



TECHNICAL REPORT

**Rules for extended
application of test results
of fire resisting elements**

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Resistance to fire

RULES FOR EXTENDED APPLICATION OF TEST RESULTS OF FIRE RESISTING ELEMENTS

Revision 1, 2013-10-08

This Technical Report can only be used for products covered by the EOTA ETAG 003 on Internal Partition Kits and is not suitable for the assessment of products in other product areas.

Part 1 - General requirements for extended application

1. Scope

This document and the rules contained within Part 2 have been developed by the Group of Notified Bodies - Fire Sector Group in response to a request for the European Fire Regulators Group to facilitate extended application in advance of the extended application standards for partitions being produced by CEN TC127.

The products currently covered in the annexes are:

Part 2 Partitions

Part 3 Glazed screens

2. Extended application

CEN TC 127 has defined extended application as:

“The outcome of a process (involving the application of defined rules that may incorporate calculation procedures) that predicts, for a variation of a product property and/or its intended end use application(s), a test result on the basis of one or more test results to the same test standard.”

The methodology adopted in the prediction of fire resistance performance is based on universally accepted rules, some of which incorporate calculation methods and some of which may be ‘agreed expert opinion’ based on ‘common technical appreciation between experts’. The basis of development of the rule varies according to the different philosophies employed for different elements.

Consequently, in order to reduce the likelihood of disagreement between Notified Bodies and to increase the acceptability of an extended application, any judgement outside the rules or agreed expert opinion cannot be considered as part of extended application.

3. General requirements

3.1 Supporting information

3.1.1 Primary Information

In order to undertake any extended application, suitable test evidence shall be supplied. Primary test evidence shall satisfy the following conditions:

- It shall have been generated by a body notified under the Construction Products Regulation as capable of testing or certifying such materials/products against the relevant standards.
- It shall have been generated from full tests carried out solely to European standards

3.1.2 Secondary information

Secondary evidence e.g. indicative tests to ENs, or full tests to existing national standards may also be used in support of EXAP in certain cases. The acceptability of using indicative tests is given in the relevant section and varies according to the different philosophies employed for different elements. General principles for the use of existing national tests are given in GNB-FSG document N 159. The default condition is to use only data produced by tests to European standards.

3.2 Permitted changes

3.2.1 General

The changes permitted in 3.2.2 and 3.3.3 are applicable without the need for justification. However, where the general principle cannot be applied e.g. for a particular product or product property, the restriction will be specified.

3.2.2 Interpolation

Interpolation between two measured fire performance parameters for a given range of a product property is permitted for all product properties where the relationship between the two measured fire performance parameters is linear. For non-linear relationships interpolation is not allowed.

3.2.3 Extrapolation

Extrapolation of any measured fire performance parameter is permissible for all product properties in either direction where the relationship between the two measured fire performance parameters is linear. For non-linear relationships extrapolation is not allowed.

3.2.4 Multiple changes

The number of changes that can be made using these rules varies according to the complexity of the rule and the type of construction being considered. For some constructions and some rules, multiple simple changes can be undertaken without any detailed consideration. However, for other types of construction and/or for more onerous changes, then sometimes only one change can be made. If more than one change is required then a further evaluation will be needed e.g. by a calculation. Some examples taken from the current annex on partitions are given below.

An example of multiple simple changes that can be carried out without further evaluation would be to increase the dimensions of a stud (width, thickness, but not length) in a partition up to 4 metres high, whilst also adding mineral wool insulation. These two changes do not interact to reduce the fire resistance of a partition and so both can be carried out.

An example of multiple changes that would require further evaluation would be to increase the thickness of the facings of the partition by up to 50% and to change the shape (cross section) of the stud. The ability of the modified studs to support the extra weight of the faces would need to be considered and calculated.

The extent to which each type of construction can have single or multiple changes applied is given in the appropriate annex for that product or in the referenced EXAP standard, respectively..

4. Procedure for undertaking extended application

The following steps must be followed:

- Collate the evidence from the various sources outlined in 3.1
- Apply the rule(s) from the appropriate annex
- Use linear interpolation/extrapolation as appropriate/required
- Report the extended application according to the requirements of section 5 below.

5. Contents of the extended application report

- Name and address of the Notified Body that is undertaking the extended application
- Name and address of the applicant and details of the extended application request
- Date, reference number and the testing laboratory for each test considered
- Calculations used in the evaluation process
- Drawings and specifications of the product variations approved
- Statement to indicate that the extended application has been carried out in accordance with these rules
- Specific rule(s) from the appropriate annex used to confer the extended application

RULES FOR EXTENDED APPLICATION OF FIRE RESISTING ELEMENTS

Part 2 – Rules for Partitions

1. Scope

This Part contains the extended application rules applicable to partitions of the stud and sheet type whereby a lightweight metal framework is covered with a layer(s) of board material on each face. Gypsum plasterboard is most commonly used for this purpose, but this annex is not limited to plasterboard faced partitions.

Partitions made from complete discrete units that are fixed together are outside the scope of this document.

Glazed screens consisting of a framework of timber or metal filled with panes of glass are also outside the scope of this document. These are covered in Part 3.

If the partition being considered includes glazed panels, then the rules for partitions given in this annex are applicable only to the partition part of the construction. Rules for extending the application of the glazed part of the construction are given in Part 3.

Reference should be made to the Fire Sector Group document: Rules for Extended Application of Test Results of Fire Resisting Elements which should be read in conjunction with this annex.

2. Permitted changes

2.1 General

The types of changes permitted given in the Fire Sector Group document: Rules for Extended Application of Test Results of Fire Resisting Elements are also applicable to partitions.

2.2 Multiple changes

The number of changes that can be made using the rules in this annex vary according to the complexity of the rule and the number of modifications being considered. The rules given below have been divided into two types: 'simple' and 'complex'.

For the 'simple' rules (no shading) multiple changes can be undertaken. It is possible to make one, some or all the changes without any without any detailed consideration or calculation.

For the 'complex' rules (shaded grey) then a calculation method needs to be applied. If more than one change is required, then the calculation method must be applied to the partition after all the proposed changes have been made.

Where the required changes include a mixture of 'simple' and 'complex' rules, then the calculation method must also be applied after all the proposed changes have been made.

3. Rules

ITEM TO BE CHANGED	SUPPORTING EVIDENCE REQUIRED	TYPE OF EXAP TO BE UNDERTAKEN	RULE OR CALCULATION METHOD TO PERFORM EXTENDED APPLICATION	LIMITATIONS/ COMMENTS
CHANGES IN COMPONENTS				
Increase in size of stud section	Full EN test of partition with stud on which EXAP is based	Rule	The dimensions of the section of a stud (vertical member) may be increased without limitation	Increase in size allowed automatically
Change in shape of stud section	Full EN test of partition with stud on which EXAP is based including extra temperature measurements as required by the calculation method	Rule incorporating calculation method	The shape of the section of a stud (vertical member) may be changed provided that the new section is shown by calculation in accordance with the relevant Eurocode to be as strong as the stud tested	Change in shape or size shall neither result in any decrease in bending stiffness nor in any increase in thermal induced bowing. Calculation in accordance with the relevant Eurocode is applied at elevated temperatures.
Increase in thickness of board/facings	Full EN test of partition with board on which EXAP is based	Rule	<p>The thickness of the facings of a partition with non-metallic faces may be increased by up to 50% provided the length of the fixings for the facings (boards) are increased pro-rata. Maximum height of partition restricted to 3m. Metallic facings excluded.</p> <p><i>Existing national test data may be used to justify increases in excess of those given above and metallic faces</i></p>	<p>Consideration may be needed on ability of partition framework to support extra load of thicker facings – hence limit of 50% thickness increase and 3m height. Metallic facings excluded due to increased propensity to induce bowing.</p> <p><i>Existing national test data must demonstrate that changes have no detrimental effect.</i></p>

ITEM TO BE CHANGED	SUPPORTING EVIDENCE REQUIRED	TYPE OF EXAP TO BE UNDERTAKEN	RULE OR CALCULATION METHOD TO PERFORM EXTENDED APPLICATION	LIMITATIONS/ COMMENTS
CHANGES IN COMPONENTS				
Inclusion of mineral wool insulation (up to 4m height)	Full EN test on partition without insulation	Rule	Partitions tested without mineral wool insulation infill may have mineral wool added without restriction.	Height limited to height tested (normally 3m)
Inclusion of mineral wool insulation (>4m height)	Full EN test on partition without insulation	Rule	<i>Existing national test data may be used to justify mineral wool infill for heights in excess of 4m up to height tested.</i>	<i>Existing national test data must demonstrate that inclusion of mineral wool has no detrimental effect.</i>
INCREASE IN HEIGHT				
Increase in height (above 4m)	Full EN test of partition system	Rule	<i>Existing national test data may be used to justify heights increases in excess of 4m up to height tested.</i>	<i>Existing national test data must demonstrate that increase in height over 4m has no detrimental effect.</i>

RULES FOR EXTENDED APPLICATION OF FIRE RESISTING ELEMENTS

Part 3 – Rules for glazed screens

1. Scope

This Part contains the extended application rules applicable to glazed screens consisting of a framework of timber or metal filled with panes of glass.

Where a glazed screen is part of a partition, then the rules given in this annex are applicable only to the glazed part of the construction. Rules for extending the application of the partition part of the construction are given in Part 2.

The rules are fully described in EN 15254-4 and reference is made to this standard.