass per unit area / density, geometry/ thickness and -if relevant- dynamic stiffness of the components).

2.2.8 Airborne sound insulation of the floor in which the kit is used

The airborne sound insulation of the floor in which the kit is used is measured according to EN ISO 10140-1, EN ISO 10140-2, EN ISO 10140-4 and EN ISO 10140-5 as appropriate and expressed as weighted sound reduction R_w according to EN ISO 717-1.

The test shall be performed with the floor build-up representing the worst case for airborne sound reduction.

The weighted sound reduction R_w with a description of the assessed floor build-up to which the given sound reduction applies (mass per unit area / density, geometry/ thickness and -if relevant- dynamic stiffness of the components) is stated in the ETA.

2.2.9 Thermal resistance

The thermal resistance of the prefabricated flooring elements or the kit is calculated according to EN ISO 6946 using the thermal conductivity of the kit components.

The thermal conductivity of the gypsum fibre boards, the thermal insulation boards, the bonded levelling compound and the self-levelling compound is stated on the basis of the relevant harmonized specification (EN 15283-2, EN 13162, EN 13163, EN 13171, EAD 040635-00-1201, EN 13813).

The thermal conductivity λ_D for the dry levelling compound and the honeycomb infill (if necessary, considering the honeycomb boards) is determined according to the following procedure.

The thermal conductivity at a temperature of 10 °C after storing the specimen in a climate of 23 °C and 50 % relative humidity until constant mass is determined in accordance with EN 12667, EN 12664 or EN 12939 for thick products. At least 4 measurements are performed.

The thermal conductivity λ_D , based on $\lambda_{90/90}$ (representing at least 90 % of the production with a confidence level of 90 %), is determined for a moisture content at 23 °C and 50 % relative humidity and given in levels with steps of 0,001 W/(m·K).

The influence of humidity on the thermal conductivity is determined by storing at least 3 specimens from having done the measurements in a climate of 23 °C and 50 % relative humidity in a climate of 23 °C and 80 % relative humidity until constant mass followed by measurements in accordance with EN 12667.

For each climate the moisture content mass by mass ($u_{23,50} / u_{23,80}$) is determined beside the thermal conductivity ($\lambda_{10,(23,50)} / \lambda_{10,(23,80)}$).

The moisture conversion factor F_m for the conversion of $\lambda_{23,50}$ to $\lambda_{23,80}$ is calculated using the mean values of thermal conductivity of each climate and given in the ETA.

The thermal resistance of the prefabricated flooring elements or the kit is given in the ETA. In addition, the thermal conductivity of the kit components can be stated.

3 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE

3.1 System(s) of assessment and verification of constancy of performance to be applied

For the products covered by this EAD the applicable European legal act is Commission Decision 2000/273/EC.

The system to be applied is 3 for any use except for uses subject to regulations on reaction to fire.

For uses subject to regulations on reaction to fire (including the propensity to undergo continuous smouldering) the applicable AVCP systems are 1, or 3, or 4 depending on the conditions defined in the said Decision.

3.2 Tasks of the manufacturer

The cornerstones of the actions to be undertaken by the manufacturer of the product in the procedure of assessment and verification of constancy of performance are laid down in Table 2.

Table 2 Control plan for the manufacturer; cornerstones

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control ³
Factory production control (FPC)					
1	Reaction to fire	2.2.1	According to control plan	1	annually
2	Continuous smouldering	2.2.2	According to control plan	1	each delivery
3	Water absorption	2.2.4	According to control plan	See EN 15283-2	See EN 15283-2
4	Geometry of the flooring elements	following EN 15283-2, EN 13950	According to control plan	1	Once per day
5	Geometry of the honeycomb boards	See control plan	According to control plan	1	Once per day
6	Mass per unit area of the flooring elements	following EN 15283-2	According to control plan	1	Once per day
7	Mass per unit area of the honeycomb boards	See control plan	According to control plan	1	Once per day
8	Bulk density of the dry levelling compound and the honeycomb infill	EN 1097-3	According to control plan	1	Once per day
9	Particle size distribution of the dry levelling compound and the honeycomb infill	EN 933-1 and EN 933-2	According to control plan	1	Twice per year
10	Surface hardness	2.2.4	According to control plan	See EN 15283-2	See EN 15283-2

³ In case of discontinuous production these minimum frequencies should be adapted to an equivalent frequency

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control ³
11	Impact sound reduction of the kit	2.2.6	According to control plan	1	every two years
12	Airborne sound insulation	2.2.7	According to control plan	1	every two years
13	Thermal conductivity	2.2.8	According to control plan	1	every month
14	Organic content of the dry levelling compound made of aerated concrete	2.2.1 and EN 13820	According to control plan	1	Each batch

3.3 Tasks of the notified body

The cornerstones of the actions to be undertaken by the notified body of the product in the procedure of assessment and verification of constancy of performance are laid down in Table 3.

The intervention of a notified body under AVCP system 1 for this product is only necessary if a clearly identifiable stage in the production process results in an improvement of the reaction to fire (including the propensity to undergo continuous smouldering) classification (e. g. an addition of fire retardants or a limiting of organic material) and the reaction to fire performance class of the product is A1, A2, B or C.

Table 3 Control plan for the notified body; cornerstones

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
Initial inspection of the manufacturing plant and of factory production control					
1	<p>The notified body shall verify the ability of the manufacturer for a continuous and orderly manufacturing of the product covered by the European Technical Assessment, taking especially into account a limiting of organic material, the addition of fire retardants and/or another clearly identifiable stage in the production process which results in the improvement of the reaction to fire classification.</p> <p>In particular the following items shall be appropriately considered</p> <ul style="list-style-type: none"> - presence of suitable test equipment - presence of trained personnel - the suitability of the factory production control established by the manufacturer - full implementation of the prescribed test plan 	See control plan	See control plan	-	Before certification

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
Continuous surveillance, assessment and evaluation of factory production control					
2	<p>It shall be verified that the system of factory production control and the specified manufacturing process are maintained, taking into account a limiting of organic material, the addition of fire retardants and/or another clearly identifiable stage in the production process which results in the improvement of the reaction to fire classification.</p> <p>In particular the following items shall be appropriately considered:</p> <ul style="list-style-type: none"> - Inspection of factory, of the production of the product and of the facilities for factory production control - Evaluation of the documents concerning factory production control - Issuing a report of surveillance 	See control plan	See control plan	-	Annually

4 REFERENCE DOCUMENTS

EN ISO 717-1:2013	Acoustics – Rating of sound insulation in buildings and of building elements – Part 1: Airborne sound insulation
EN ISO 717-2:2013	Acoustics – Rating of sound insulation in buildings and of building elements – Part 2: Impact sound insulation
EN 933-1:2012	Tests for geometrical properties of aggregates – Part 1: Determination of particle size distribution – Sieving method
EN 1097-3:1998	Tests for mechanical and physical properties of aggregates – Part 3: Determination of loose bulk density and voids
EN ISO 1182:2010	Reaction to fire tests for products – Non-combustibility test
EN ISO 1716:2010	Reaction to fire tests for products – Determination of the gross heat of combustion (calorific value)
EN ISO 9239-1:2010	Reaction to fire tests for floorings - Part 1: Determination of the burning behaviour using a radiant heat source
EN ISO 10140-1:2016	Acoustics – Laboratory measurement of sound insulation of building elements – Part 1: Application rules for specific products
EN ISO 10140-2:2010	Acoustics – Laboratory measurement of sound insulation of building elements – Part 2: Measurement of airborne sound insulation
EN ISO 10140-3:2015	Acoustics – Laboratory measurement of sound insulation of building elements – Part 3: Measurement of impact sound insulation
EN ISO 10140-4:2010	Acoustics – Laboratory measurement of sound insulation of building elements – Part 4: Measurement procedure and requirements
EN ISO 10140-5:2014	Acoustics – Laboratory measurement of sound insulation of building elements – Part 5: Requirements for test facilities and equipment
EN ISO 11925-2:2011	Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test
EN 12086:2013	Thermal insulating products for building applications – Determination of water vapour transmission properties
EN ISO 12572:2015	Hygrothermal performance of building materials and products – Determination of water vapour transmission properties
EN 12664:2001	Thermal performance of building materials and products – Determination of thermal resistance by means of guarded hot plate and heat flow meter methods – Dry and moist products of medium and low thermal resistance
EN 12667:2001	Thermal performance of building materials and products – Determination of thermal resistance by means of guarded hot plate and heat flow meter methods – Products of high and medium thermal resistance
EN 13162:2012+A1:2015	Thermal insulation products for buildings – Factory made mineral wool (MW) products - Specification
EN 13163:2012+A1:2015	Thermal insulation products for buildings – Factory made expanded polystyrene (EPS) products - Specification

EN 13171:2012+A1:2015	Thermal insulation products for buildings – Factory made wood fibre (WF) products - Specification
EN 13238:2010	Reaction to fire tests for building products – Conditioning procedures and general rules for selection of substrates
EN 13501-1:2018	Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests
EN 13820:2003	Thermal insulating materials for building applications – Determination of organic content
EN 13950:2014	Gypsum board thermal/acoustic insulation composite panels – Definitions, requirements and test methods
EN 15283-2:2008+A1:2009	Gypsum boards with fibrous reinforcement – Definitions, requirements and test methods – Part 2: Gypsum fibre boards

ANNEX 1: Resistance to functional failure from concentrated load

The resistance to functional failure from concentrated load is determined with a test floor area of approximately 9 m² (length: 3 m, width: 3 m) of the floor finishing system considered. An illustration is given in Figure 1. The installation guide of the manufacturer shall be observed.

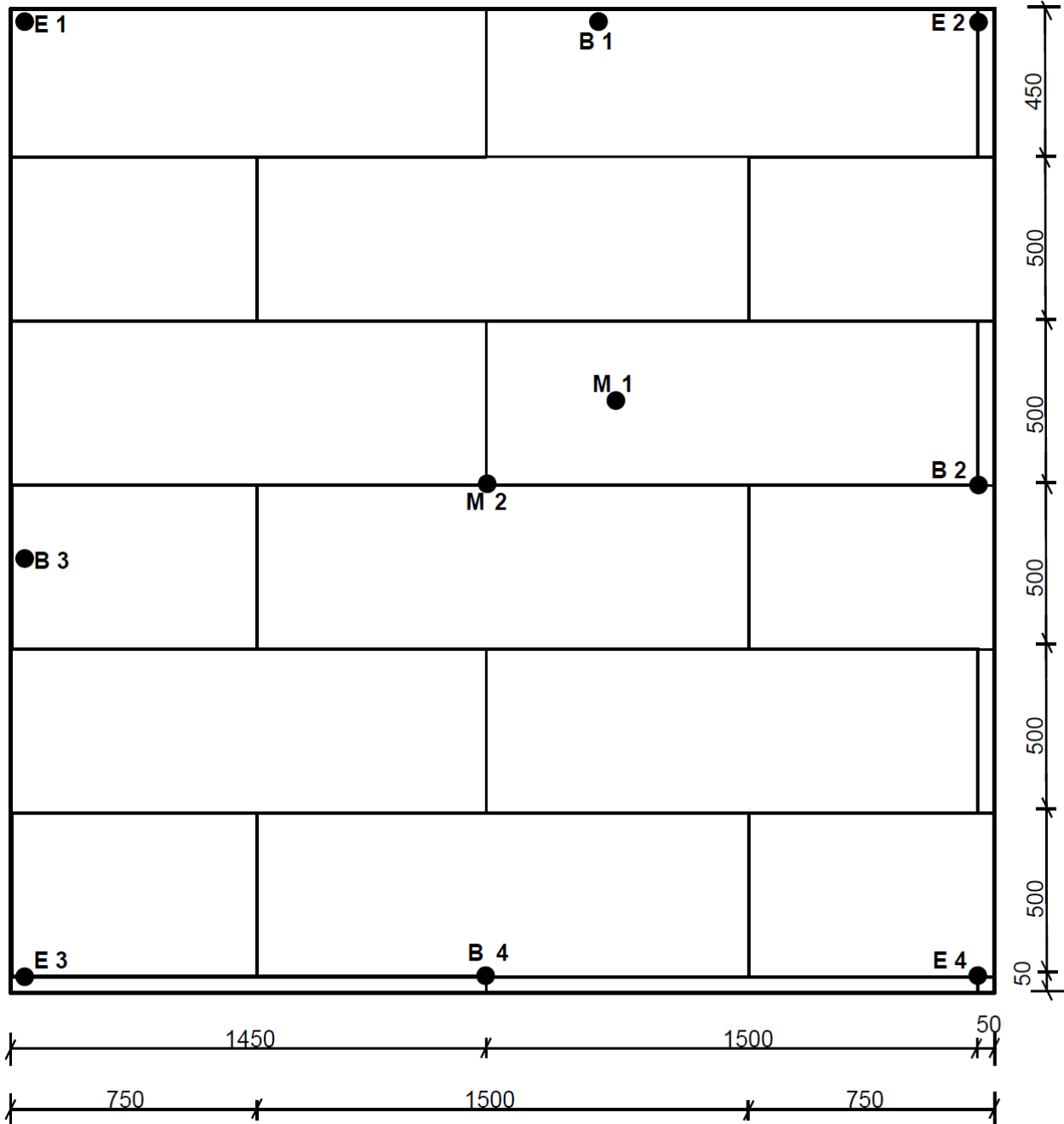


Figure 1: Test floor to determine resistance to functional failure from concentrated load

There are three categories with two or four different points at which the concentrated load is determined.

Category	Description	Points
1	Edges of the floor area	E1; E2; E3; E4
2	Border of the floor area	B1; B2; B3; B4
3	Middle of the floor area	M1; M2

Apply at each point a concentrated load of 0.2 kN over an area of 50 mm in diameter. Increase this load in steps of 0.2 kN and above a concentrated load of 1.0 kN in steps of 0.5 kN until functional failure. Determine the average deformation caused by a concentrated load of 0.8 kN, 1.0 kN, 1.5 kN, 2.0 kN, 2.5 kN, 3.0 kN, 3.5 kN, 4.0 kN and the maximum load until functional failure of each point. Determine the deformation 2 minutes after reaching the load.

The following specifications for each point have to be complied with:

- E1: on one flooring element
- E2: on the vertical joint of two flooring elements
- E3: on the horizontal joint of two flooring elements
- E4: on the corner of three flooring elements
- B1: on one flooring element, between half-length and on one third of the length
- B2: on the corner of three flooring elements
- B3: on one flooring element, half-width
- B4: on the corner of three flooring elements
- M1: on one flooring element, half-width, between half-length and on one third of the length
- M2: on the corner of three flooring elements

These average deformations are specified in the ETA.

Determine the minimum functional failure loads of each point.

These minimum functional failure loads are specified in this ETA.

ANNEX 2: Instructions for reaction to fire tests of kit components not covered by other harmonized specifications

A.2.1 Instructions for flooring elements

A.2.1.1 EN ISO 1182 and EN ISO 1716

These test methods are relevant for reaction to fire classes A1/A1fl and/or A2/A2fl and they are performed without consideration of the end-use application of the flooring elements. The parameters given in the following table shall be considered within the tests.

No.	Product parameters	Test method	
		EN ISO 1182	EN ISO 1716
1	Thickness	Not relevant	Not relevant
2	Density	Highest as well as lowest density of each substantial component shall be tested. The test results are valid for the entire range of density between those values tested.	Density of the components: not relevant but See line 4
3	Composition / amount of organic content	Each different composition of all substantial components, each with the highest amount of organic content shall be tested. The results are valid for the same composition of the component with equal or lower organic content.	Each different composition of all components, each with the highest amount of organic content shall be tested. The results are valid for the same composition of the component with equal or lower organic content.
4	Weight per unit area	-/-	Highest as well as lowest weight per unit area (taking into account the possible range of thickness and density) of each component shall be considered when calculating the total PCS value of the flooring elements.
5	product and amount of adhesives	Each product shall be tested, if the requirements for substantial components are fulfilled.	Each product shall be tested.

A.2.1.2 EN ISO 9293-1 (Radiant-Panel-Test)

This test method is relevant for reaction to fire classes A2_{fl} to D_{fl} acc. to Commission Delegated Regulation (EU) No 2016/364 in connection with EN 13501-1 simulating the use as flooring.

a) Dimensions of the test specimens and preparation

The dimension of the test specimens shall be as prescribed in the test standard.

A lengthwise joint in the middle axis of the test specimen shall be considered for at least one test. A crosswise joint shall only be considered if the length of the panels is lower than 1050 mm. Position of this joint shall be so far away as possible from the Zero-line of the specimen, except in case of panels with a length up to 500 mm. In this specific case the rules in EN 9239-1, clause 6.5, shall apply.

Execution of the joints shall be happened as in end-use.

b) Substrate

The test specimens shall be mounted onto an appropriate standard substrate acc. to EN 13238 representing a range of substrates in end use applications.

In addition any additional layer of the kit, which is not covered by the standard substrates acc. to EN 13238, shall also be used for testing purposes. However, in this case the test results will only be valid for the practical use of the flooring elements on this specific additional layer used as substrate.

c) Test specimens

The following parameters shall be considered when preparing the test specimens:

- Chemical composition and assembly – each different composition and assembly (e. g. number, type and dimensions of the various layers of the panels) shall be considered within the tests
- Colour – if there is a range of different colours but no difference in the chemical composition itself, tests with a light, a dark and a medium colour (e. g. White, Black and Red) shall be performed.
- Thickness – the highest and lowest thickness of each layer as well as of the entire flooring elements shall be tested.
- Weight per unit area – the highest and lowest weight per unit area of each layer as well as of the entire flooring elements shall be tested
- Orientation – if relevant, the specimen shall be mounted and tested with lengthwise as well as with crosswise orientation.
- Adhesive – each adhesive foreseen for connecting the various layers of the flooring elements shall be considered within the tests, taking into account the highest possible coverage of the adhesive,

The results of tests taking into consideration completely the aforementioned parameters are valid for:

- only the chemical composition and assembly as tested,
- the complete range of colours,
- any thickness of the flooring elements as well as of its layers between those evaluated,
- any weight per unit areas of the flooring elements as well as of its layers between those evaluated,
- any orientation and
- each tested adhesive with equal or lower coverages than tested.

At least one test with any of the identified specimen configurations (based on the aforementioned parameters) shall be performed and two further tests with the most onerous specimen configuration as basis for the classification.

A.2.1.3 EN ISO 11925-2 (Small ignition source test)

This test method is relevant for reaction to fire classes B_{fi} to E_{fi} , acc. to Commission Delegated Regulation (EU) No 2016/364 in connection with EN 13501-1.

a) Dimensions of the test specimens and preparation

The dimension of the test specimens shall be as prescribed in the test standard.

A lengthwise joint in the middle axis of the test specimen shall be considered for at least two tests. Execution of the joint shall be happened as in end-use.

b) Substrate

The test specimens shall be tested free-hanging without consideration of a substrate. The test results are valid for the use of the flooring elements on any kind of substrates of at least class E_{fi} acc. to EN 13501-1.

c) Test specimens

The same parameters as given in clause 2.1.2 c) shall be considered when preparing the test specimens:

The same rules as given in clause 2.1.2 c) shall apply for the application of test results.

Due to the assembly of the flooring elements the test specimens shall be tested with edge exposure as well as with surface exposure. Additionally further tests shall be performed on specimens turned 90 degrees on their vertical axis with edge exposure on the various layers.

At least two tests with any of the identified specimen configurations (based on the aforementioned parameters) shall be performed and four further tests with the most onerous specimen configuration as basis for the classification.

A.2.2 Instructions for loose dry levelling compound made aerated concrete and for honeycomb boards filled with loose infill made of limestone split

No.	Product parameters	Test method and validity of test results			
		EN ISO 1182	EN ISO 1716	EN 13823 (SBI)	EN ISO 11925-2
1	Thickness	Not relevant	Not relevant	Highest and lowest thickness shall be tested. Test results on 180 mm thickness are also valid for higher thicknesses.	No influence
2	Density / Weight per unit area	Highest and lowest density of homogenous products as well as of each substantial components of non-homogenous products shall be tested	Density: not relevant But Highest and lowest weight per unit area (taking into account the possible range of thickness and density) of each component shall be considered when calculating the total PCS value of non-homogenous products.	For homogenous products as well as for components of non-homogenous products: The result is valid for the tested density $\pm 10\%$. or The result is valid for the range between tested highest and lowest density.	
3	Composition / amount of organic content	Each different composition of homogenous products and of all substantial components of non-homogenous products, each with the highest amount of organic content shall be tested. The results are valid for the same composition of the product or component with equal or lower organic content.	Each different composition of the product or all components of products, each with the highest amount of organic content shall be tested. The results are valid for the same composition of the product or component with equal or lower organic content.	For the tested composition only.	
4	Assembly	Only homogenous products and substantial components shall be tested.	Each different assembly of non-homogenous products shall be considered when calculating the total PCS-value of the product.	For the tested assembly only	

Installation parameter	Test method and validity of test results	
	EN 13823 (SBI)	EN ISO 11925-2 (Ignitability)
Type of exposure to thermal attack	See test standard	Tests with surface flame exposure only.
Substrate	see EN 13238	Not applicable
Air gaps/cavities	Not applicable	
Joints/edges	Not applicable	
Size and positioning of test specimen	Test valid for all products sizes.	
Product orientation and geometry	No influence	No influence
Fixing of test specimen	For the purpose of testing loose fill material cages shall be used. The cages shall be made of a galvanized steel frame (25 x 25 x 3mm steel angle) and galvanized steel meshes. The rear of the cages is to be formed by the standard substrate acc. to EN 13238. The complete specimen (cage including substrate) shall be placed directly in front of the SBI backing board. To enable testing of fibres / granules of > 5 mm the mesh size shall be 5 mm x 5 mm and wire thickness 0.5 mm. If necessary to avoid moulding of the cages a reinforcement by a second mesh layer with a mesh size of 50 mm x 50 mm and wire thickness of 2 mm can be used.	A specimen holder acc. EN ISO 11925-2 clause 4.5 and figure 3c shall be used.

Orientation tests with any of the identified specimen configurations (based on the parameters given in the aforementioned tables) can be performed and further tests with the most onerous specimen configuration on order to obtain the relevant number of test results as basis for the classification.

A.2.3 Further advices

Since there is a wide field of possible variations of the aforementioned kit components and various parameters of these components which may influence their reaction to fire performance, it is recommended to agree the necessary test programme between applicant, Technical Assessment Body in charge and involved test laboratory before commencing the reaction to fire tests.