



European Organisation for Technical Approvals
Europäische Organisation für Technische Zulassungen
Organisation Européenne pour l'Agrément Technique

ETAG 003

Edition December 1998

GUIDELINE FOR EUROPEAN TECHNICAL APPROVAL

for

**INTERNAL PARTITION KITS
FOR USE AS
NON-LOADBEARING WALLS**

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Table of Contents

FOREWORD.....	6
Background of the ETA Guideline	6
List of reference documents	7
Updating conditions.....	8
Section One: INTRODUCTION	9
1 PRELIMINARIES	9
1.1 Legal basis.....	9
1.2 Status of ETA guidelines.....	9
2 SCOPE.....	10
2.1 Scope	10
2.2 Use categories, product families, kits.....	10
2.3 Assumptions	11
3 TERMINOLOGY.....	13
3.1 Common terminology and abbreviations.....	13
3.2 Specific terminology	13
Section Two: GUIDANCE FOR THE ASSESSMENT OF THE FITNESS FOR USE	15
4 REQUIREMENTS	15
4.1 Mechanical resistance and stability	16
4.2 Safety in case of fire.....	17
4.2.1 Reaction to fire.....	17
4.2.2 Fire resistance.....	17
4.3 Hygiene, health and the environment.....	17
4.3.1 Release of formaldehyde, asbestos (content), pentachlorophenol and other dangerous substances	18
4.3.2 Water vapour permeability	18
4.3.3 Water permeability	18
4.4 Safety in use	18
4.4.1 Resistance to horizontal and eccentric loads	18
4.4.2 Safety against personal injuries by contact.....	19
4.5 Protection against noise	19
4.5.1 Airborne sound insulation	19
4.5.2 Sound absorption	19
4.6 Energy economy and heat retention.....	19
4.6.1 Thermal resistance.....	20
4.6.2 Thermal inertia	20
4.7 Aspects of durability and serviceability	20
4.7.1 Robustness and rigidity.....	20
4.7.2 Resistance to deterioration.....	21
4.7.2.1 Physical agents.....	21
4.7.2.2 Chemical agents.....	21
4.7.2.3 Biological agents	21
5. METHODS OF VERIFICATION.....	22
5.1 Mechanical resistance and stability	23
5.2 Safety in case of fire.....	23
5.2.1 Reaction to fire.....	23
5.2.2 Fire resistance.....	24

5.3	Hygiene, health and the environment.....	24
5.3.1	Release of formaldehyde, asbestos (content), pentachlorophenol and other dangerous substances	24
5.3.2	Water vapour permeability.....	24
5.3.3	Water permeability	24
5.4	Safety in use.....	24
5.4.1	Resistance to horizontal and eccentric loads	24
5.4.1.1	Resistance to structural damage from soft body impact load B 50 kg bag	24
5.4.1.2	Resistance to structural damage from hard body impact load B 1 kg steel ball.....	24
5.4.1.3	Resistance to structural damage from eccentric vertical load	24
5.4.2	Safety against personal injuries by contact.....	25
5.5	Protection against noise.....	26
5.5.1	Airborne sound insulation.....	26
5.5.2	Sound absorption	26
5.6	Energy economy and heat retention.....	26
5.6.1	Thermal resistance.....	26
5.6.2	Thermal inertia	27
5.7	Aspects of durability and serviceability	27
5.7.1	Robustness and rigidity	
5.7.1.1	Resistance to functional failure from soft body impact load B 50 kg bag.....	27
5.7.1.2	Resistance to functional failure from hard body impact load B 05 kg steel ball.....	27
5.7.1.3	Resistance to functional failure from eccentric vertical load.....	27
5.7.1.4	Resistance to functional failure from point loads parallel or perpendicular to the surface.....	27
5.7.1.5	Rigidity of partitions to be used as a substrate for ceramic tiling	28
5.7.2	Protection against deterioration	28
5.7.2.1	Physical agents	28
5.7.2.2	Chemical agents	28
5.7.2.3	Biological agents.....	28
6.	ASSESSING AND JUDGING	
	the fitness for use of products for an intended use.....	29
6.1	Mechanical resistance and stability	30
6.2	Safety in case of fire.....	30
6.2.1	Reaction to fire.....	30
6.2.2	Fire resistance.....	31
6.3	Hygiene, health and the environment.....	31
6.3.1	Release of formaldehyde, asbestos (content), pentachlorophenol and other dangerous substances	31
6.3.2	Water vapour permeability.....	32
6.3.3	Water permeability	32
6.4	Safety in use.....	32
6.4.1	Resistance to horizontal and eccentric loads	32
6.4.1.1	Resistance to structural damage from soft body impact load B 50 kg bag	34
6.4.1.2	Resistance to structural damage from hard body impact load B 1 kg steel ball.....	34
6.4.1.3	Resistance to structural damage from eccentric vertical load	35
6.4.2	Safety against personal injuries by contact.....	36
6.5	Protection against Noise.....	36
6.5.1	Airborne sound insulation.....	36
6.5.2	Sound absorption	36
6.6	Energy economy and heat retention.....	36
6.6.1	Thermal resistance.....	36
6.6.2	Thermal inertia	36
6.7	Aspects of durability and serviceability	37

6.7.1	Robustness and rigidity	37
6.7.1.1	Resistance to functional failure from soft body impact load B 50 kg bag.....	38
6.7.1.2	Resistance to functional failure from hard body impact load B 05 kg steel ball.....	39
6.7.1.3	Resistance to functional failure from eccentric vertical load.....	39
6.7.1.4	Resistance to functional failure from point load parallel or perpendicular to surface	39
6.7.1.5	Rigidity of partitions to be used as a substrate for ceramic tiling	40
6.7.2	Resistance to deterioration.....	40
6.7.2.1	Physical agents	40
6.7.2.2	Chemical agents	41
6.7.2.3	Biological agents.....	41
6.8	Identification of the product	41
7.	ASSUMPTIONS AND RECOMMENDATIONS under which the fitness for use of the products is assessed.....	42
7.1	Design and execution of works.....	42
7.2	Maintenance and repair	43
	Section Three: ATTESTATION OF CONFORMITY (AC).....	44
8	EVALUATION OF CONFORMITY	44
8.1	EC Decision	44
8.2	Responsibilities	45
8.2.1	Tasks for the manufacturer.....	45
8.2.1.1	Factory production control.....	45
8.2.1.2	Testing of samples taken at the factory	45
8.2.1.3	Declaration of Conformity	45
8.2.2	Tasks for the manufacturer or the approved body.....	45
8.2.2.1	Initial Type Testing.....	45
8.2.3	Tasks for the approved body.....	46
8.2.3.1	Assessment of the factory production control system - initial inspection and continuous surveillance.....	46
8.2.3.2	Certification of Conformity.....	46
8.3	Documentation	46
8.4	CE marking and information	47
	Section Four: ETA CONTENT.....	49
9	THE ETA CONTENT	49
9.1	The ETA content.....	49
9.1.1	Model ETA	49
9.1.2	Checklist for the issuing body.....	49
9.2	Additional information	50
	Annex A.....	51
	Common Terminology and Abbreviations.....	51
A.1	Works and products.....	51
A.2	Performances	51
A.3	ETAG-format	52
A.4	Working life.....	52
A.5	Conformity.....	53
A.6	Abbreviations.....	53
	Annex B.....	55
	Internal Partition Kits B Resistance to Impact Loads and Suspended Vertical Loads B General.....	55
B.1	General.....	55
B.2	Partition sample.....	55

B.3	Conditioning	56
B.4	Test rig	56
B.5	Sequence of tests	56
Annex C	.....	57
Internal Partition Kits B Resistance to Impact Loads and Suspended Vertical Loads B Test Methods	.....	57
C.1	Hard body impact load B 0.5 kg steel ball	57
C.2	Hard body impact load B 1 kg steel ball	57
C.3	Soft body impact load B 50 kg bag	57
C.4	Eccentric vertical load	58
Annex D	.....	59
Internal Partition Kits to be used as a Substrate for Ceramic Tiling	.....	59
D.1	Test Rig	59
D.2	Partition Sample	59
D.3	Conditioning	59
D.4	Apparatus	59
D.5	Test	59
Annex E	.....	60
Internal Partition Kits B Test Reports	.....	60
E.1	Test report	60
E.2	Summary of test results	60

FOREWORD

Background of the ETA Guideline

This Guideline has been drawn up by the EOTA Working Group 05.05/01 - *Internal Partition Kits for Use as Non-loadbearing Walls*.

The WG consisted of members from nine EU-countries (Denmark (Convenor), Belgium, Finland, France, Germany, Netherlands, Italy, Portugal and the United Kingdom) and one European industrial organisation (EuroGypsum representing the European Confederation of Construction Products Manufacturers). At the last WG meeting the European Federation of Fibre-Cement Manufacturers was represented as well.

The scope of the Guideline is the result of a distinction between EOTA- and CEN-involvement in the area of internal partitions. It was agreed that EOTA would deal with systems as described in the scope of this Guideline, whilst CEN would deal with partitions built on site of components generally available or manufactured on site.

The Guideline sets out the performance requirements for Internal Partition Kits for Use as Non-loadbearing Walls, the verification methods used to examine the various aspects of performance, the assessment criteria used to judge the performance for the intended use and the presumed conditions for the design and execution of the Internal Partition Kits in the works.

The general assessment approach of the Guideline is based on relevant existing knowledge and testing experience. Assessment criteria were chosen on the basis of an analysis of technical aspects related to the performance of partition systems made of traditional materials.

The UEAtc - *Directives Communes pour l'Agrément des Cloisons Légères* (UEAtc Common Directive for the Agrément of Light-Weight Partitions) has formed part of the basis for the Guideline, but as this Directive has not been revised since its publication in 1973, major alterations have been made. Also, where relevant, national technical specifications have been discussed and taken into account.

New test methods have not been developed, preference having been given to the use or amendment of existing test and calculation methods, especially EN and ISO methods. Concerning the verification of mechanical resistance and stability plus robustness and rigidity carried out as soft body load tests (clause 5.4.1.1 and 5.7.1.1), the WG has discussed the possibility of adding the alternative of calculation methods but has decided to leave it out since suitable methods were not found.

The Guideline sets out the procedures to be followed when assessing the various properties of Internal Partition Kits. It must be noted, however, that the choice of properties to be assessed and the choice of classes and categories for each property is entirely that of the manufacturer.

As most member countries and the Interpretative Document on SAFETY IN CASE OF FIRE use classes to define fire resistance and reaction to fire, so too does the Guideline. Otherwise, classes are not used throughout the Guideline, but *Use Categories* are introduced when dealing with *Mechanical Resistance and Stability* and *Robustness and Rigidity*. All remaining product characteristics, in general are expressed as numerical values. This approach is in accordance with the philosophy of the CPD that The Essential Requirements deal with the building works and an ETA is a favourable technical assessment of a construction product for an intended use, i.e. incorporation in the works. The ETA deals only with the product and states classes or merely product characteristics to be used afterwards by the designer of the works.

List of reference documents

ENV 1991-2-1:1995	Eurocode 1: Basis of design and actions on structures – Part 2-1: Actions on structures – Densities, self-weight and imposed loads
Commission Decision prEN 1363-1 prEN 1363-2 prEN 1364-1	96/603/EC Fire Resistance - General Requirements Fire Resistance Tests - Part 2: Alternative and Additional Procedures Fire Resistance Tests on Non-loadbearing Elements in Buildings - Part 1: Walls
EN xxxx:yyyy EN xxxx:yyyy	Reaction to fire – Classification Fire resistance - Building Elements – Classification.
EN 120:1993	Wood based panels – Determination of formaldehyde content – Extraction method called the perforator method
EN 717-2:1995	Wood-based panels – Determination of formaldehyde release – Part 2: Formaldehyde release by the gas analysis method
EN 717-3:1997	Wood-based panels – Determination of formaldehyde release – Part 3: Formaldehyde release by the flask method
ISO/DIS 13788:1997	Hygrothermal performance of building components and building elements - Estimation of internal surface temperature to avoid critical surface humidity and calculation of interstitial condensation
ISO 7892:1988	Vertical Building Components - Impact resistance - Impact Bodies and General Test Procedures
ISO/DIS 7893:1990	Performance Standards in Building - Partitions made from Components - Impact resistance tests
ISO/DIS 8413:1990	Performance Standards in Building - Partitions made from Components - Tests for Ability to withstand Suspended Static Loads
EN/ISO 140-3:1995	Acoustics - Measurement of sound insulation in buildings and of building elements - Part 3: Laboratory measurements of airborne sound insulation of building elements
EN 20354:1993	Acoustics - Measurement of sound absorption in a reverberation room
EN/ISO 354/A1:1997	Acoustics – Measurement of sound absorption in a reverberation room – Amendment 1: Test specimen mountings for sound absorption tests
EN/ISO 6946:1996 Building	components and building elements - Thermal resistance and thermal transmittance - Calculation method
EN/ISO 8990:1995 Thermal	insulation - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Calibrated and guarded hot box
prEN 12667:1996	Building materials - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Products of high and medium thermal resistance
prEN 12939:1997	Building materials - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Thick products of high and medium thermal resistance
EN/ISO 10211-1:1995	Thermal bridges in building constructions – Part 1: Heat flows and surface temperatures – General calculation methods
EN/ISO 10211-2:1995	Thermal bridges in building constructions – Part 2: Heat flows and surface temperatures – General calculation of linear thermal bridges
EN 423:1993	Resilient floor coverings – Determination of the effect of stains
EN 300:1997	Oriented Strand Boards (OSB) – Definitions, Classification and Specifications
EN 312-1:1997	Particleboards – Specifications – Part 1: General Requirements for all Board Types
EN 622-5:1997	Fibreboards – Specifications – Part 5: Requirements for Dry Process Boards (MDF)
EN 636-1:1996	Plywood – Specifications – Part 1: Requirements for Plywood for Use in Dry Conditions
EN 636-2:1996	Plywood – Specifications – Part 2: Requirements for Plywood for Use in Humid Conditions
EN 636-3:1996	Plywood – Specifications – Part 3: Requirements for Plywood for Use in

	Exterior Conditions
prEN 12086:1997	Thermal performance of buildings and building components – Determination of water vapour transmission properties
ISO 717-1:1996	Acoustics – Rating of sound insulation of buildings and of building elements – Part 1: Airborne sound insulation
ISO/DIS 11654:1996	Acoustics – Sound absorbers for use in buildings – Rating of sound absorption
EN 10 147/A1:1995	Continuously hot-dip zinc coated structural steel sheet and strip – Technical delivery conditions
pr EN 335-1:1992	Durability of wood and derived materials – Definition of hazard classes of biological attacks – Part 1: General.

These documents are referred to at appropriate places in the Guideline and are applicable to the specific conditions given.

Updating conditions

The edition of a reference document which has been adopted by EOTA for its specific uses is given in the list of reference documents. When a new edition of such a reference document becomes available this supersedes the edition mentioned in the list only when EOTA has verified or reestablished its compatibility with the Guideline.

Section One: INTRODUCTION

1 PRELIMINARIES

1.1 LEGAL BASIS

This ETA Guideline has been established in full compliance with the provisions of the Council Directive 89/106/EEC (CPD) and taking into account the following steps:

- issuing of the final mandate by the EC: 30-10-1997
- issuing of the final mandate by EFTA: 30-10-1997
- adoption of the Guideline by EOTA (Executive Commission): 03-09-98
- endorsement by the EC: SCC opinion of 9-10 December 1998
EC letter of 5 February 1999

This document is published by the Member States in their official language or languages according to Art. 11.3 of the CPD.

No existing ETA Guideline is superseded.

1.2 STATUS OF ETA GUIDELINES

1.2.1 An ETA is one of two types of technical specifications in the sense of the EC Construction Products Directive (89/106/EEC). This means that Member States shall presume the approved products fit for their intended use, i.e. that they enable works in which they are employed to satisfy the essential requirements during an economically reasonable working life, provided that:

- the works are properly designed and built
- the conformity of the products with the ETA has been properly attested.

1.2.2 An ETA Guideline is a basis for ETAs, i.e. a basis for technical assessment of the fitness for use of a product for an intended use. An ETA Guideline is not in itself a technical specification in the sense of the CPD.

ETA Guidelines express the common understanding of the approval bodies of the provisions of the EC Construction Products Directive and of the Interpretative Documents with regard to the products and uses concerned established within the framework of a mandate given by the EC Commission after consulting the EC Standing Committee for Construction.

1.2.3 ETA Guidelines are binding for the issuing of ETAs of the products concerned for an intended use when accepted by the EC Commission after consultation with the EC Standing Committee for Construction and published by the Member States in their official language or languages.

The applicability and the satisfaction of the ETA Guideline for a product and its intended use have to be assessed in a case by case evaluation and approval by an authorised approval body. Satisfaction of the provisions of an ETA Guideline (examinations, tests and evaluations) leads to a presumption of fitness for use only through this case by case evaluation.

Products which are outside the scope of an ETA Guideline may be considered where appropriate through the approval procedure without guidelines according to art. 9.2 of the CPD.

The requirements in ETA Guidelines are set out in terms of objectives and of relevant actions to be taken into account. ETA Guidelines specify values and characteristics, the conformity with which the presumption that the requirements set out are satisfied whenever the state of the art permits to do so. The ETA Guidelines may indicate alternative possibilities for the demonstration of the satisfaction of the requirements.

2 **SCOPE**

2.1 SCOPE

This Guideline relates to Internal Partition Kits for use as non-loadbearing walls:

- with or without fire separating capabilities and/or acoustic insulation and/or thermal insulation
- made of board or sheet materials supported by studs or other ancillary members; made of composite panels with or without supporting framework; made of fully or partially glazed constructions; made of homogeneous units; including fixings and accessories
- designed and erected in accordance with the ETA holder's design rules and installation guide and composed of components factory-produced as part of the kit either by the ETA-holder himself or by other manufacturers delivering to the specification of the ETA-holder, who is responsible for the kit.

2.2 USE CATEGORIES, PRODUCT FAMILIES, KITS

The primary function of a partition is to

- divide the interior of a building (a)

This includes the special cases where a partition

- separates areas with different floor levels (b) or
- is used as an independent lining for an external wall (c).

(Letters a, b and c refer to Figure 1 below).

Figure 1 - Vertical section

Various characteristics may be added to a partition enabling it to perform other functions – in addition to its primary function of dividing – such as separating:

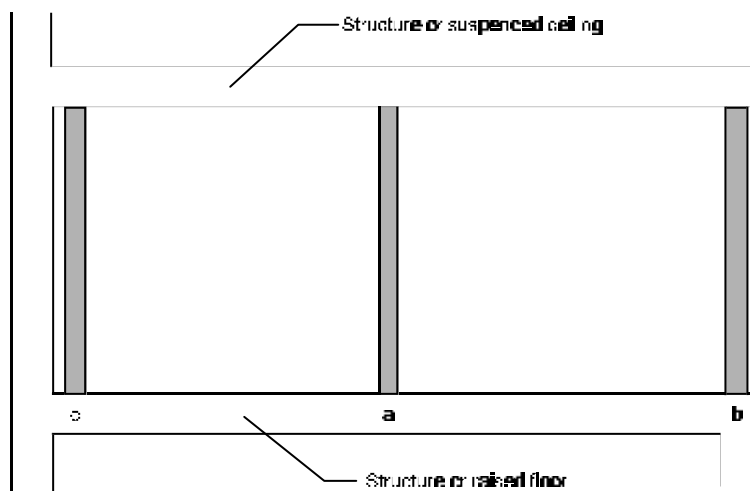
- fire compartments and/or
- areas between which there are requirements with respect to the transmission of sound and/or
- areas with different hygrothermal conditions

The intended use for a partition as specified in an ETA may vary within a range of many possibilities, from a simple partition with no additional characteristics to a partition with any combination of additional characteristics, for example a fire-compartment partition separating areas with different floor levels and with declared acoustic and hygrothermal properties.

It is entirely the choice of the manufacturer applying for an ETA, as to which properties will be assessed and declared in the ETA (including the choice of classes or categories for each property). The choice will depend on the intended use of the partition and the manufacturer's intended market, accounting for national variations in required classes or categories.

A partition may or may not include:

- a factory-made finish
- openings that allow the fitting of doors and other moving components. If the components to be installed in the openings form part of the system, this shall be apparent from the ETA. Unless otherwise stated in the ETA for the partition, the components to be installed in the openings shall be assessed on the basis of the requirements relevant for



the components in question and their intended use.

- installations for gas, electricity, water or drainage. The assessment, however, will comprise only the fitness for use of the partition according to this document with the services installed, but not the performance or lawfulness of the services themselves.

The Guideline deals with immovable and relocatable partitions.

The following partitions are not included in this Guideline:

- sliding and folding partitions, such as partitions of hinged leaves which can be moved horizontally or vertically either manually or by, electrically or hydraulically powered installations
- partitions that are part of an integrated partition-suspended ceiling and/or partition-raised floor system

2.3

ASSUMPTIONS

The Guideline deals with partitions intended for use under the following conditions:

- structures capable of giving adequate support and adequate possibilities for fixing
- an average air temperature in the range from 5 °C to 35 °C with a minimum of 0 °C and a maximum of 50 °C
- an average daily air relative humidity in the range from 20 %RH to 75 %RH. Maximum air relative humidity only exceeding 85 %RH for short periods of time
- zones accessible to users with a certain level of incentive to exercise care. These zones are divided into four use categories as shown in Tables 6 and 11 of the Guideline.

In ENV 1991-2-1:1995 – *Eurocode 1: Basis of design and actions on structures – Part 2-1: Actions on structures – Densities, self-weight and imposed loads* areas in residential, social, commercial and administration buildings are divided into five categories according to their specific uses as shown in Table 1.

The relationship between the use categories employed in this Guideline and the categories employed in Eurocode 1 is given in Table 2.

- zones where surface requirements with respect to hygiene, air quality, static electricity, etc are of the same nature and magnitude as those in dwellings, offices, schools, institutions, etc.

The following use conditions are outside the scope:

- exceptionally severe use (such as acts of vandalism)
- zones where very special or very high requirements for surfaces are found (such as in hospitals, medical and food industry, computer and telecommunications rooms, etc).

Table 1: Definition of area categories in Eurocode 1 *)

Category	Specific Use	Example
A	Areas for domestic and residential activities.	Rooms in residential buildings and houses and wards in hospitals.

B	Office areas.	
C	Areas where people may congregate (with the exception of areas defined under category A, B, D and E).	<p>C1: Areas with tables, etc., e.g. areas in schools, cafés, restaurants, dining halls, reading rooms, receptions, etc.</p> <p>C2: Areas with fixed seats, e.g. areas in churches, theatres or cinemas, conference rooms, lecture halls, assembly halls, waiting rooms, etc.</p> <p>C3: Areas without obstacles for moving people, e.g. areas in museums, exhibition rooms, etc. and access areas in public and administration buildings, hotels, etc.</p> <p>C4: Areas with possible physical activities, e.g. dance halls, gymnastic rooms, stages, etc.</p> <p>C5: Areas susceptible to overcrowding, e.g. in buildings for public events like concert halls, sports halls including stands, terraces and access areas.</p>
D	Shopping areas.	D1: Areas in general retail shops, e.g. areas in warehouses, stationery and office stores, etc.
E	Areas susceptible to accumulation of goods, including access areas.	Areas for storage use including libraries. The loads defined in Table 6.2 shall be taken as minimum loads unless more appropriate loads are defined for the specific case. Further guidance is given in Table 4.6.

*) The table is a copy of Table 6.1: Categories of building areas, in Eurocode 1.

Table 2: Relationship between use categories and area categories

Use category as specified in clauses 6.4.1 and 6.7.1 of the Guideline	Description	Area category as specified in Eurocode 1 ENV 1991-2-1:1995
I	Zones accessible primarily to those with high incentive to exercise care. Small risk of accidents occurring and of misuse.	A, B
II	Zones accessible primarily to those with some incentive to exercise care. Some risk of accidents occurring and of misuse.	
III	Zones accessible primarily to those with little incentive to exercise care. Risk of accidents occurring and of misuse.	C1 – C4, D, E
IV	Zones and risk as II and III In case of failure risk includes the	C5 + A, B, C1 – C4, D and E

	fall to a floor at a lower level, cf. type b in Figure 1 in clause 2.2	where the partition has the function of a barrier.
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3 **TERMINOLOGY**

3.1 COMMON TERMINOLOGY AND (see Annex A)

3.2 SPECIFIC TERMINOLOGY related to this Guideline

3.2.1. Non-loadbearing wall

Wall which does not transfer vertical forces from the works and whose contribution to the stability of the works is not taken into account.

3.2.2 Joint

Connection between two partition components

Connection between a partition component and a component of an adjacent system or structure

3.2.3 Immoveable partition

Partition which is installed with no intention of later repositioning and in such a way that it can not be dismantled without being demolished.

3.2.4 Relocatable partition

Partition which is installed with a view to possible later repositioning. The partition, therefore, is capable of being dismantled and reinstalled without loss of properties and without substantial repair other than replacement of ancillary components such as seals and fixings. In general, the process itself requires a certain amount of skill and the use of tools.

Section Two: GUIDANCE FOR THE ASSESSMENT OF THE FITNESS FOR USE

The provisions made in the Guideline are based on an assumed intended working life of the product for the intended use of at least 25 years provided that the product is subject to appropriate use and maintenance.

The indication given on the working life of a product cannot be interpreted as a guarantee given by the producer or the approval body. They should only be regarded as a means for the specifiers to choose the appropriate criteria for products in relation to the expected, economically reasonable working life of the works (based upon ID par. 5.2.2).

4 REQUIREMENTS

Chapter 4 identifies the aspects of performance to be examined in order to satisfy the relevant Essential Requirements for Internal Partition Kits for use as non-loadbearing walls, by:

- expressing in more detail, and in terms applicable to the scope of the Guideline, the relevant Essential Requirements of the CPD (given concrete form in the Interpretative Documents and further specified in the mandate), for works or parts of the works, taking into account the durability and serviceability of the works
- applying them to the scope of the Guideline (product/system and intended use), and indicating the resulting relevant product characteristics and possible other aspects.

Each Essential Requirement is considered in turn.

The relevant Essential Requirements, the relevant paragraphs of the corresponding IDs and the related requirements to product performance are indicated in Table 3.

Table 3: Relationship between ID paragraph for works, ID paragraph for product performance and ETAG paragraph on product performance

ER	Corresponding ID paragraph for works	Corresponding ID paragraph for product performance	ETAG paragraph on product performance *)
1	–	–	–
2	§ 4.2.3.3.1 Limitation of the generation of fire and smoke within the room of origin	§ 4.3.1.1 Products subject to reaction to fire requirements – walls	§ 4.2.1 Reaction to fire
	§ 4.2.3.4.2 b Limitation of spread of fire and smoke beyond the room of origin	§ 4.3.1.3.5.1 Products subject to resistance to fire requirements – partitions	§ 4.2.2 Fire resistance

3	§ 3.3.1.1 Air quality	§ 3.3.1.1.3.2 a Emission and release of pollutants	§ 4.3.1 Release of: – formaldehyde – asbestos (content) – pentachlorophenol – other dangerous substances
	§ 3.3.1.2 Dampness	§ 3.3.1.2.3.2.e1 Walls, walling materials	§ 4.3.2 Water vapour permeability § 4.3.3 Water permeability
4	§ 3.3.1.2 Falling due to changes in level or sudden drops	§ 3.3.2.3 Mechanical resistance and stability	§ 4.4.1 Resistance to: – horizontal loads – eccentric loads
	§ 3.3.2.2 Geometry Presence of sharp or cutting edges Nature of surfaces Behaviour on impact	§ 3.3.2.3 Definition of geometry Mechanical resistance and stability	§ 4.4.2 Shatter properties Safety against personal injuries
5	§ 2.3.1 / § 2.3.2 Protection against airborne noise from outside of the works / between enclosed spaces	§ 4.3.2 Acoustic properties (according to 4.3.3)	§ 4.5.1 Airborne sound insulation
	§ 2.3.5 Protection against excessive reverberant noise	§ 4.3.2 Acoustic properties (according to 4.3.3)	§ 4.5.2 Sound absorption
6	4.2 Energy consumption limitation	Table 4.2 Component characteristics	§ 4.6.1 Thermal resistance
	4.2 Energy consumption limitation	Table 4.2 Component characteristics	§ 4.6.2 Thermal inertia
Aspects of durability and service-ability			§ 4.7.1 Robustness and rigidity § 4.7.2 Resistance to deterioration caused by – physical agents – chemical agents – biological agents

*) The product performances are identical with the performance characteristics given in the mandate.

Requirements with respect to the mechanical resistance and stability of *non-loadbearing* parts of the works are not included in this Essential Requirement but are treated under the Essential Requirement SAFETY IN USE (see clause 4.4.1).

4.2 SAFETY IN CASE OF FIRE

The Essential Requirement laid down in the COUNCIL DIRECTIVE 89/106/EEC is as follows:

The construction works must be designed and built in such a way that in the event of an outbreak of fire:

- *the load-bearing capacity of the construction can be assumed for a specific period of time.*
- *the generation and spread of fire and smoke within the works are limited.*

- *the spread of fire to neighbouring construction works is limited.*

- *occupants can leave the works or be rescued by other means.*

- *the safety of rescue teams is taken into consideration.*

The following aspects of performance are relevant to this Essential Requirement for Internal Partition Kits:

4.2.1 Reaction to fire

Requirements for the reaction to fire of the partition shall be in accordance with laws, regulations and administrative provisions, applicable to the end use of the partition and will be specified via the CEN classification documents.

4.2.2 Fire resistance

Requirements for the fire resistance of the partition shall be in accordance with laws, regulations and administrative provisions, applicable to the end use of the partition and will be specified via the CEN classification documents.

4.3 HYGIENE, HEALTH AND THE ENVIRONMENT

The Essential Requirement laid down in the COUNCIL DIRECTIVE 89/106/EEC is as follows:

The construction work must be designed and built in such a way that it will not be a threat to the hygiene or health of the occupants or neighbours, in particular as a result of any of the following:

- *the giving-off of toxic gases*

- *the presence of dangerous particles or gases in the air*

- *the emission of dangerous radiation*

- *pollution or poisoning of the water or soil*

- *faulty elimination of waste water, smoke, solid or liquid wastes*

- *the presence of damp in parts of the works or on surfaces within the works.*

The following aspects of performance are relevant to this Essential Requirement for Internal Partition Kits:

4.3.1 Release of formaldehyde, asbestos (content), pentachlorophenol and other dangerous substances

In partitions and in all associated ancillary components, the use of materials likely to threaten the health of the occupants or neighbours when the partition is in service as a result of:

- emission of toxic gases
- emission of dangerous particles
- susceptibility to the growth of harmful micro organisms
- emission of dangerous radiation

shall be in accordance with laws, regulations and administrative provisions, applicable for the location of the works in which the product is incorporated.

4.3.2 Water vapour permeability

The partition shall be designed and installed in such a way that moisture transfer through the partition does not cause water vapour to condense within the partition or on its surface adversely affecting the properties of the partition.

4.3.3 Water permeability

Requirements regarding the water permeability (watertightness) of partitions are relevant only where partitions are used in environments where they are exposed directly to water, e.g. in bathrooms, washrooms, dairies and abattoirs. Such requirements relate to the performance of the covering system and shall be dealt with in separate technical specifications on the watertightness of wall coverings.

4.4 SAFETY IN USE

The Essential Requirement laid down in the COUNCIL DIRECTIVE 89/106/EEC is as follows:

The construction works must be designed and built in such a way that it does not present unacceptable risks of accidents in service or in operation such as slipping, falling, collision, burns, electrocution, injury from explosion.

The following aspects of performance are relevant to this Essential Requirement for Internal Partition Kits:

4.4.1 Resistance to horizontal and eccentric loads

The partition shall have sufficient mechanical resistance and stability to ensure that the safety of the occupants is not endangered.

This means that it shall have sufficient mechanical resistance and stability to withstand accidentally large static or dynamic loads, from the action of persons or objects, without full or

partial collapse causing dangerous (sharp or cutting) fragments, giving risk of falling through, particularly at a change of level, or endangering the safety of other people.

The loads may be in the form of:

- impacts resulting from a person falling against the partition
- differential air pressure
- a large number of people leaning or pressing against the partition at the same time (crowd pressure)
- impacts resulting from the movement of heavy non-deformable objects such as pieces of furniture or equipment
- slamming of doors
- heavy objects such as furniture and sanitary or heating equipment.

4.4.2 Safety against personal injuries by contact

Partitions shall be designed and installed with due consideration to passive safety to prevent occupants from injury by the partition under normal conditions or to prevent unnecessary injuries being inflicted on a person who accidentally falls against the partition. The characteristics of the partition affecting the level of risk include:

- Geometry
Windows opening into circulation spaces, positioning of doors, headroom.
- Existence of sharp or cutting edges
Joints, corners, trim details.
- Nature of surfaces
Surface texture.

4.5 PROTECTION AGAINST NOISE

The Essential Requirement laid down in the COUNCIL DIRECTIVE 89/106/EEC is as follows:

The construction works must be designed and built in such a way that noise perceived by the occupants or people nearby is kept down to a level that will not threaten their health and will allow them to sleep, rest and work in satisfactory conditions.

The following aspects of performance are relevant to this Essential Requirement for Internal Partition Kits:

4.5.1 Airborne sound insulation

Transmission of airborne sound across partitions shall be reduced in accordance with laws, regulations and administrative provisions, applicable for the location where the product is incorporated in the works.

4.5.2 Sound absorption

Sound absorption is considered only in case of partitions with a factory-made finish.

The acoustic qualities of the surface of a partition shall meet any relevant requirements with respect to reverberation time.

4.6 ENERGY ECONOMY AND HEAT RETENTION

The Essential Requirement laid down in the COUNCIL DIRECTIVE 89/106/EEC is as follows:

The construction works and its heating and ventilation installations must be designed and built in such a way that the amount of energy required in use shall be low, having regard to the climatic conditions of the location and the occupants.

The following aspects of performance are relevant to this Essential Requirement for Internal Partition Kits:

4.6.1 Thermal resistance

The thermal transmittance/resistance of the partition shall be established in accordance with laws, regulations and administrative provisions, applicable for the location where the product is incorporated in the works.

If there is any discontinuity in assembled panels, then the effect of a thermal bridging shall be considered.

4.6.2 Thermal inertia

The thermal inertia of a partition shall be established in cases where this characteristic is required to determine the energy consumption of the works (for heating and/or for cooling).

4.7 ASPECTS OF DURABILITY AND SERVICEABILITY

The following requirements relate to the Essential Requirements, but not to any individual Essential Requirement. As a consequence, failure to meet these requirements may result in one or more of the Essential Requirements no longer being met.

4.7.1 Robustness and rigidity

The partition shall have sufficient robustness and rigidity to maintain integrity and therefore ensure the continued fulfilment of relevant Essential Requirements.

This means that it shall have the sufficient robustness and rigidity to withstand static or dynamic loads from the action of people or objects without apparent damage, inconvenient deflection or impression of lack of stability.

The loads may be in the form of:

- impacts resulting from a person falling against the partition
- differential air pressure
- a large number of people leaning or pressing against the partition at the same time (crowd pressure)

- impacts resulting from the movement of light non-deformable objects such as pieces of furniture or cleaning tools.
- slamming of doors
- heavy objects, such as furniture and sanitary or heating equipment
- light objects, such as pictures, lamps or small pieces of furniture

In addition, partitions intended for ceramic tiling require greater rigidity to ensure that the covering remains intact.

4.7.2 Resistance to deterioration

To prevent reduction in mechanical or other properties, partition components and their possible finishes shall be protected against / resistant to deterioration caused by physical, chemical or biological agents. The agents include:

4.7.2.1 *Physical agents*

Hygrothermal conditions.

The partition, including its joints, shall not be adversely affected (e.g. deterioration, distortion, deformation) by the following conditions:

- Variations in temperature/humidity where the same changes occur on both sides of the partition at the same time. (Example: Office heating can be reduced or even switched off at night and during week-ends or national holidays. Office temperatures can drop from up to 25 °C to around 5 °C with consequential increases in relative humidity.)
- Differences in temperature and/or relative humidity on one side of a partition compared to the other. (Example: Office at up to 25 °C located within an unheated warehouse, where the office temperature is maintained and the warehouse side varies from just above freezing, during winter, to 30 °C in summer.)
- Localised heating from heating panels or radiators located next to the partition.

4.7.2.2 *Chemical agents*

Water, carbon dioxide, oxygen (possible corrosion) and other normal chemical hazards likely to come into contact, for example cleaning materials (resistance to cleaning agents is considered only in the case of partitions or components with a factory made finish).

4.7.2.3 *Biological agents*

Fungi, bacteria, algae and insects.

The partition shall be designed and built in such a way that it does not encourage infestation by insects or vermin.

5. METHODS OF VERIFICATION

Chapter 5 refers to the verification methods used to determine the various aspects of performance of the products in relation to the requirements for the works (calculations, tests, engineering knowledge, site experience, etc.).

The relevant Essential Requirements, the related requirements to product performances (as given in chapter 4), the corresponding product characteristics to be assessed and the corresponding verification methods are given in Table 4.

Table 4: Relationship between ETAG paragraph on product performance, product characteristics and ETAG paragraph on verification method

ER	ETAG paragraph on product performance *)	Product characteristics	ETAG paragraph on verification method
2	§ 4.2.1 Reaction to fire	Ignitability Rate of heat release Rate of spread of flame Rate of smoke production Flaming droplets/particles	§ 5.2.1 Testing of reaction to fire
	§ 4.2.2 Fire resistance	Integrity Insulation Integrity and insulation in case of impact Radiation (for glazed parts)	§ 5.2.2 Testing of fire resistance
3	§ 4.3.1 Release of – formaldehyde – asbestos (content) – pentachlorophenol – other dangerous substances	Rate of release of: – formaldehyde – asbestos (content) – pentachlorophenol – other dangerous substances	§ 5.3.1 Test methods vary
	§ 4.3.2 Water vapour permeability § 4.3.3	Water vapour permeability	§ 5.3.2 Testing of water vapour permeability § 5.3.3

	Water permeability	Not relevant	Not relevant
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4	§ 4.4.1 Resistance to : – horizontal loads – eccentric loads	Resistance to structural damage from: – soft body impact load – hard body impact load – eccentric vertical load	§ 5.4.1 Testing of the specified product characteristics
	§ 4.4.2 Shatter properties Safety against personal injuries	Safety against personal injuries by contact: – no sharp or cutting edges – nature of surface	§ 5.4.2 General examination
5	§ 4.5.1 Airborne sound insulation	Airborne sound insulation	§ 5.5.1 Testing of airborne sound insulation
	§ 4.5.2 Sound absorption	Sound absorption coefficient	§ 5.5.2 Testing of sound absorption coefficient
6	§ 4.6.1 Thermal resistance	Thermal resistance	§ 5.6.1 Calculation or testing of thermal transmission
	§ 4.6.2 Thermal inertia	Thermal inertia	§ 5.6.4 Information on relevant data
Aspects of durability and serviceability	§ 4.7.1 Robustness and rigidity	Resistance to functional failure from: – soft body impact load – hard body impact load – eccentric vertical load – point loads Rigidity of partitions for ceramic tiling	§ 5.7.1 Testing of specified product characteristics
	§ 4.7.2 Protection against deterioration caused by: – physical agents – chemical agents – biological agents	Resistance to deterioration caused by: – physical agents – chemical agents – biological agents	§ 5.7.2 Evaluation of component specifications or testing of component resistance to: – physical agents – chemical agents – biological agents

*) The product performances are identical with the performance characteristics given in the mandate.

5.1

MECHANICAL RESISTANCE AND STABILITY

Requirements regarding the mechanical resistance and stability of *non-loadbearing* parts of the work is not included in this Essential Requirement but treated under the Essential Requirement SAFETY IN USE, see clause 5.4.1.

5.2 SAFETY IN CASE OF FIRE

5.2.1 Reaction to fire

Testing of partitions with respect to ignitability, rate of spread of flame, rate of smoke production and flaming droplets/particles etc. is performed as described in:

Test methods for the Euroclasses A – F developed by CEN.

Products which comprise materials included in the COMMISSION DECISION 96/603/EC can be considered as Euroclass A without testing.

5.2.2 Fire resistance

Testing of partitions with respect to integrity and insulation (EI), radiation (W) for glazed parts and, if appropriate, integrity and insulation in case of impact (EI-M) is performed as described in:

prEN 1363-1: *Fire Resistance – General Requirements.*

prEN 1363-2: *Fire Resistance Tests – Part 2: Alternative and Additional Procedures*

prEN 1364-1: *Fire Resistance Tests on Non-loadbearing Elements in Buildings – Part 1: Walls.*

5.3 HYGIENE, HEALTH AND THE ENVIRONMENT

5.3.1 Release of formaldehyde, asbestos (content), pentachlorophenol and other dangerous substances

- Release of formaldehyde (only for kits with wood-based panels):

Testing of wood-based panels with respect to the emission of formaldehyde is, dependent on panel type, performed as described in:

EN 120:1993, *Wood based panels – Determination of formaldehyde content – Extraction method called the perforator method*

EN 717-2:1995, *Wood-based panels – Determination of formaldehyde release – Part 2: Formaldehyde release by the gas analysis method*

EN 717-3:1997, *Wood-based panels – Determination of formaldehyde release – Part 3: Formaldehyde release by the flask method*

- Release of asbestos (content):

There is no test method available concerning testing of materials with respect to the content of asbestos. Where components of the partition kit contain asbestos, the manufacturer shall give information on the content of:

Crocidolite
Amosite
Anthophyllite
Tremolite.
Chrysotile

- Release of pentachlorophenol:

There is no test method available concerning testing of materials with respect to the emission/content of pentachlorophenol. Where components of the partition kit contain pentachlorophenol, the manufacturer shall give information on the content.

- Release of other dangerous substances:

The product specifications (preferably in the form of a chemically unambiguous formula) shall be examined and where it is possible that a substance on the list referred to in clause 6.3.1 may be present, the appropriate tests and evaluations shall be carried out.

5.3.2 Water vapour permeability

Testing of the water vapour permeability of materials is performed as described in prEN 12086:1997, *Thermal performance of buildings and building components – Determination of water vapour transmission properties*.

Calculation of the flow of water vapour through partitions is conducted as described in ISO/DIS 13788:1997, *Hygrothermal performance of building components and building elements - Estimation of internal surface temperature to avoid critical surface humidity and calculation of interstitial condensation*.

5.3.3 Water permeability

Not relevant. (Covered by technical specifications on the watertightness or water resistance of wall coverings.)

5.4 SAFETY IN USE

5.4.1 Resistance to horizontal and eccentric loads

5.4.1.1 *Resistance to structural damage from soft body impact load – 50 kg bag*

Testing of partitions for resistance to impact from a large soft body is performed as described in ISO 7892:1988, *Vertical Building Components – Impact Resistance – Impact Bodies and General Test Procedures* and ISO/DIS 7893:1990, *Performance Standards in Building – Partitions made from Components – Impact Resistance Tests*, with amendments and modifications as described in Annexes B, C and D to this Guideline.

5.4.1.2 *Resistance to structural damage from hard body impact load – 1 kg steel ball*

Testing of partitions for resistance to impacts from a small hard body is performed as described in ISO 7892:1988, *Vertical Building Components – Impact Resistance – Impact Bodies and General Test Procedures* and ISO/DIS 7893:1990, *Performance Standards in Building – Partitions made from Components – Impact Resistance Tests*, with amendments and modifications as described in Annexes B, C and D to this Guideline.

5.4.1.3 *Resistance to structural damage from eccentric vertical load*

Testing of partitions for support of heavy eccentric vertical downward load is performed as described in ISO/DIS 8413:1990, *Performance Standards in Building – Partitions made from*

Components – Tests for Ability to withstand Suspended Static Loads, with amendments and modifications as described in Annexes B, C and D to this Guideline.

5.4.2 Safety against personal injuries by contact

– Geometry:

The geometry of positioning of specific features is a function of the works and, therefore, cannot be dealt with by testing or assessment of the product specification.

– Existence of sharp or cutting edges:

For the assessment of the presence of sharp or cutting edges, no tests are necessary. The product specification, the product itself and trial installations shall be examined to confirm that sharp or cutting edges are not present at, for example, corners, protrusions, joints or trims.

– Nature of surfaces:

Assessment of the nature of the surface does not require testing. The product specification and the product shall be examined to determine the surface texture and its degree of risk of abrasion or cutting to people or people's clothing.

5.5 PROTECTION AGAINST NOISE

5.5.1 Airborne sound insulation

Testing of partitions for airborne sound insulation is performed in a laboratory as described in:

EN/ISO 140-3:1995, *Acoustics – Measurement of sound insulation in buildings and of building elements – Part 3: Laboratory measurements of airborne sound insulation of building elements*.

5.5.2 Sound absorption

Testing of the sound absorption coefficient of materials is performed as described in:

EN 20354:1993, *Acoustics – Measurement of sound absorption in a reverberation room* and

EN/ISO 354/A1:1997, *Acoustics – Measurement of sound absorption in a reverberation room – Amendment 1: Test specimen mountings for sound absorption tests*.

5.6 ENERGY ECONOMY AND HEAT RETENTION

5.6.1 Thermal resistance

Calculation of the thermal insulation characteristics is performed as described in:

EN/ISO 6946:1996, *Building components and building elements – Thermal resistance and thermal transmittance – Calculation method*.

Testing of thermal resistance is performed as described in:

EN/ISO 8990:November 1995, *Thermal Insulation – Determination of steady-state thermal transmission properties – Calibrated and guarded hot box.*

prEN 12667:1996, *Building materials - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Products of high and medium thermal resistance.*

prEN 12939:1997, *Building materials - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Thick products of high and medium thermal resistance.*

EN/ISO 10211-1:1995, *Thermal bridges in building constructions – Part 1: Heat flows and surface temperatures – General calculation methods*

EN/ISO 10211-2:1995, *Thermal bridges in building constructions – Part 2: Heat flows and surface temperatures – General calculation of linear thermal bridges.*

5.6.2 Thermal inertia

To make it possible to calculate the thermal inertia of the partition, information on the following properties of the partition shall be given:

- total mass per unit area (in kg/m²)
- density of materials used (in kg/m³)
- heat capacity of materials used (in J/kg K)
- thermal transmittance of materials used (in W/m² K).

5.7 ASPECTS OF DURABILITY AND SERVICEABILITY

5.7.1 Robustness and rigidity

5.7.1.1 *Resistance to functional failure from soft body impact load – 50 kg bag*

Testing of partitions for resistance to impact from a large soft body is performed as described in ISO 7892:1988, *Vertical Building Components – Impact Resistance – Impact Bodies and General Test Procedures* and ISO/DIS 7893:1990, *Performance Standards in Building – Partitions made from Components – Impact Resistance Tests*, with amendments and modifications as described in Annexes B, C and D to this Guideline.

5.7.1.2 *Resistance to functional failure from hard body impact load – 0.5 kg steel ball*

Testing of partitions for resistance to impact from small non-deformable objects is performed as described in ISO 7892:1988, *Vertical Building Components – Impact Resistance – Impact Bodies and General Test Procedures* and ISO/DIS 7893:1990, *Performance Standards in Building – Partitions made from Components – Impact Resistance Tests*, with amendments and modifications as described in Annexes B, C and D to this Guideline.

5.7.1.3 *Resistance to functional failure from eccentric vertical load*

Testing of partitions for support of heavy eccentric vertical downward load is performed as described in ISO/DIS 8413:1990, *Performance Standards in Building – Partitions made from Components – Tests for Ability to withstand Suspended Static Loads*, with amendments and modifications as described in Annexes B and C to this Guideline.

5.7.1.4 *Resistance to functional failure from point loads parallel or perpendicular to the surface*

Testing of partitions for resistance to point loads parallel or perpendicular to (away from) the surface of the partition is performed as described in ISO/DIS 8413:1990, *Performance Standards in Building – Partitions made from Components – Tests for Ability to withstand Suspended Static Loads*.

5.7.1.5 *Rigidity of partitions to be used as a substrate for ceramic tiling*

Testing of sufficient strength and rigidity of partitions to be used as a substrate for ceramic tiling is performed as described in Annex D to this Guideline. The test is carried out in place of the test described in clause 5.7.1.1, and not as a supplement to it.

5.7.2 Protection against deterioration

5.7.2.1 *Physical agents*

Hygrothermal conditions.

The product specification shall be examined and the materials used assessed for hygrothermal performance primarily in respect of movement. For partitions of complex composition or incorporating hygroscopic materials, a hygrothermal test (see below) may be carried out as follows: A test sample that fully represents the partition under consideration shall be submitted to the following hygrothermal conditions:

- an atmosphere of 20 °C – 25 °C on either side of the partition at 25 %RH – 30 %RH for 7 days, then the temperature is reduced to 5 °C for 7 days
- an atmosphere of 20 °C – 25 °C at 25 %RH – 30 %RH on one side and 0 °C – 5 °C at 85 %RH – 95 %RH on the other for a period of 28 days
- for the effects of radiation, the partition shall be subjected on one of the faces to a localised radiation allowing the temperature of the exposed parts to be brought to about 50 °C for 6 hours.

After each test, the deflection of the partition is measured.

5.7.2.2 *Chemical agents*

- corrosion

The product specification shall be examined to determine whether the protection against corrosion is appropriate for the intended use.

- cleaning agents

The product specification shall be examined to determine the nature of the surfaces.

Where materials of known composition and performance are used, an assessment can be made and no testing is required.

Where materials of unknown composition and performance are used, or where the manufacturer makes specific claims, or where the location of the partition is such that cleaning is an important requirement, tests shall be conducted in accordance with EN 423: 1993, *Resilient floor coverings – Determination of the effect of stains* to check the reaction of the partition to substances it is likely to encounter in service.

5.7.2.3 *Biological agents*

The product specification shall be examined and the materials used assessed to determine whether the protection against fungi, bacteria, algae and insects is appropriate for the intended use and whether they will provide food value or contain voids suitable for habitation by vermin, particularly if they are intended for use in food preparation areas.

6.

ASSESSING AND JUDGING**the fitness for use of products for an intended use**

Chapter 6 details the performance requirements to be met by an Internal Partition Kit (chapter 4) into precise and measurable (as far as possible and proportional to the importance of the risk) or qualitative terms, related to the products and their intended use, using the verification methods (chapter 5).

Each performance requirement to be met for a given intended use, in general is assessed in terms of classes, use categories or numerical values. In general, the ETA shall either indicate the result of these assessments or state “No performance determined” (for countries/regions /buildings where no requirements given in laws, regulations and administrative provisions are applicable). This statement does not mean that the partition performs badly, but merely that this specific performance property has not been tested and assessed.

The possible ways of expressing the results of the assessment of the mandatory performance requirements are given in Table 5.

Table 5: Relationship between product performance to be assessed and expressions of classification, categorization and declaration

ER	ETAG paragraph on product performance to be assessed	Class Use category Numeric value
2	§ 6.2.1 Reaction to fire	Euroclasses A – F
	§ 6.2.2 Fire resistance	E 20 – E 120 EI 15 – EI 240 EI-M 30 – EI-M 120 EW 20 – EW 120 No performance determined
3	§ 6.3.1 Release of: – formaldehyde – asbestos (content) – pentachlorophenol – other dangerous substances	Formaldehyde class (Wood-based panels) Indication of content of asbestos Indication of content of pentachlorophenol Indication of other dangerous materials “No dangerous materials”
	§ 6.3.2 Water vapour permeability	No performance determined Water vapour resistance of materials No performance determined
	§ 6.3.3 Water permeability	Not relevant
4	§ 6.4.1 Robustness – Resistance to dynamic loads	Use category I, II, III or IV No performance determined
	– Resistance to eccentric vertical loads	Loading use category a or b No performance determined
	§ 6.4.2	

	Safety against personal injury by contact	Description No performance determined
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5	§ 6.5.1 Airborne sound insulation	Single number rating No performance determined
	§ 6.5.2 Sound absorption	Single number rating No performance determined
6	§ 6.6.1 Thermal resistance	R-value No performance determined
	§ 6.6.2 Thermal inertia	Information on relevant data No performance determined
Aspects of durability and serviceability	§ 6.7.1 Robustness – Resistance to dynamic loads – Resistance to eccentric vertical loads – Resistance to point loads – Rigidity of partitions for ceramic tiling	Use category I, II, III or IV No performance determined Loading use category a or b No performance determined Acceptable No performance determined Acceptable No performance determined
	§ 6.7.2 Protection against deterioration caused by: – physical agents – chemical agents – biological agents	Acceptable Acceptable Acceptable No performance determined

6.1 MECHANICAL RESISTANCE AND STABILITY

As partitions are non-loadbearing parts of the work, they are not required to meet this Essential Requirement.

6.2 SAFETY IN CASE OF FIRE

6.2.1 Reaction to fire

Classification of partitions with respect to reaction to fire is undertaken in accordance with

EN xxx:yyyy, *Reaction to fire – Classification*

The following range of Euroclasses is used:

- A No contribution to fire
- B Very limited contribution to fire

- C Limited contribution to fire
- D Acceptable contribution to fire
- E Acceptable reaction to fire
- F No performance determined.

6.2.2 Fire resistance

Classification of partitions with respect to fire resistance is undertaken in accordance with

EN xxxx:yyyy, *Fire resistance - Building Elements – Classification*.

The following range of classifications is used:

No performance determined

E		20	30		60	90	120		
EI	15	20	30	45	60	90	120	180	240
EI-M			30		60	90	120		
EW		20	30		60	90	120		

where

- E: Classification with respect to integrity alone.
- EI: Classification with respect to integrity and insulation.
- EI-M Classification with respect to integrity and insulation when particular mechanical actions (e.g. dynamic loads) are considered
- EW Classification with respect to integrity and insulation when insulation is controlled on the basis of the radiation emitted.

6.3 HYGIENE, HEALTH AND THE ENVIRONMENT

6.3.1 Release of formaldehyde, asbestos (content), pentachlorophenol and other dangerous substances

- Release of formaldehyde (only for kits with wood-based panels):

Classification of wood based panels with respect to the release of formaldehyde is undertaken in accordance with

EN 300:1997, *Oriented Strand Boards (OSB) – Definitions, Classification and Specifications*

EN 312-1:1997, *Particleboards – Specifications – Part 1: General Requirements for all Board Types*

EN 622-5:1997, *Fibreboards – Specifications – Part 5: Requirements for Dry Process Boards (MDF)*

EN 636-1:1996, *Plywood – Specifications – Part 1: Requirements for Plywood for Use in Dry Conditions*

EN 636-2:1996, *Plywood – Specifications – Part 2: Requirements for Plywood for Use in Humid Conditions*

EN 636-3:1996, *Plywood – Specifications – Part 3: Requirements for Plywood for Use in Exterior Conditions.*

- Release of asbestos (content):

The content of the following materials, as stated by the manufacturer, shall be given as a percentage by mass of the component containing the asbestos:

Crocidolite
Amosite
Anthophyllite
Tremolite
Chrysotile.

- Release of pentachlorophenol:

The content of pentachlorophenol, as stated by the manufacturer, shall be given as a percentage by mass of the component containing the pentachlorophenol.

- Release of other dangerous substances:

For the presence of materials listed in Council Directive of 27 July 1976 on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations (as amended) and in the document CONSTRUCT 95/148-REV.1 Working Document on Dangerous Substances and in accordance with CONSTRUCT 97/219 REV.1 Guidance Paper on the Treatment of Dangerous Substances under the Construction Products Directive (subject to amendment), three possibilities exist:

- The materials are forbidden at CE level, i.e. no ETA can be issued
- The materials are forbidden in some countries, and the presence shall be declared
- The materials are allowed in all/some countries, but with restrictions, in which case the nature of the materials as well as their concentration/emission rate/etc shall be given.

If no such materials are present, this information shall be given.

6.3.2 Water vapour permeability

The product specifications shall be examined and performance in respect of exposure to moisture assessed on the basis of known material properties, design details and the intended use. Where properties such as water vapour permeability are not known, they shall be determined by testing.

It shall be established that condensation in the partition as a result of water vapour diffusion will not occur or will occur only to an extent where damage is not caused during the condensation period and the partition will dry out again during the evaporation period.

6.3.3 Water permeability

No performance determined. (Covered by technical specifications on the watertightness or water resistance of wall coverings.)

6.4 SAFETY IN USE

6.4.1 Resistance to horizontal and eccentric loads

This assessment addresses the Essential Requirement for SAFETY IN USE and Aspects of durability and serviceability (clause 6.7.1). Several aspects of performance are assessed, from which an overall assessment of the robustness of the system can be drawn.

The categories given in Table 6 have been adopted to correspond to various degrees of exposure in use. They do not include an allowance for exceptionally severe use, such as acts of vandalism.

Table 7 gives two use categories of loading.

It is acceptable that the partition includes areas, above the normal zone of impacts from people, that have reduced performance levels (Table 6).

When tested in accordance with the corresponding test methods given in clauses 5.4.1.1 – 5.4.1.3 partitions shall be able to comply with the requirements given in Tables 8 to 10 in clauses 6.4.1.1 – 6.4.1.3.

Compliance with the requirements may be claimed only for partitions equal to or less than the height of the sample tested.

Table 6: Definition of use categories – Structural damage – Dynamic loads

Use category	Description	Height *)	Structural damage test
I	Zones accessible primarily to those with high incentive to exercise care. Small risk of accidents occurring and of misuse.	Up to 1.5 m above pedestrian level	Soft body 1 x 100 Nm Hard body (1 kg) 10 Nm
		Over 1.5 m above pedestrian level	–
II	Zones accessible primarily to those with some incentive to exercise care. Some risk of accidents occurring and of misuse.	Up to 1.5 m above pedestrian level	Soft body 1 x 200 Nm Hard body (1 kg) 10 Nm
		Over 1.5 m above pedestrian level	–
III	Zones readily accessible to public and others with little incentive to exercise care. Risk of accidents occurring and of misuse.	Up to 1.5 m above pedestrian level	Soft body 1 x 300 Nm Hard body (1 kg) 10 Nm
		Over 1.5 m above pedestrian level	Hard body (1 kg) 10 Nm
IV**)	a	Up to 1.5 m above pedestrian level	Soft body 1 x 400 Nm Hard body (1 kg) 10 Nm
			In case of failure, risk includes the fall to a floor at a lower level, cf. type b in Figure 1 in clause 2.2

			Over 1.5 m above pedestrian level	Hard body (1 kg) 10 Nm
	b	Zones and risk as II and III. In case of failure, risk includes the fall to a floor at a lower level, cf. type b in Figure 1 in clause 2.2	Up to 1.5 m above pedestrian level	Soft body 1 x 500 Nm Hard body (1 kg) 10 Nm
			Over 1.5 m above pedestrian level	Hard body (1 kg) 10 Nm

*) The height of 1.5 m corresponds to the region where human impacts are likely to occur in buildings. However, for some types of buildings, such as gymnasia and warehouses, greater heights may be considered.

**) For this use category the manufacturer has the option to ask for the assessment of the fitness for use of his product at a soft body energy level for structural damage of 400 Nm or 500 Nm depending on the regulatory requirements of the countries where he wishes to market his product.

Table 7: Definition of loading use categories – Structural damage – Eccentric vertical loads

Loading use category	Description	Structural damage test
a	Heavy objects such as wash basins, small bookshelves	1000 N, 24 hour load
b	Very heavy objects such as boilers, large bookshelves	4000 N, 24 hour load

6.4.1.1 *Resistance to structural damage from soft body impact load – 50 kg bag*

The soft body impact load represents the action from a person accidentally falling against the partition.

Experience from a number of laboratories working in this field shows that the action from differential air pressure, from a large number of people leaning or pressing against the partition (crowd pressure) and from slamming of doors may usually be considered satisfactory if the partition resists the soft body impact load test.

Table 8: Assessment criteria for large soft body impact test

Use category	Structural damage test criteria		
I	1 x 100 Nm	No penetration No collapse No other dangerous failure	
II	1 x 200 Nm		
III	1 x 300 Nm		
IV	a		1 x 400 Nm
	b		1 x 500 Nm

6.4.1.2 *Resistance to structural damage from hard body impact load – 1 kg steel ball*

The hard body impact load with the 1 kg steel ball represents the action from heavy non-deformable objects, such as pieces of furniture or equipment, accidentally hitting the partition when being moved.

Table 9: Assessment criteria for small hard body impact test

Use category	Structural damage test criteria	
I – IV	1 x 10 Nm on several points	No complete penetration No other dangerous failure

6.4.1.3 *Resistance to structural damage from eccentric vertical load*

The eccentric vertical load represents the action from heavy objects, such as bookshelves or sanitary or heating equipment, supported primarily by the partition. Partitions may be modified locally to fulfil the requirements provided the modifications form part of the system and are fully described.

For partitions designed not to have a loadbearing capacity other than for ordinary decorations, such as picture frames, this requirement is not relevant and clause 6.7.1.4 shall be used.

Table 10: Assessment criteria for eccentric vertical load test

Loading use category	Structural damage test criteria	
a	1000 N during 24 hours at 0.3 m from surface of wall on brackets 0.5 m apart each fixed at two points 0.15 m apart on a vertical line	Increase in residual deflection systematically decreasing No collapse No other dangerous failure
b	4000 N during 24 hours at 0.3 m from surface of wall on brackets 1.0 m apart each fixed at two points 0.6 m apart on a vertical line	

6.4.2 Safety against personal injuries by contact

The nature of surface shall be described in qualitative terms with regard to the potential risk of abrasion.

6.5 PROTECTION AGAINST NOISE

6.5.1 Airborne sound insulation

The measured airborne sound insulation is expressed as a single number rating, R_w , in accordance with:

ISO 717-1:1996, *Acoustics – Rating of sound insulation of buildings and of building elements – Part 1: Airborne sound insulation.*

6.5.2 Sound absorption

Sound absorption is considered only in case of partitions with a factory made finish.

The measured acoustic absorption is expressed as a single number rating in accordance with:

ISO/DIS 11654: 1996, *Acoustics – Sound absorbers for use in buildings – Rating of sound absorption.*

6.6 ENERGY ECONOMY AND HEAT RETENTION

6.6.1 Thermal resistance

The calculated or measured value of the thermal resistance (R-value) in $m^2 K/W$ is given.

The effect of any areas of thermal bridging shall be included as a weighted area resultant for the total system based on its R-value.

6.6.2 Thermal inertia

The information given on the total mass per unit area, the density of materials, the heat capacity of materials and the thermal transmittance of materials is given as a means for the

designer of a building to calculate the contribution of the partition to the thermal inertia of the works.

6.7 ASPECTS OF DURABILITY AND SERVICEABILITY

6.7.1 Robustness and rigidity

This assessment addresses the Essential Requirement for SAFETY IN USE (clause 6.4.1) and Aspects of durability and serviceability. Several aspects of performance are assessed, from which an overall assessment of the robustness of the system can be drawn

The categories given in Table 11 have been adopted to correspond to various degrees of exposure in use. They do not include an allowance for exceptionally severe use, such as acts of vandalism.

Table 12 gives two use categories for loading.

It is acceptable that the partition includes areas, above the normal zone of impacts from people, that have reduced performance levels (Table 11).

When tested in accordance with the corresponding test methods given in clauses 5.7.1.1 – 5.7.1.4 partitions shall be able to comply with the loads and damages and/or deflections given in Tables 13 to 17 in clauses 6.7.1.1 – 6.7.1.4. The term “No functional failure” in the tables means that possible damage shall be judged as easily repairable and that it shall not adversely affect the fulfilment of relevant Essential Requirements.

Compliance with the requirements may be claimed only for partitions equal to or less than the height of the sample tested.

Table 11: Definition of use categories – Functional failure – Dynamic loads

Use category	Description	Height *)	Functional failure test
I	Zones accessible primarily to those with high incentive to exercise care. Small risk of accidents occurring and of misuse.	Up to 1.5 m above pedestrian level	Soft body 3 x 60 Nm Hard body (0.5 kg) 2.5 Nm
		Over 1.5 m above pedestrian level	–
II	Zones accessible primarily to those with some incentive to exercise care. Some risk of accidents occurring and of misuse.	Up to 1.5 m above pedestrian level	Soft body 3 x 120 Nm Hard body (0.5 kg) 2.5 Nm
		Over 1.5 m above pedestrian level	Hard body (0.5 kg) 2.5 Nm
III	Zones readily accessible to public and others with little incentive to exercise care. Risk of accidents occurring and of misuse.	Up to 1.5 m above pedestrian level	Soft body 3 x 120 Nm Hard body (0.5 kg) 6 Nm

		Over 1.5 m above pedestrian level	Hard body (0.5 kg) 6 Nm
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IV	Zones and risk as II and III In case of failure risk includes the fall to a floor at a lower level, cf. type c in Figure 1 in clause 2.2	Up to 1.5 m above pedestrian level	Soft body 3 x 120 Nm Hard body (0.5 kg) 6 Nm
		Over 1.5 m above pedestrian level	Hard body (0.5 kg) 6 Nm

*) The height of 1.5 m corresponds to the region where human impacts are likely to occur in buildings. However, for some types of buildings, such as gymnasia and warehouses, greater heights may be considered.

Table 12: Definition of use categories – Functional failure – Eccentric vertical loads

Loading use category	Description	Functional failure test criteria
a	Heavy objects such as wash basins, small bookshelves	500 N short-term load
b	Very heavy objects such as boilers, large bookshelves	2000 N short-term load

6.7.1.1 *Resistance to functional failure from soft body impact load – 50 kg bag*

The soft body impact load represents the action from a person accidentally falling against the partition.

Experience from a number of laboratories working in this field shows that for use categories II, III and IV the action from differential air pressure, the action from a large number of people leaning or pressing against the partition (crowd pressure) and the action from slamming of doors may usually be considered satisfactory if the partition resists the soft body impact load test. For use category I these actions are not regarded as relevant.

Table 13: Assessment criteria for large soft body impact test

Use category	Functional failure test criteria	
I	3 x 60 Nm	Maximum deflection during impact to be reported No functional failure Maximum residual deflection 5 mm Increase in residual deflection systematically decreasing Opening of door still possible
II	3 x 120 Nm	
III		

IV	
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6.7.1.2 *Resistance to functional failure from hard body impact load – 0.5 kg steel ball*

The hard body impact load with the 0.5 kg steel ball represents the action from light non-deformable objects such as pieces of furniture or cleaning tools accidentally hitting the partition when being moved.

Table 14: Assessment criteria for small hard body impact test

Use category	Functional failure test criteria	
I	1 x 2,5 Nm	Range of diameters of indentation marks to be reported No functional failure
II	1 x 2,5 Nm	
III	1 x 6 Nm	
IV	1 x 6 Nm	

6.7.1.3 *Resistance to functional failure from eccentric vertical load*

The eccentric vertical load represents the action from heavy objects such as bookshelves or sanitary or heating equipment, supported primarily by the partition. Partitions may be modified locally to fulfil the requirements provided the modifications form part of the system and are fully described.

For partitions not designed to have a loadbearing capacity, other than for ordinary decorations such as pictures, this requirement is not relevant and clause 6.7.1.4 shall be used.

Table 15: Assessment criteria for eccentric vertical load test

Loading use category	Functional failure test criteria	
a	500 N short term at 0.3 m from surface of wall on brackets 0.5 m apart each fixed at two points 0.15 m apart on a vertical line	Maximum deflection: 1/500 of height or 5 mm No functional failure
b	2000 N short term at 0.3 m from surface of wall on brackets 1.0 m apart each fixed at two points 0.6 m apart on a vertical line	

6.7.1.4 *Resistance to functional failure from point load parallel or perpendicular to surface*

The point loads represent the action from light objects, such as picture frames or small household appliances hanging from the partition.

Table 16: Assessment criteria for point vertical load test

Functional failure test criteria	
100 N (perpendicular) 250 N (parallel)	No pull-out No functional failure

6.7.1.5 *Rigidity of partitions to be used as a substrate for ceramic tiling*

Partitions to be used as a substrate for ceramic tiling shall comply with the requirements given in Table 17 when tested with a 50 kg soft body impact load in accordance with clause 5.7.1.5 in order to ensure that the rigidity of the partition is sufficient for the tiling to remain undamaged. The assessment is carried out in place of the assessment described in clause 6.7.1.1, and not as a supplement to it. A partition passing the test described in clause 5.7.1.5 is deemed to satisfy the test described in clause 5.7.1.1.

Table 17: Assessment criteria for large soft body impact load test

Use category	Test criteria			
Partitions for tiling	3 x 120 Nm	Max. deflection during impact 30 mm Max. residual deflection 2 mm No damages	1 x 240 Nm	After all 4 impacts: Rate of increase in residual deflection stabilised No damages

6.7.2 Resistance to deterioration

6.7.2.1 *Physical agents*

Hygrothermal conditions.

The difference in atmospheric conditions in the test described in clause 5.7.2.1 represents those likely to occur due to different uses of partitions and the effect of adjacent spaces with different conditions separated by the partition. Under any of these conditions, the deflection of the partition shall not exceed the lesser of 1/500 of the height of the partition or 5 mm.

Deflections due to the following hygrothermal conditions:

- temporary (as in temperature and humidity increases in bathrooms or kitchens)
- exceptional (as in heavy frost)
- localised (as in radiation from the sun or heating)

will not exceed the lesser of 1/500 of the height of the partition or 5 mm.

When tested in accordance with clause 5.7.2.1 relating to the effects of radiation, the partition

shall be checked to ensure that the properties of the partition have not been impaired (e.g. loss of adhesion, fracture, residual deflection).

6.7.2.2 *Chemical agents*

- Corrosion of steel sheets:

Components made of steel sheet shall have a corrosion protection which at least corresponds to class Z275 as defined in EN 10 147/A1: 1995 – *Continuously hot-dip zinc coated structural steel sheet and strip – Technical delivery conditions*.

- Corrosion of other steel components and other metals:

No tests available

- Cleaning agents:

The assessment of surfaces of materials of known composition and of known performance shall be given in qualitative terms.

6.7.2.3 *Biological agents*

The result of the assessment is examined and preventive measures or limitations in use determined. The partition's susceptibility to infestation by insects and vermin is described.

- The conditions for attack by biological agents of components made of wood or wood-based panels, in general may be regarded as in hazard class 1 as defined in pr EN 335-1: 1992 – *Durability of wood and derived materials – Definition of hazard classes of biological attacks – Part 1: General*. This means that no treatment of such components is necessary. Certain wood or wood-based components, e.g. when fitted in independent linings for exterior walls, may be exposed to conditions as in hazard class 2 and, therefore, should be treated accordingly.

6.8 IDENTIFICATION OF THE PRODUCT

All components of the partition shall be clearly identified. Where possible, reference to harmonised European Standards shall be made.

Where components are not covered by harmonised European Standards, they shall be precisely defined by reference to physical characteristics, such as:

- geometry, dimensional stability
- density
- mechanical characteristics such as compression resistance, tensile strength, bending strength, modulus of elasticity, Poisson's ratio
- specific heat capacity
- thermal conductivity or thermal resistance for several relative humidities
- thermal expansion coefficient
- water vapour diffusion resistance
- water absorption
- hygrometric expansion coefficient
- hygroscopic humidity content for several relative humidities
- air permeability
- electrical resistance/transmittance
- emissivity/transmissivity for long wave radiation

- transmissivity/absorptivity for solar radiation.

The determination of the product characteristics shall be based on testing in accordance with the appropriate CEN or EOTA test methods as far as they exist.

7. **ASSUMPTIONS AND RECOMMENDATIONS** **under which the fitness for use of the products is assessed**

Chapter 7 sets out the preconditions for design, execution, maintenance and repair which are a presumption for the assessment of the fitness for use according to the Guideline (only when necessary and where they have a bearing on the assessment or on the products).

The issued European Technical Approvals shall state these conditions, where relevant.

7.1 DESIGN AND EXECUTION OF WORKS

The conditions for design and execution of the partition into the works shall be taken from the manufacturer's installation guide. The quality and sufficiency of this installation guide shall be assessed, in particular concerning the aspects on the following check list:

Design of joints between partition and main structure:

- permissible deflections of the adjacent structural parts
- when appropriate, special fixings for seismic conditions;
in case of dynamic actions such as those occurring in case of earthquake, the designer has to prevent the possibility of a structural contribution of the partition, by inserting relevant joints between the partition and the frame, so that displacement of the frame can occur without interference of the partition. In case of absence of those joints, the designer shall take account of the possible contribution in accordance with national or local regulations.

Dimensional stability:

- relationship between the deflection per unit height and the hygrothermal conditions across the partition

Reduction of the risk of surface and interstitial condensation in the works:

- heating
- ventilation
- vapour control layer

Thermal resistance:

- cold bridges

Sound insulation:

- air paths through gaps, cracks, holes
- flanking transmission
- type of fixings

Infestation:

- sealing of voids
- closure of small apertures

It shall be stated in the ETA that the installation guide forms part of the ETA and thus always shall accompany the delivered system components. The ETA may take over the essential parts of the installation guide.

The assessment of the fitness of use for relocatable partitions is based upon the assumption that in the process of dismantling and reassembly, the claimed characteristics are unaffected. This assumption may need to be verified.

7.2

MAINTENANCE AND REPAIR

The assessment of the fitness for use is based on the assumption that abrasions and minor impact damage are inevitable and shall be capable of easy repair without causing adverse effects.

Section Three: ATTESTATION OF CONFORMITY (AC)

8 EVALUATION OF CONFORMITY

8.1 EC DECISION

The systems of attestation of conformity specified by the European Commission in mandate Construct 97/243 REV.1, Annex 3, are as follows:

System 1 for partitions

- with Euroclasses A, B or C concerning Reaction to fire, and where the Reaction to fire performance is susceptible to change during the production process

System 3 for partitions

- with Euroclasses A, B or C concerning Reaction to fire, and where the Reaction to fire performance is not susceptible to change during the production process
- with any Fire resistance class
- for uses subject to regulations on dangerous substances
- with Safety in use category IV

System 4 for all other partitions, including partitions with Reaction to fire classes A (without testing), D, E and F.

The systems are described in Council Directive (89 /106/EEC) Annex III, 2(i), 2(ii) Second possibility and 2(ii) Third possibility, respectively, and are detailed as follows:

System 1

(a) **Tasks for the manufacturer**

- factory production control
- further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan.

(b) **Tasks for the approved body**

- initial type-testing of the product
- initial inspection of the factory and of factory production control
- continuous surveillance, assessment and approval of factory production control.

System 3

(a) Tasks for the manufacturer

- factory production control
- initial type testing of the product by an approved laboratory

System 4

(a) Tasks for the manufacturer

- factory production control
- initial type testing.

8.2 RESPONSIBILITIES

8.2.1 Tasks for the manufacturer

8.2.1.1 *Factory production control*

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures. This production control system shall ensure that the product is in conformity with the ETA.

Manufacturers having an FPC system which complies with EN ISO 9000 **and** which addresses the requirements of an ETA are recognized as satisfying the FPC requirements of the Directive.

8.2.1.2 *Testing of samples taken at the factory*

Both large and small companies produce these products and there is a wide variation in the materials used. Therefore a precise test plan can only be set up on a case by case basis.

In general it is not necessary to conduct tests on complete partitions. Indirect methods will normally be sufficient, e.g. control of raw materials, manufacturing processes and properties of components.

8.2.1.3 *Declaration of Conformity*

When all the criteria of the Conformity Attestation are satisfied the manufacturer shall make a Declaration of Conformity.

8.2.2 Tasks for the manufacturer or the approved body

8.2.2.1 Initial Type Testing

Approval tests will have been conducted by the approval body or under its responsibility (which may include a proportion conducted by a laboratory or by the manufacturer, witnessed by the approval body) in accordance with section 5 of this ETAG. The approval body will have assessed the results of these tests in accordance with section 6 of this ETAG, as part of the ETA issuing procedure.

These tests shall be used for the purposes of Initial Type Testing. In this respect approval

bodies shall be able to have open arrangements with relevant approved bodies to avoid duplication, respecting each others responsibilities.

System 1: this work shall be validated by the approved body for Certificate of Conformity purposes.

System 3: this work shall be validated by an approved laboratory for Declaration of Conformity purposes by the manufacturer.

System 4: this work should be taken over by the manufacturer for Declaration of Conformity purposes.

8.2.3 Tasks for the approved body (System 1)

8.2.3.1 *Assessment of the factory production control system - initial inspection and continuous surveillance*

Assessment of the factory production control system is the responsibility of the approved body.

An assessment must be carried out of each production unit to demonstrate that the factory production control is in conformity with the ETA and any subsidiary information. This assessment shall be based on an initial inspection of the factory.

Subsequently continuous surveillance of factory production control is necessary to ensure continuing conformity with the ETA.

It is recommended that surveillance inspections be conducted at least twice per year.

8.2.3.2 *Certification of Conformity*

The approved body shall issue Certification of Conformity of the product.

8.3 DOCUMENTATION

In order to help the approved body make an evaluation of conformity the approval body issuing the ETA shall supply the information detailed below. This information together with the requirements given in EC Guidance Paper B will:

System 1: generally form the basis on which the factory production control (FPC) is assessed by the approved body

System 3 and

System 4: generally form the basis of FPC.

This information shall initially be prepared or collected by the approval body and shall be agreed with the manufacturer. The following gives guidance on the type of information required:

- (1) The ETA

See section 9 of this Guideline.

The nature of any additional (confidential) information shall be declared in the ETA.

(2) Basic manufacturing process

The basic manufacturing process shall be described in sufficient detail to support the proposed FPC methods.

Components for partitions are normally manufactured using conventional techniques. Any critical process or treatment of the components affecting performance shall be highlighted.

(3) Product and materials specifications

These may include:

detailed drawings (including manufacturing tolerances)
incoming (raw) materials specifications and declarations
references to European and/or international standards or appropriate specifications
manufacturer's data sheets.

(4) Test plan

The manufacturer and the approval body issuing the ETA shall agree an FPC test plan.

An agreed FPC test plan is necessary as current standards relating to quality management systems (Guidance Paper B, EN 29002, etc), do not ensure that the product specification remains unchanged and they cannot address the technical validity of the type or frequency of checks/tests.

The validity of the type and frequency of checks/tests conducted during production and on the final product shall be considered. This will include the checks conducted during manufacture on properties that cannot be inspected at a later stage and for checks on the final product. These will normally include:

material properties
dimensions of component parts

Where materials/components are not manufactured and tested by the supplier in accordance with agreed methods, then where appropriate they must be subject to suitable checks/tests by the manufacturer before acceptance.

(5) Prescribed test plan (**System 1**)

The manufacturer and the approval body issuing the ETA shall agree a prescribed test plan.

The characteristic to be addressed as described in the mandate is Reaction to fire. This will be controlled at least twice per year by analysis/measurement of the relevant characteristics for the components of the kit from the following list:

composition
dimensions
physical properties
mechanical properties
construction.

8.4

CE MARKING AND INFORMATION

The ETA shall indicate the information to accompany the CE marking and the placement of CE marking and the accompanying information (the kit/components itself/themselves, an attached label, the packaging, or the accompanying commercial documents).

According to the CE Guidance Paper D on CE marking, the required information to accompany the symbol “CE” is:

- identification number of the notified body (**System 1**)
- name or identifying mark of the producer
- last two digits of the year in which the marking was affixed
- number of the EC certificate of conformity (**System 1**)
- number of the ETA (valid as indications to identify the characteristics of the partition kit and the characteristics where the “no performance determined” approach is used).

Section Four: ETA CONTENT

9 THE ETA CONTENT

9.1 THE ETA CONTENT

9.1.1 Model ETA

The format of the ETA shall be based on the Commission Decision of 1997-07-22, EC Official Journal L236 of 1997-08-27.

9.1.2 Checklist for the issuing body

The technical part of the ETA shall contain information on the following items, in the order and with reference to the relevant 5 Essential Requirements. For each of the listed items, the ETA shall either give the mentioned indication/classification/statement/description or state that the verification/assessment of this item has not been carried out. The items are here given with reference to the relevant clause of this guideline:

- Indication of the assumed working life (Section Two, introduction)
- Classification of partition with respect to reaction to fire, including test method used (Clause 6.2.1)
- Classification of partition with respect to fire resistance, including test method used (Clause 6.2.2)
- Statement on the presence and concentration/emission rate/etc. of formaldehyde, asbestos, pentachlorophenol, other dangerous substances or statement on no presence of dangerous materials (Clause 6.3.1)
- Indication of water vapour permeability of materials (Clause 6.3.2)
- Statement that condensation in the partition as a result of water vapour diffusion will not occur or will occur only to an extent where damage is not caused during the condensation period and the partition will dry out again during the evaporation period (Clause 6.3.2)
- Statement on the most severe use application for structural damage and functional failure for impact loads for which the system has been assessed (use category r_f, including description) and the test methods used including the energies of the impact test regime performed to verify the above statement (Clause 6.4.1.1, 6.4.1.2, 6.7.1.1 and 6.7.1.2)
- Information on the maximum deflection during impact in the test of resistance to functional failure from soft body impact load, with an indication of the height of the test specimen and the energy level used (Clause 6.7.1.1)
- Statement on the most severe use application for structural damage and functional failure for eccentric vertical loads for which the system has been assessed (loading use category a or b, including description) and the test methods used (Clause 6.4.1.3 and 6.7.1.3)

- Indication of possible reinforcements to improve resistance against eccentric vertical load (Clause 6.4.1.3)
- Description of the nature of the surface (Clause 6.4.2)
- Indication of measured airborne sound insulation, including the test method used (Clause 6.5.1)
- Indication of measured sound absorption coefficient, including the test method used (Clause 6.5.2)
- Indication of calculated or measured thermal resistance, including the calculation or test method used (Clause 6.6.1)
- Indication of relevant properties for the calculation of the contribution to the thermal inertia of the works (Clause 6.6.2)
- Indication of result from point load resistance test, including test method (Clause 6.7.1.4)
- Indication of results from rigidity test, including test method (Clause 6.7.1.5)
- Indication of resistance to hygrothermal conditions, including test method, if used (Clause 6.7.2.1)
- Indication of resistance to corrosion (Clause 6.7.2.2)
- Indication of resistance to cleaning, including test method, if used (Clause 6.7.2.2)
- Indication of resistance to biological agents (Clause 6.7.2.3).

9.2 ADDITIONAL INFORMATION

It shall be stated in the ETA if the manufacturer's installation guide forms part of the ETA, see clause 7.1 of this Guideline.

Similarly, it shall be stated in the ETA whether or not any additional (possibly confidential) information shall be supplied to the approved body for the evaluation of conformity, see clause 8.3 of this Guideline.

If doors are included in the kit, the available width and height shall be stated.
If the kit includes large areas of transparent glazing, the means by which it is marked to avoid persons colliding with it shall be stated.

Annex A

A **COMMON TERMINOLOGY AND ABBREVIATIONS**

A.1 Works and products

A.1.1 *Construction works (and parts of works)* (often simply referred to as “works”) (ID1.3.1)

Everything that is constructed or results from construction operations and is fixed to the ground.

(This covers both building and civil engineering works, and both structural and non-structural elements).

A.1.2 *Construction products* (often simply referred to as “products”) (ID 1.3.2)

Products manufactured for incorporation in a permanent manner in the works and placed as such on the market.

(The term includes materials, elements, components and prefabricated systems or installations.)

A.1.3 *Incorporation* (of products in works) (ID 1.3.1)

Incorporation of a product in a permanent manner in the works means that:

- its removal reduces the performance capabilities of the works, and
- that the dismantling or the replacement of the product are operations involving construction activities.

A.1.4 *Intended use* (ID 1.3.4)

Role(s) that the product is intended to play in the fulfilment of the essential requirements.

A.1.5 *Execution* (ETAG-format)

Used in this document to cover all types of incorporation techniques, such as installation, assembling, incorporation, etc.

A.1.6 *Kit* (Guidance Paper C)

Construction product consisting of at least two separate components that need to be put together to be installed permanently in the works.

A.2 Performances

A.2.1 *Fitness for intended use* (of products) (CPD 2.1)

Products have such characteristics that the works in which they are intended to be incorporated, assembled, applied or installed, can, if properly designed and built, satisfy the essential requirements.

A.2.2 *Serviceability* (of works)

Ability of the works to fulfil their intended use and in particular the essential requirements relevant for this use.

The products must be suitable for construction works which (as a whole and in their separate parts) are fit for their intended use, subject to normal maintenance, be satisfied for an economically reasonable working life. The requirements generally concern foreseeable actions (CPD Annex I, Preamble).

A.2.3 *Essential requirements (for works)*

Requirements applicable to works, which may influence the technical characteristics of a product, and are set out in objectives in the CPD, Annex I (CPD, art. 3.1).

A.2.4 *Performance (of works, parts of works or products) (ID 1.3.7)*

The quantitative expression (value, grade, class or level) of the behaviour of the works, parts of works or of the products, for an action to which it is subject or which it generates under the intended service conditions (works or parts of works) or intended use conditions (products).

A.2.5 *Actions (on works or parts of the works) (ID 1.3.6)*

Service conditions of the works which may affect the compliance of the works with the essential requirements of the Directive and which are brought about by agents (mechanical, chemical, biological, thermal or electro-mechanical) acting on the works or parts of the works.

A.2.6 *Classes or levels (for essential requirements and for related product performances) (ID 1.2.1)*

A classification of product performance(s) expressed as a range of requirement levels of the works, determined in the ID's or according to the procedure provided for in art. 20.2a of the CPD.

A.3 ETAG-format

A.3.1 *Requirements (for works) (ETAG-format 4)*

Expression and application, in more detail and in terms applicable to the scope of the guideline, of the relevant requirements of the CPD (given concrete form in the ID's and further specified in the mandate, for works or parts of the works, taking into account the durability and serviceability of the works.

A.3.2 *Methods of verification (for products) (ETAG-format 5)*

Verification methods used to determine the performance of the products in relation to the requirements for the works (calculations, tests, engineering knowledge, evaluation of site experience, etc.)

A.3.3 *Specifications (for products) (ETAG-format 6)*

Transposition of the requirements into precise and measurable (as far as possible and proportional to the importance of the risk) or qualitative terms, related to the products and their intended use.

A.4 Working life

- A.4.1 *Working life* (of works or parts of the works) (ID 1.3.5(1))
The period of time during which the performance will be maintained at a level compatible with the fulfilment of the essential requirements.
- A.4.2 *Working life* (of products)
Period of time during which the performances of the product are maintained - under the corresponding service conditions - at a level compatible with the intended use conditions.
- A.4.3 *Economically reasonable working life* (ID 1.3.5(2))
Working life which takes into account all relevant aspects, such as costs of design, construction and use, costs arising from hindrance of use, risks and consequences of failure of the works during its working life and cost of insurance covering these risks, planned partial renewal, costs of inspections, maintenance, care and repair, costs of operation and administration, of disposal and environmental aspects.
- A.4.4 *Maintenance* (of works) (ID 1.3.3(1))
A set of preventive and other measures which are applied to the works in order to enable the works to fulfil all its functions during its working life. These measures include cleaning, servicing, repainting, repairing, replacing parts of the works where needed, etc.
- A.4.5 *Normal maintenance* (of works) (ID 1.3.3(2))
Maintenance, normally including inspections, which occurs at a time when the cost of the intervention which has to be made is not disproportionate to the value of the part of the work concerned, consequential costs (e.g. exploitation) being taken into account.
- A.4.6 *Durability* (of products)
Ability of the product to contribute to the working life of the work by maintaining its performances, under the corresponding service conditions, at a level compatible with the fulfilment of the essential requirements by the works.
- A.5 Conformity
- A.5.1 *Attestation of conformity* (of products)
Provisions and procedures as laid down in the CPD and fixed according to the directive, aiming to ensure that, with acceptable probability, the specified performance of the product is achieved by the ongoing production.
- A.5.2 *Identification* (of a product)
Product characteristics and methods for their verification, allowing to compare a given product with the one that is described in the technical specification.
- A.6 Abbreviations
- A.6.1 *Abbreviations concerning the Construction products directive*

AC: Attestation of conformity
CEC: Commission of the European Communities
CEN: Comité européen de normalisation
CPD: Construction products directive
EC: European communities
EFTA: European free trade association
EN: European Standards
FPC: Factory production control
ID: Interpretative documents of the CPD
ISO: International standardisation organisation
SCC: Standing committee for construction of the EC.

A.6.2 *Abbreviations concerning approval:*

EOTA: European organisation for technical approval
ETA: European technical approval
ETAG: European technical approval guideline
TB: EOTA Technical Board
UEAtc: Union Européenne pour l'Agrément technique dans la construction (European Union of Agreement).

A.6.3 *General abbreviations:*

WG: Working group.

Annex B

B **INTERNAL PARTITION KITS – RESISTANCE TO IMPACT LOADS AND SUSPENDED VERTICAL LOADS – GENERAL**

B.1 General

The testing shall be carried out on sample partitions representative of those to be supplied and/or erected in practice fitted into an appropriate test rig. Whenever possible the installation of the test sample shall be carried out by the sponsor of the test.

The test methods used are ISO methods but certain elements are modified or amended. Modifications and amendments are given in Annexes B – D.

Unless otherwise stated in the test methods, loads and forces shall be accurate to within $\pm 2\%$, dimensions to within $\pm 1\%$, temperatures to within $\pm 5^{\circ}\text{C}$ and relative air humidities to within $\pm 5\%$ of the stated values.

B.2 Partition sample

The selection of the sample needs careful consideration to ensure that it fully represents the partition kit. Normally, the sample shall be a production partition fabricated in strict accordance with the manufacturer's drawings, specifications and installation instructions.

As a general rule, the highest partition in the range should be tested as this will tend to be the weakest and, therefore, will allow partitions of a lesser height to be assessed as being at least as good. However, several specimens may need to be tested to gain information about the full range of options available for a given system, for example full height and partial glazing, changes to member size throughout the range, thicknesses, detailing at junctions and corners and inclusion of all necessary features. The number and position of discrete fixings between panels and discrete members shall also be considered.

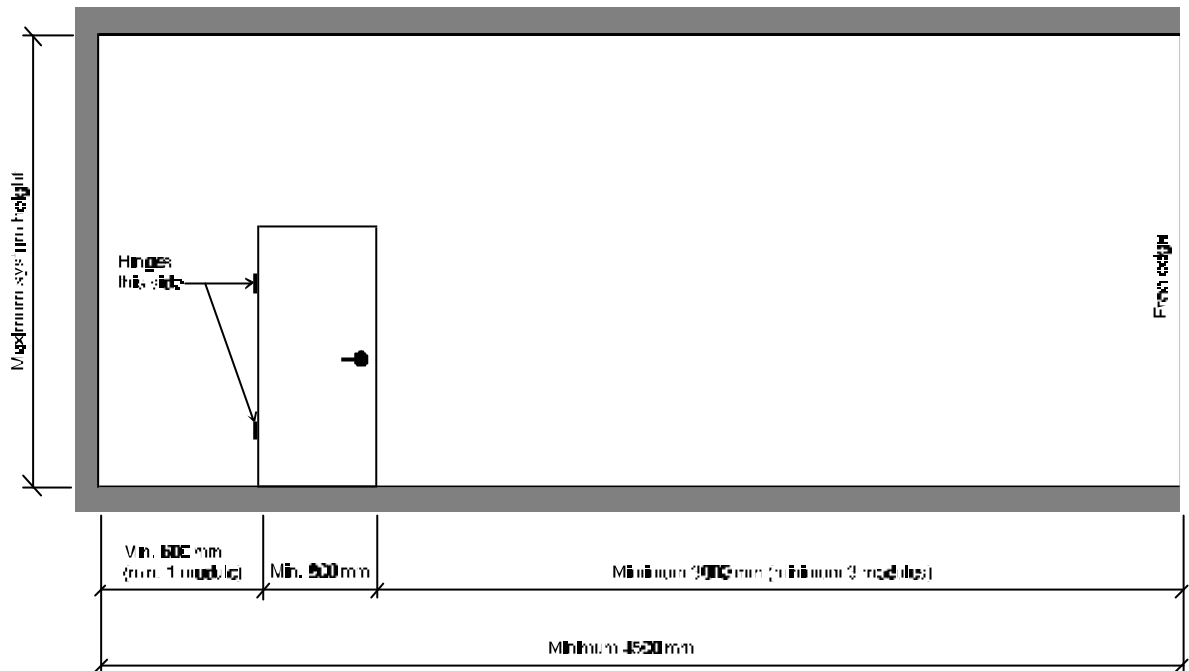
The principles of the sample are described in ISO draft standard ISO/DIS 7893:1990. The sample shall be a straight run of partition (see Figure 1) and should fully reflect the partition system including all necessary fittings and fixings complete with joints at the top, bottom, end and intermediate positions. The partition sample should include all integral components, such as glazing, which may have a detrimental effect on the performance levels achieved. If the test sample does not include a door-set belonging to the partition system, a type of door-set commonly used in the type of partition system being tested should be fitted in the opening. The door-set should be installed as shown in Figure 2. The door opens towards the observer.

The total length of the sample shall be at least 4.5 m. It shall include at least 3.0 m of straight partition, an opening at least 800 mm wide for fixing a doorset and at least 600 mm of partition flanking the other side of the opening (see Figure 1). For modular partition systems, standard modules shall be used, even if the above dimensions are exceeded. The 3 m of straight partition shall consist of at least three modules.

The test rig should allow for the fixing of a corner piece or corner element to the free end of the sample for the possible testing of corner trim details, cf. Annex C2.

The height of the sample shall be that set by the manufacturer.

The way in which components are fixed to each other shall reproduce actual conditions of use, particularly with respect to the nature, type and position of the fixings and the distance



between them.

Figure 2 - Partition sample dimensions

B.3 Conditioning

The sample conditioning shall be recorded. The conditioning period shall be agreed between the sponsor and the test authority.

B.4 Test rig

The test rig shall be as identified in ISO 7892:1988.

B.5 Sequence of tests

Testing to determine a class shall follow the sequence given below.

B.5.1 Hard body impact load – 0.5 kg steel ball – Functional failure test

B.5.2 Eccentric vertical load – Functional failure test

B.5.3 Soft body impact load – 50 kg bag – Functional failure test

B.5.4 Eccentric vertical load – Structural damage test

B.5.5 Hard body impact load – 1 kg steel ball – Structural damage test

B.5.6 Soft body impact load – 50 kg bag – Structural damage test.

For partitions to be used as a substrate for ceramic tiling, test B.5.3 in the test sequence is replaced by the

test described in Annex D.

Annex C

C **INTERNAL PARTITION KITS – RESISTANCE TO IMPACT LOADS AND SUSPENDED VERTICAL LOADS – TEST METHODS**

C.1 Hard body impact load – 0.5 kg steel ball

ISO 7892:1988, *Vertical Building Components – Impact Resistance – Impact Bodies and General Test Procedures* and ISO/DIS 7893:1990, *Performance Standards in Building – Partitions made from Components – Impact Resistance Tests*.

ISO/DIS 7893:1990 is subject to the modifications to sample construction shown in Annex B.

The load shall be applied at least ten times, each time in a new position.

The diameter of any indentation shall be reported. Note shall be made of any damage caused.

C.2 Hard body impact load – 1 kg steel ball

ISO 7892:1988, *Vertical Building Components – Impact Resistance – Impact Bodies and General Test Procedures* and ISO/DIS 7893:1990, *Performance Standards in Building – Partitions made from Components – Impact Resistance Tests*.

ISO/DIS 7893:1990 is subject to the modifications to sample construction shown in Annex B.

The load shall be applied at all points considered weak, once at each position.

When testing corner details mounted at the free end of the partition sample, it may become necessary to support (fix) it.

The diameter of any indentation shall be reported. Note shall be made of any damage caused.

C.3 Soft body impact load – 50 kg bag

ISO 7892:1988, *Vertical Building Components – Impact Resistance – Impact Bodies and General Test Procedures* and ISO/DIS 7893:1990, *Performance Standards in Building – Partitions made from Components – Impact Resistance Tests*.

The area of impact is not as shown in Figure 3 of ISO/DIS 7893:1990. Its centre shall be at a height of 1.5 m above the ground unless this interferes with a horizontal member in a frame construction of the partition sample. In this case it may vary between 1.2 m and 1.7 m from the ground depending on what results in the greater distance from the underlying frame construction. ISO/DIS 7893:1990 is subject to the modifications to sample construction shown in Annex B.

The door should remain closed during the test.

The deflection transmitter shall be fixed to the back of the test sample immediately opposite the point of impact.

In the case of a frame construction, the functional failure impacts are carried out both on studs and between studs, each series of 3 being at the same point of impact. Additionally one series is carried out with the centre of impact at 150 mm from door opening

The structural damage impact is carried out at a new point and this should be at the weakest part of the partition system. The impact may need to be repeated if the weakest point is not obvious. The maximum deflection during each impact and the residual deflection after each impact shall be reported. The residual deflection shall be measured five minutes after the impact. Note shall be made of any damage caused and of the operating condition of the door.

C.4 Eccentric vertical load

Draft ISO 8413:1990, *Performance Standards in Building – Partitions made from Components Tests for Ability to withstand Suspended Static Loads*.

Use Category A is as in clause 7.2 of the standard.

Use Category B is as in clause 7.2 of the standard but the fixing points are 1 m apart, each fixed at 2 positions 0.6 m apart on vertical lines.

Loads shall be applied and removed at a rate of approximately 2000 N/min. Functional failure loads (i.e. 500 N or 2000 N) shall not remain between application and removal. Structural damage loads (i.e. 2000 N or 4000 N) shall remain for 24 hours between application and removal.

The maximum deflection under load and the residual deflection shall be reported. Note shall be made of any damage caused.

As an alternative, eccentric vertical loads according to specific requirements related to the loads to be applied in practice may be carried out. This may require different fixing centres and loads and should be carried out at the request of the manufacturer.

Annex D

D **INTERNAL PARTITION KITS TO BE USED AS A SUBSTRATE FOR CERAMIC TILING**

D.1 Test Rig

The test rig shall be as described in Annex B.

D.2 Partition Sample

The sample shall be a straight run of partition. The length of the sample shall be at least 3000 mm and at least 3 modules. The height of the sample shall be that set by the manufacturer but not less than 2600 mm. The sample shall be without fitting of the ceramic tiling.

D.3 Conditioning

The sample conditioning shall be recorded. The conditioning period shall be agreed between the manufacturer and the testing laboratory.

D.4 Apparatus

The load shall be applied by means of a 50 kg soft body in accordance with ISO 7892:1988, *Vertical Building Components – Impact Resistance – Impact Bodies and General Test Procedures*.

The deflection transmitter shall be fixed to the back of the test sample as close to the point of impact as necessary for accurately measuring the movement of the surface behind the point of impact. For partitions of panels on a frame structure this means to the back of front panel(s), if necessary through an opening in the panel(s) on the back of the partition sample.

D.5 Test

The centre of impact shall be halfway between two studs horizontally and at half height of the partition sample above the ground vertically. If this interferes with horizontal members in the frame construction, it shall be lowered to a height that produces the greatest distance to the underlaying frame construction, but not less than 1200 mm above ground.

The centre of impact shall remain the same for all four impacts.

The maximum deflection during each impact and the residual deflection after each impact shall be reported. Note shall be made of any damage caused.

Annex E

E Internal Partition Kits – Test Reports

E.1 Test report

The test report shall include the information required for the particular test and the following particulars:

- a number and date of this ETA Guideline and the title of the test.
- b name and address of the test organisation
- c name and address of the sponsor of the test and/or the producer of the system
- d name or brief descriptive title of the partition system
- e test reference letter and a cross reference to other tests carried out as part of a sequence of tests and the order in which these tests were carried out either prior to or subsequent to the individual tests
- f dates of construction and tests
- g dimensions and details of the partition sample, including modifications for the heavyweight anchorage tests that remain during other tests, method of fixing to the rig and fully detailed specifications and drawings
- h description with diagram of the test rig and apparatus together with calibration certificates
- i range of temperature and relative humidity in the laboratory during the installation, conditioning and testing and the period of conditioning.

E.2 Summary of test results

When more than one requirement has been tested, the test results shall be summarised showing whether the individual requirements tested passed a particular performance level.

If a use category, satisfying the requirements described in clauses 6.4.1 and 6.7.1 of the Guideline, has been achieved this shall be given in the summary of test results.